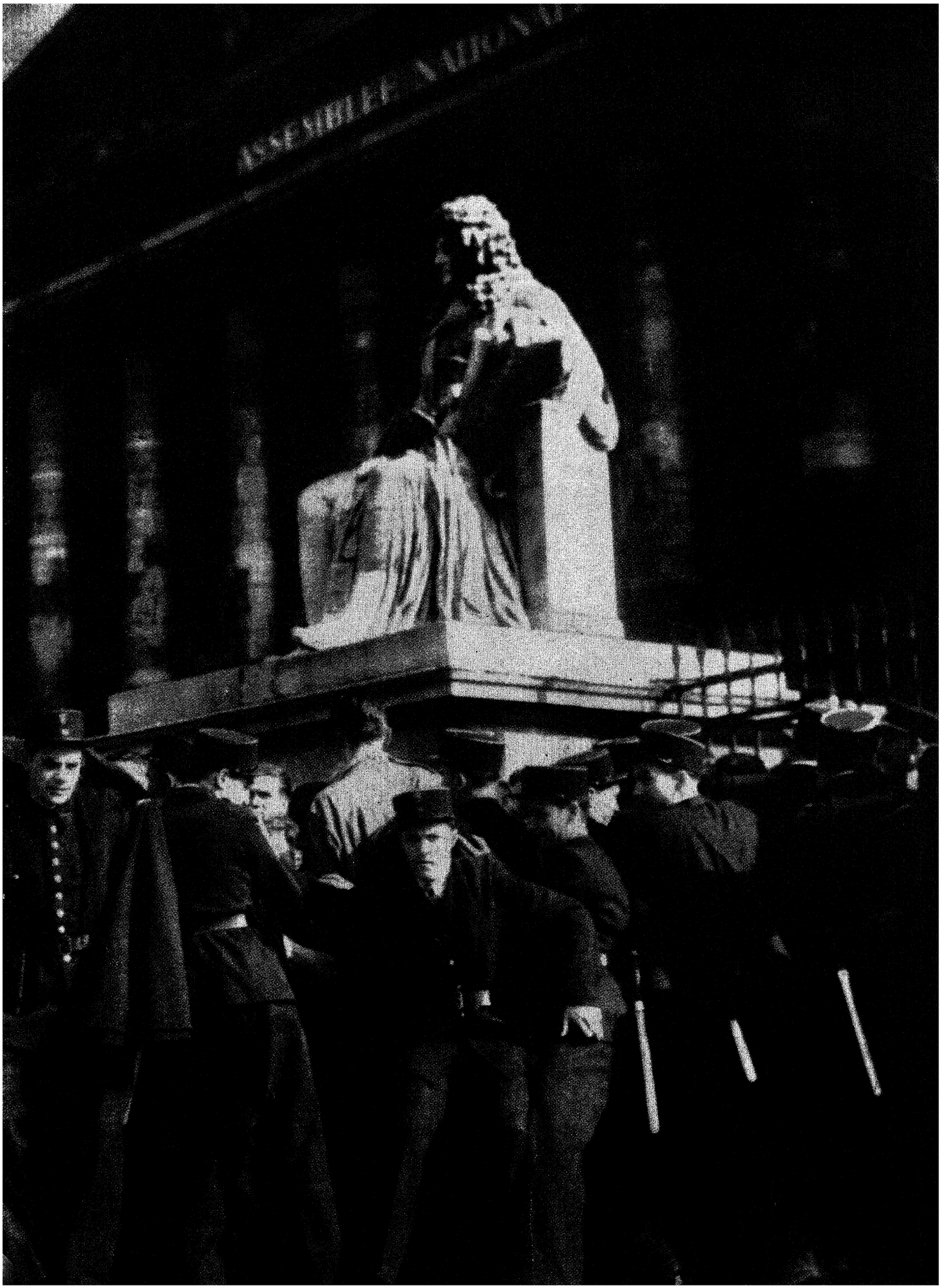
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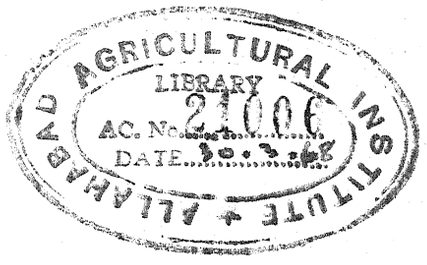
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TABLE OF CONTENTS

List of Illustrations and Acknowledgment of Copyright . v
Introduction viii
Editors and Contributors ix
Calendar, 1948 xxii
Calendar of Events, 1947 1
Britannica Book of the Year 17
Index 823

LIST OF ILLUSTRATIONS

(Acknowledgment of Copyright is to be found in the Parentheses. Asterisks denote Illustrations from *Life*)

Accidents
Mercury vapour lamps (Courtesy, Westinghouse Electric Corp.) 19
Advertising
Anti-Quisling advertisement (Courtesy, Scripps-Howard Newspapers and Lennen & Mitchell, Inc., Advertising Agency). . . . 20
Diamond advertisement (Courtesy, De Beers Consolidated Mines, Ltd., and N. W. Ayer & Son, Inc.) 21
Agricultural Research Administration
Soil-fitting car (U.S.D.A. Photo by Forsythe) . 24
Agriculture
Soviet rural laboratory (Sovfoto) 26
Combines gathering wheat in North Dakota (Acme) 27
Airports and Flying Fields
Installing G.C.A. equipment, Washington, D.C. (Press Association, Inc.) 34
Air race contestants at Cleveland (Press Association, Inc.). 35
Alaska, Ladd field at Fairbanks (George Skadding)* 36
Alberta, oil storage tanks in (Acme) 37
Alimentary System, Disorders of the
Habitat of hosts to schostosoma (Reprinted by courtesy of the publisher from a paper by T. B. Magath and D. R. Mathieson in the *American Journal of Hygiene* for March 1946) 40
American Federation of Labor
Labour day rally in Chicago (Acme) 45
American Legion parade in New York city (International) 46
American Literature
Eleanor Clark (Courtesy, Doubleday & Co., Inc., and Carson-Ruff Associates, acting for the American Academy of Arts and Letters; photo by Lotte Jacobi) 49
Robert Lowell (Courtesy, Harcourt Brace & Co., and Carson-Ruff Associates, acting for the American Academy of Arts and Letters; photo by Arni) 49
Angling
Bluefin tuna catch (Press Association, Inc.). . 53
Anthropology
Fossilized skull of Tepexpan Man (Juan Guzmán) 55
Reconstructed head of Tepexpan Man (Courtesy, Leo Steppat; photo by Steve Zweig, Washington, D.C.) 55
Anti-Semitism
Vandalized shop in Liverpool (Press Association, Inc.) 57
Arabian-American Oil Co. officials entertaining King Ibn-Sa'ud (David Douglas Duncan)*. 58
Arab members of a Trans-Jordan mechanized army unit patrolling the Palestine border (International) 17
Archaeology
Lacandone and date glyph (Photo by Giles Greville Healey) 60
Excavations at Eridu, Iraq (Courtesy, Directorate-General of Antiquities, Iraq) 61
Marble bust of a Roman (Courtesy, The American School of Classical Studies at Athens) 62
Cist graves in the U.S.S.R. (Sovfoto) 63
Archery contestants in women's tournament (Acme) 64
Architecture
Tishman building (Rudolph Leppert, Jr.) . . 65
Proposed U.N. headquarters (Official United Nations Photo; courtesy, Department of Public Information) 67
Plaza Hotel (Loomis Dean)* 67
Cleveland Jewish centre (Courtesy, Eric Mendelsohn; photo by Dean Stone, San Francisco, Calif.) 67
Private home in Florida (Courtesy, Joseph Janney Steinmetz) 67
Commercial art studio (Courtesy, Kling Studios, Inc.) 68
Argentina
Opening of the International bridge (Press Association, Inc.). 70
Señora Perón in Rome (Press Association, Inc.) 71
Armies of the World
U.S. soldier testing gas mask (Press Association, Inc.) 73
Dog team hauling a "casualty" in Alaska (Press Association, Inc.). 75
Art exhibition in Greenwich Village, N.Y. (Acme) 78
Astronomy
Cameras used during solar eclipse (Copyright, N.G.S. from *National Geographic Magazine*) 81
Atomic Energy
Laboratory rats (F. W. Goro)* 83
U.N. Atomic Energy commission (Official United Nations Photo; courtesy Department of Public Information) 85
Brookhaven National laboratory (Press Association, Inc.). 85
Measurement work on fission products (Acme) 85
Blood check for participants of Bikini test (Press Association, Inc.). 85
Attlee, Clement (International) 3
Australia, surveying coast of (Australian News and Information Bureau, New York, N.Y.) 87
Austria, cutting down old trees in (Press Association, Inc.) 89
Automobile Industry
Rear-engined Tucker '48 (Acme) 90
Rovin flat-twin car (European). 91
Automobile Racing
Finish line at Indianapolis (Press Association, Inc.) 92
Aviation, Civil
The "Reynolds Bombshell" (Press Association, Inc.) 94
Testing ice-coated engine (Press Association, Inc.) 95
Nene-Lancastrian (Press Association, Inc.). . 97
Lightning generator (Acme) 97
The Speedpak (Courtesy, Lockheed Aircraft Corp., Burbank, Calif.) 97
Inauguration of global passenger service (Acme) 97
Aviation, Military
Robot plane control panel (Press Association, Inc.) 99
McDonnell "Banshee" (Official U.S. Navy Photo) 99
Martin "Mercator" (Courtesy, *Aero Digest* and the Glenn L. Martin Co.) 99
Lockheed "Shooting Star" (Courtesy, Lockheed Aircraft Corp., Burbank, Calif.) . . . 99
Douglas "Skystreak" (Courtesy, Douglas Aircraft Co., Inc.). 99
The "Betty-Jo" (Press Association, Inc.) . . 100
Fido (Official U.S. Army A.A.F. Photo) . . . 101

Bacteriology
The capacitron (F. W. Goro)* 104
Bank workers picketing in the rain (Acme) . . 107
Baseball
Al Gionfriddo's outstanding catch (Acme) . . 111
All-star game at Chicago (Courtesy, *The Chicago Sun*) 112
Basketball
Utah vs. Kentucky (Press Association, Inc.). 115
Belgian veterans rioting (Press Association, Inc.) 117
Berlin, new store façade in (Acme) 118
Bevin, Ernest (Press Association, Inc.) 3
Bierut, Boleslaw (Wide World) 2
Billiard shot, Willie Hoppe demonstrating a (Press Association, Inc.). 120
Biochemistry
Isolators of polio virus (Press Association, Inc.) 122
Black market transaction in Paris (Dorka—Pix from Publix). 124
Book Publishing
A. J. Toynbee at Bryn Mawr (Courtesy, Bryn Mawr College; photo by Martin Hyman) . 127
Boxing match between Rocky Graziano and Tony Zale (Press Association, Inc.). . . . 130
Boy scouts sailing for France (Acme) 131
Brazil
Closing down a Communist building (International) 132
Rubber sheeting machinery (Courtesy, U.S. Office of International Trade) 133
Bread and Bakery Products
Turning in French wheat reserves (Acme) . . 134
Bridges
Cradling the "Biggest Inch" (Wide World) . 136

Bridges—*Continued*
Widened Bronx-Whitestone bridge (Courtesy, Triborough Bridge and Tunnel Authority) . . . 137
Brozovich, Josip (Tito) and Georgi Dimitrov (Press Association, Inc.) . . . 144
Budget message being brought to congress (Press Association, Inc.) . . . 146
Building and Construction Industry
The California Cabin (Ralph Crane from Black Star)* . . . 148
Prefabricated parts in England (British Combine) . . . 149
Bulganin, Nikolai (International) . . . 3
Bulgarian currency exchange (David Douglas Duncan)* . . . 150
Business Review
Newburyport merchants (Robert W. Kelley)* . 153
Illinois postwar factory (H. G. Walker)* . . . 155

Camp Fire girl planning a trip (Courtesy, Camp Fire Girls, Inc.; photo by J. Galvin) . . . 160
Canada
Mackenzie King receiving citizenship (Press Association, Inc.) . . . 161
Pres. Truman at Ottawa (National Film Board of Canada, Ottawa) . . . 163
Signal station at Ft. Churchill (Press Association, Inc.) . . . 164
Canals and Inland Waterways
Concrete siphon section being built (Acme) . 167
Canning, Berkeley community centre for (U.S. D.A. Photo by Forsythe) . . . 169
Cartography
Esso map worker (Courtesy, Standard Oil Co. [N.J.]; photo by Corsini) . . . 171
Cartoons
"A Limit to His Patience" . . . 606
"Another Veteran in Need of New Housing" . 714
"Berserk" . . . 473
"Blessed Are the Peacemakers" . . . 808
"Bread or a Bigger Jailer" . . . 342
"By the Throat" . . . 192
"Careful!" . . . 716
"Double Talk" . . . 147
"He's Forgotten the Rest of the Act" . . . 608
"How do I Look?" . . . 735
"Mind You, We Farmers Are Notorious Grumblers" . . . 29
"Now We Can Deliver Reparations from Current Production" . . . 644
"Sifting 'Em Out" . . . 759
"Signs of the Times" . . . 814
"Still in Session" . . . 152
"Strip Mining" . . . 429
"The Taskmaster" . . . 316
"The Universal Query" . . . 82
"The Untouchable" . . . 154
"'Til Death Do Us Part" . . . 241
"Trying to Make Both Ends Meet" . . . 404
"Wearied and Getting Nowhere" . . . 748
"You Gambled But I Paid" . . . 18
Cattle
Trenches for burying infected Mexican cattle (U.S.D.A. Photo by C. H. Emmons) . . . 173
Idaho dairy herd (Courtesy, U.S. Bureau of Reclamation, Division of Information; photo by Rasmussen) . . . 174
Charts
Cotton production, U.S. . . . 228
Durable and nondurable goods, industrial production, U.S. . . . 155
Employment and pay rolls in manufacturing industries, U.S., 1919–47 . . . 787
Farm income, gross, U.S. . . . 25
Food production, U.S. . . . 28
Gold production, world . . . 347
Labour force trends, U.S. . . . 178
Lynchings, U.S. . . . 453
National Security, U.S. organization for (Courtesy, Office of the Secretary of Defense) . 760
Newspaper advertising linage, U.S. . . . 22
Petroleum production, world . . . 580
Prices, wholesale, U.S. . . . 608
Silver production, U.S. . . . 673
Steel production, U.S. . . . 410
Stocks, trading in, U.S., 1929–47 . . . 698
Stocks, sales and prices of, U.S. . . . 699
Veterans in all hospitals, U.S., 1919–47 . . . 778
Chemistry
Robert B. Woodward (Courtesy, Harvard University; photo by Paul Southwick) . . . 182
Elisabeth M. Ackermann (Courtesy, Westinghouse Electric Corp.) . . . 183
Chemotherapy
Testing promin (International) . . . 185
Chess tournament at Blaine, Wash. (Press Association, Inc.) . . . 187
Chiang Kai-shek signing document for new constitution (Acme) . . . 188
Children's Books
Jacket design for *The Little Island* (Courtesy, Doubleday & Company, Inc.) . . . 191
Child Welfare
Italian slum courtyard (Press Association, Inc.) . . . 193
Underfed German youngsters (Wide World) . 193
Spraying Japanese children with DDT (Acme) . . . 193
Hungry Rumanian children (Acme) . . . 193
Chilean troops searching workers (Press Association, Inc.) . . . 195
China
Student demonstration in Nanking (Press Association, Inc.) . . . 196
Evacuation of Yenan (George Alexanderson from *The New York Times*)* . . . 197
Civil Liberties
Students demonstrating at Albany, N.Y. (Press Association, Inc.) . . . 201
Clay, Lucius D. (International) . . . 2
Clements, Earle C. (Photo by Rieger) . . . 423
Clothing Industry
German women's wear samples (Walter Sanders)* . . . 204
Coal
Liquid fuels pilot-plant (Sam Shere)* . . . 205
Vigil at English mine (Keystone-Illustrated)* . 207
Coast guardsmen making a rescue (Press Association, Inc.) . . . 209
Communist cell in Italy (Press Association, Inc.) 215
Congress of Industrial Organizations
Longshoremen in sympathy strike (International) . . . 221
Cripps, Sir Stafford (Acme) . . . 11
Cuban militia searching for contraband arms (Acme) . . . 231
Cycling
Spectators' bicycles at a London cycling meet (Press Association, Inc.) . . . 233
Czechoslovakia
Reconstruction in Lidice (Black Star) . . . 234

Dams
Sixty-ton "Spider" (Acme) . . . 236
Dance
"Letter to the World" (Philippe Halsman) . 237
Pas de Deux from "The Nutcracker" (Courtesy, Ballet Theatre) . . . 238
Democracy poster used in Japan (Wide World) . 245
Denmark, royal family of (Press Association, Inc.) 247
Disasters
Rescue work at Texas City (Courtesy, *The Houston Post;* photo by Caroline Valenta) . 254
Miners' relatives at Centralia, Ill. (Johna Pepper—Pix from Publix) . . . 255
Dominican Republic, nonsecret balloting in the (Wide World) . . . 256
Durocher, Leo (Press Association, Inc.) . . . 6

Economics
Council of Economic Advisers (Press Association, Inc.) . . . 261
Education
Buffalo teachers' strike (Press Association, Inc.) . . . 263
Coeducation in Japan (Wide World) . . . 265
Crowded lecture hall (Margaret Bourke-White)* 265
German elementary school class (Lennart Nilsson from Black Star) . . . 265
British teacher trainees (British Information Services) . . . 265
Egyptians celebrating end of British occupation in Cairo (Press Association, Inc.) . . . 268
Eisler, Gerhart (International) . . . 2
Eisenhower, Dwight D. (Press Association, Inc.) 7
Elections
Wrecked print shop in Warsaw (Press Association, Inc.) . . . 271
Electrical Industries
Testing mercury lighting (Courtesy, Westinghouse Electric Corp.) . . . 273
Construction work on a generator (Courtesy, Westinghouse Electric Corp.) . . . 273
German circuit breaker (Press Association, Inc.) . . . 273
Giant locomotive (Courtesy, General Electric Co.) . . . 273
Electronics
Radar reflector used in surveying (Courtesy, Standard Oil Co. [N.J.]; photo by McReynolds) . . . 277
Elizabeth, Princess (International) . . . 10
Elizabeth, Princess, and Prince Philip after their marriage (Acme) . . . 279
Entomology
Chemist analyzing milk for insecticide (U.S. D.A. Photo by Forsythe) . . . 283
Epidemics
Egyptians filtering water (International) . . 285
Etching
"Fatherless" (Csoka) (Courtesy, Associated American Artists; photo by Colten Photos) 286
Exchange Control and Exchange Rates
Dollar exchange in Shanghai (International) . 289
Exploration and Discovery
Antarctic mountains (Official U.S. Navy Photo) . . . 293

Fashion and Dress
Velveteen skirt (Courtesy, *Harper's Bazaar;* photo by Genevieve Naylor) . . . 298
"Cabaret" dress (Courtesy, *Harper's Bazaar;* photo by Louise Dahl-Wolfe) . . . 298
Domino coat (Courtesy, *Harper's Bazaar;* photo by Leslie Gill) . . . 298
Evening dress (Courtesy, *Harper's Bazaar;* photo by Kay Bell) . . . 298
Federal Bureau of Investigation, fingerprint files of (Wide World) . . . 300
Fencing match between Abraham Balk and Robert Kaplan (Acme) . . . 305
Fisheries
Clocking a snail's pace (Bernard Hoffman)* . 309
Floods and Flood Control
Iowa farmland under water (International) . 311
Florida, wind-swept trees in (International) . . 313
Flour being unloaded in Greece (European) . . 314
Food Supply, World
Slovakian woman baking bread (Press Association, Inc.) . . . 317
Football
All-Stars vs. the Chicago Bears (Acme) . . . 319
Forests, building access roads to (U.S.D.A. Photo) . . . 324
Forrestal, James (International) . . . 10
France
Gendarmes curbing rioting Parisians outside the National Assembly, June 1947 (Press Association, Inc.) *Frontispiece* ii
General strike at Nice (Acme) . . . 327
Farmers harvesting grain (Wide World) . . 328
Fruit
Grapefruit rotting in Arizona (Acme) . . . 333
Fur dealers in Leningrad (Sovfoto) . . . 336

Gasperi, Alcide de (Wide World) . . . 6
Gaulle, Charles de (International) . . . 11
Geneticists transplanting eye tissue (Herbert Gehr)* . . . 338
Geology
Blasting for oil shale (Wide World) . . . 339
Germany
Discharged POWs (Press Association, Inc.) . 343
Dismantling steel girders in soviet zone (Press Association, Inc.) . . . 344
Gide, André (International) . . . 15
Golf
Lew Worsham teeing off in St. Louis (Press Association, Inc.) . . . 348
Great Britain
Queue for coal rations (British Combine) . . 351
Mail trucks idled by teamsters' strike (Press Association, Inc.) . . . 352
Greece
Building military emplacements (Press Association, Inc.) . . . 355
Captured guerrillas (Press Association, Inc.) . 355
Awaiting casualty lists (Keystone View) . . 355
Village raided by guerrillas (Press Association, Inc.) . . . 355
Gromyko, Andrei (International) . . . 7

Hall, John H. (Courtesy, Gladys Gilbert Studio, Portland, Ore.) . . . 560
Heart and Heart Diseases
Patient under X-ray fluoroscope (Albert Fenn)* 362
Hoover, Herbert (International) . . . 3
Horse Racing
Assault in race at Aqueduct (International) . 366
Horses
Morgan brood mares (U.S.D.A. Photo by Knell) . . . 367
Hospitals
Mental patients (European) . . . 369
Housing
Stuyvesant Town and Peter Cooper Village, N.Y. (Courtesy, Metropolitan Life Insurance Co.; Thomas Airviews Photo) . . . 371
Hughes, Howard (International) . . . 10
Hungary, peace monument in (Press Association, Inc.) . . . 374

Ice Skating
Barbara Ann Scott in Switzerland (Press Association, Inc.) . . . 377
Immigration
Italians leaving Genoa (Keystone View) . . . 380
India
Distribution of gifts at Baroda (European) . 383
Destruction in Lahore (Press Association, Inc.) 383
Session of Bengal legislature (Press Association, Inc.) . . . 383
Crowded refugee train (Associated Press Ltd.) 383
Infantile paralysis victim (Courtesy, *Science Illustrated;* photo by John Corcoran) . . . 388
Inter-American Defense conference, plenary session of (Press Association, Inc.) . . . 394
Interior Decoration
California store interior (Photo by Roger Sturtevant) . . . 396
International law, U.N. committee on (Official United Nations Photo; courtesy, Department of Public Information) . . . 399
Iron and Steel
Blast furnace at South Chicago (Fred G. Korth) . . . 411
Irrigation, Idaho land reclaimed by (Courtesy, U.S. Bureau of Reclamation; photo by Rasmussen) . . . 412
Italy
Women at mass funeral in Sicily (Press Association, Inc.) . . . 415
Construction on subway in Rome (Press Association, Inc.) . . . 416

Japan
Family of tenant farmers (Official U.S. Signal Corps Photo from Press Association, Inc.) . . . 417
Dance pantomime at Hiroshima (Press Association, Inc.) . . . 418
Jet Propulsion
Exhaust end of a ramjet (Courtesy, Standard Oil Co. [N.J.]; photo by Parks) . . . 419
Jewish Religious Life
Rededicating synagogue in Munich (Press Association, Inc.) . . . 421
Jinnah, Mohammed Ali, and other Indian leaders, at Karachi (Press Association, Inc.) . 422

Koreans giving the Communist salute (Press Association, Inc.) . . . 425

Labour Unions
Mock Stalin figure (Leonard McCombe) *. 426
Libraries
Sorting books at University of Vienna library (Press Association, Inc.) . . . 441
Lilienthal, David (International) . . . 6
Liquors, Alcoholic
Unloading shipment of Scotch whisky (Acme) 445

Livestock
Crossbred calf (U.S.D.A. Photo by Forsythe) 448
London
Work on new House of Commons (Wide World) 449
Louis, Joe (International) 15
Luckman, Charles (International) 14

Machinery and Machine Tools
Miniature rolling mill (Courtesy, Westinghouse Electric Corp.) 455
Maine, blazing home in (Acme) 456
Maps
Antarctica: Operation "Highjump" 294
Communist strength in Europe, 1947 (After a map by V. Gray in *The New York Times*) 216
India and Pakistan 384
Inter-American security zones 395
Palestine, U.N. partition plan for. 568
Russia's new cities (Courtesy, *United Nations World*) 742
Territorial revisions of 1947 Paris peace treaties 575
Marines, U.S., leaving China (Press Association, Inc.) 461
Marshall, George C. (Press Association, Inc.) . 7
Mathematics
The Mark II (Courtesy, The Harvard University Press; reprinted from *The Proceedings of a Symposium on Large Scale Digital Calculating Machinery*) 466
Medicine
Artificial kidney (F. W. Goro)* 469
Dr. H. B. Taussig examining "blue" children in Paris (Agip from Black Star) 470
Mexico, fiesta dances in (European) 479
Michael I (Wide World) 15
Mikolajczyk, Stanislaw (International) 14
Molotov, Vyacheslav (International) 10
Montreal, arrival of immigrants in (National Film Board of Canada, Ottawa) 490
Motion Pictures
Shoe-Shine (Courtesy, Lopert Films, Inc.) . . 493
Gentleman's Agreement (Courtesy, 20th Century-Fox Film Corp.) 495
A Double Life (Courtesy, Universal-International Pictures) 495
Great Expectations (Courtesy, J. Arthur Rank Productions) 495
The Farmer's Daughter (Courtesy, RKO Radio Pictures, Inc.) 495
The Bachelor and the Bobby-Soxer (Courtesy, RKO Radio Pictures, Inc.) 495
Miracle on 34th Street (Courtesy, 20th Century-Fox Film Corp.) 495
Munitions of War
Three-inch anti-aircraft gun (Official U.S. Navy Photo) 504
Six-inch anti-aircraft gun (Official U.S. Navy Photo) 504
Improved German V-1 buzz bomb (Acme). . 504
The KDD-1, jet target drone (Acme) . . . 504
Music festival in Montreal (National Film Board of Canada, Ottawa) 509

Nagy, Ferenc (International) 6
National Parks and Monuments
Bronze statue of Thomas Jefferson (Acme) 515
Navies of the World
Delivering food to Little America IV (Official U.S. Navy Photo) 516
Netherlands troops landing in East Java (Press Association, Inc.). 517
Negroes, American
Jackie Robinson (*N.Y. Daily News* Photo) . 519
Nehru, Jawaharlal (British Official Photo from British Information Services) 11
Netherlands Indies
Two captured machine gunners (Press Association, Inc.) 521
News photographs, prize-winning
"Hell on Earth" (Photo by Johnny Thompson from Acme Newspictures) 526
"Ten Below" (*Chicago Tribune* Photo by Tom Johnson) 527
"With the Greatest of Ease" (*Chicago Tribune* Photo by Chester Gabrysiak) 527
New York City
Lineup for smallpox vaccination (International) *531
Nu, Thakin (Press Association, Inc.) 14

Occupied Areas, Administration of
German camera manufacturer (Walter Sanders)* 555
Oceanography
Assembling a "coring tube" (Copyright, N.G.S. from *National Geographic Magazine*) . . . 557
Odom, William P. (International) 10
Ottawa, Pres. Truman in (International) . . . 561

Painting
"The Village Street" (Stiasny) (Courtesy, Evelyn Stiasny and the School Art League of New York City) 564
"Marine Still Life" (Sepeshy) (Courtesy, the Carnegie Institute and Dr. and Mrs. George Kamperman) 564
"End of an Era" (Siporin) (Courtesy, The Downtown Gallery, New York) 564
"Flute Soloist" (Weber) (Courtesy, Pepsi-Cola's Fourth Annual "Paintings of the Year" Exhibition) 564
Palestine
Jewish refugees at Haifa harbour (Press Association, Inc.) 567
Members of the Stern gang (Gidal from Black Star) 567
Paraguayan revolutionists at prayer (Jean Manzon from European) 571
Paris, scene during press strike in (Press Association, Inc.) 572
Perón, Señora Eva Duarte (Press Association, Inc.) 7
Petrillo, James C. (International). 14
Petroleum
Derricks on California tidal oil land (Eliot Elisofon)* 579
Philippines, Republic of the
Filipino women being paid for aid to U.S. (International) 582
Photography
Chicago's west side (Wayne Miller) 585
Physics
V-2 rocket (Courtesy, U.S. Naval Research Laboratory) 587
184-in. synchro-cyclotron (Courtesy, Radiation Laboratory, University of California, Berkeley, Calif.) 588
Plastic alloy being tested (Courtesy, Standard Oil Co. [N.J.]; photo by Parks) 593
Poland
DPs in transit (John Vachon from Black Star) 595
Barge workers on the Vistula (Acme) 596
Post Office
Air mail delivery in Alaska (Official U.S. Navy Photo from Press Association, Inc.) 601
Prisoners of war leaving camp at Dachau (Official U.S. Signal Corps Photo) 612
Protestant Episcopal Church
Induction of U.S. presiding bishop (Press Association, Inc.) 613
Psychology
One-way observation dome (Herbert Gehr)* . 615

Radio
Broad-band relay station (Courtesy, American Telephone and Telegraph Co.) . . . 624
Fred Allen and Jack Benny (Acme). 627
Railroads
Snowbound British locomotive (Press Association, Inc.) 632
"Train of Tomorrow" (Courtesy, General Motors Corp). 633
Rationing directory in London (Pat English)* . 634
Refugees
DP making marionettes (Wide World) . . . 639
German newsreel (Gerhard Gronefeld)* . . . 639
Jewish refugee children (Press Association, Inc.) 639
DPs moving to new camp in Italy (U.N.R.R.A. Photo by Romagnoli from Press Association, Inc.) 639
Religion
Canadian nuns in candlelight ceremony (Eileen Darby—Graphic House)* 642
Rennebohm, Oscar 802
Reuther, Walter (Press Association, Inc.) . . . 15
Rivers and Harbours
International Free Zone at New Orleans (Courtesy, Board of Commissioners, Port of New Orleans). 647
Roads and Highways
Studying road plans for Los Angeles (Wide World) 649
Roosevelt, Eleanor (Press Association, Inc.) . . 2
Rubber joint, a record-size flexible (Courtesy, The United States Rubber Company) . . 653

Saar, placard for union with France of the (Wide World) 658
Schuman, Robert (Press Association, Inc.). . . 15
Sculptor Ivan Mestrović at work on "Pieta" (Photo Vasari, Rome). 662
Selective Service
Veterans waiting to cash bonds (Press Association, Inc.) 665
Shipbuilding at Tosi yards in Italy (Wide World) 668
Shipping, Merchant Marine
The "Queen Mary" after reconditioning (British Information Services) 669
South Africa, Union of
King George VI and African queen mother shaking hands (Press Association, Inc.) . . 688
Spain, pageant honouring Señora Perón in (European) 691
Stocks and Bonds
Shareholders' meeting (Ralph Morse)* . . . 697
Striking studio workers at Hollywood morale meeting (Jack Birns—Graphic House)* . . 701
Sugar exchange in N.Y. (Acme) 702
Surgery being televised (Press Association, Inc.) 705
Surplus oil drums in the South Pacific (Courtesy, Standard Oil Co. [N.J.]) 706
Swimming meet in Seattle (Press Association, Inc.) 708
Switzerland, Olympic bobsled run in (Alfred Eisenstaedt from Pix)*. 709

Taft, Robert A. (International) 7
Telescope at Mt. Palomar (Courtesy, California Institute of Technology) 720
Televising Pope Pius XII (Wide World). . . . 721
Tennis
Ted Schroeder taking a spill (Press Association, Inc.)* 723
Theatre
Brigadoon (Photo by Vandamm) 727
All My Sons (Eileen Darby—Graphic House) 728
Thomas, J. Parnell (Press Association, Inc.) . 14
Thorez, Maurice (International) 2
Togliatti, Palmiro (International) 11
Tokyo, posting election returns in (International) 730
Track and Field Sports
Herb McKenley setting track record (Press Association, Inc.). 732
Truman, Harry S. (International) 3
Tsaldaris, Constantin (Press Association, Inc.) . 11
Tuberculosis, warning poster in Berlin on (European) 737
Turkish students building drainage ditch (Acme) 740

Union of Soviet Socialist Republics
Russians buying potatoes (Press Association, Inc.) 743
Rebuilding iron and steel works (Sovfoto) . . 744
Collective farmers threshing (D. Sholomovich —Sovfoto) 745
United Nations
Meeting of Economic and Social council (Acme) 751
Palestine commission in Tel Aviv (Press Association, Inc.). 751
Political prisoners at Salonika (Official United Nations Photo; courtesy, Department of Public Information) 751
Balkan Inquiry commission in Greece (Press Association, Inc.). 751
United Nations Relief and Rehabilitation Administration
Locomotive being shipped to China (Press Association, Inc.) 753
United States
Federal officials hearing Pres. Truman's foreign aid speech (Albert Fenn)* 755
"UMTEES" at Ft. Knox (Wide World). . . 757

Vegetables, federal inspection of (U.S.D.A. Photo by Forsythe). 775
Veterans' administration official visiting Vaughn hospital (Press Association, Inc.) 779
Vocational Rehabilitation, Office of
Handicapped veterans making automobile tags (Acme) 786

Wallace, Henry A. (International) 6
War crimes trial of Buchenwald officials (Press Association, Inc.). 789
Wheat, Russian farmers threshing (Sovfoto) . . 797
Wine fair at Macon, France (Press Association, Inc.) 801
World War II
Dumping anti-aircraft shells (Wide World) . 807
U.S. war dead lying in state (International) . 809
Gen. George C. Marshall in Moscow (Sovfoto) 811
Atlantic reserve fleet (International) 813

X-ray generator (Courtesy, *Federal Science Progress*, from Office of Technical Services, U.S. Department of Commerce). 815

Yachting vessels preparing for international races (Press Association, Inc.) 817
Yugoslavia, Tito reviewing celebration in (Press Association, Inc.). 819

Zoology
Water-opossum (yapock) at Bronx zoo (Press Association, Inc.). 821

INTRODUCTION

THIS, *the eleventh issue of the Britannica Book of the Year will be distributed to more than 300,000 subscribers. For close to a decade, year after year, this volume has been well within the best-seller range.*

The wide distribution is in part a result of a developing and an essential public interest in the leaders and in the events which help shape the lives of peoples everywhere. Newspapers are read. Radio reports are closely followed day by day. But since radio reports are forgotten and newspapers are thrown away, there is apparently a need for a more permanent record of contemporary history. In free countries that need may be fulfilled.

Books prepared by scholars years hence may well be more accurate accounts of the year 1947, because they will have been written with the knowledge of what happened not only in 1947, but in the years after, and therefore will be written, one hopes, with greater penetration and objectivity. Books by historians of the future will lack, however, the excitements of one written and produced on the run by those who were daily affected by the year's changes.

More than 500 contributors of a variety of opinion and experience have written this book. It is their handiwork. It is also, in a sense, the handiwork of every contemporary, because to the best of their ability the authors have reflected the experience of each one who reads.

The Book of the Year is the diary of the free citizen. No official, no government censor, has modified it. And that is significant. For so long as any country permits the exchange of information without constraints, there is some hope for the emergence of a free and a peaceful world.

* * * * * * * * *

The Book of the Year was made not only by its authoritative contributors, but by the constantly watchful staff of the Editorial Department; by Miss Elsiebeth McDaniel and her assistants, Miss Martha Harriett Mullen, Miss Jean Mays and Miss Helen Julia Zeller, who marshalled the receipt and control of articles; by Mrs. Ruth Soffer, who assembled the illustrations; by the stylists and research checkers, Mrs. Jewel Braun Holahan, Miss Starr Spratt, Mrs. Ann S. Overton, Mrs. Ruth S. Rutherford, Mrs. Joyce Williams Ellis and Mrs. Melvina G. Hilland; by Miss Doreen Fae Rieke, who contacted the contributors on all queries in copy; by Mrs. Helga Buenger and Miss Caryl J. Opatrny, who recorded the flow of copy to and from the printers; by Miss Wilma Widdicombe, who laid the final page arrangements; by Miss Elaine M. Jost and Miss Mildred W. Benson, the indexers—all of whom worked under the general direction of Mrs. Mae H. MacKay and her two immediate assistants, Mrs. Harriet L. Milburn and Miss Lorene Lawson, to speed the articles to the presses.

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R.G.Ha. **Mount Holyoke College**
ROSWELL GRAY HAM. President, Mount Holyoke College, South Hadley, Mass.

R.G.M. **Paper and Pulp Industry**
R. G. MACDONALD. Secretary-Treasurer, Technical Association of the Pulp and Paper Industry, New York, N.Y.

R.Gs. **Co-operative Movement**
RICHARD GILES. Managing Editor, Cooperative News Service, National Cooperatives, Inc.

R.G.S. **California, University of**
ROBERT G. SPROUL. President, University of California, Berkeley, Calif.

R.Gz. **Music** (*in part*)
RUDOLPH GANZ. President, Chicago Musical College, Chicago, Ill.

R.H.Fn. **Argentina; Venezuela; etc.**
RUSSELL H. FITZGIBBON. Associate Professor of Political Science. University of California, Los Angeles, Calif. Author of *Cuba and the United States, 1900–1935; Outline of Latin American History.*

R.H.Ls. **Museums** (*in part*)
RALPH H. LEWIS. Assistant Chief, Museum Branch, National Park Service, U.S. Department of the Interior, Washington, D.C.

R.Hs. **Community Trusts**
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Ri.A.B. **Veterans' Organizations**
RICHARD A. BROWN. Executive Secretary, Veterans' Organizations Information Service, New York, N.Y.

R.Is. **Anaemia**
RAPHAEL ISAACS, M.D. Attending Physician in Haematology, Michael Reese Hospital, Chicago, Ill. Co-author of *Diseases of the Blood.*

R.J.B. **Archaeology** (*in part*)
ROBERT J. BRAIDWOOD. Assistant Professor of Old World Prehistory, The Oriental Institute and the Department of Anthropology, The University of Chicago, Chicago, Ill.

R.L.Cn. **Fisheries** (*in part*)
RACHEL L. CARSON. Information Specialist, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C.

R.L.Fo. **Accidents** (*in part*)
R. L. FORNEY. General Secretary, National Safety Council, Chicago, Ill.

R.L.Fs. **Duke University**
ROBERT LEE FLOWERS. President, Duke University, Durham, N. C.

R.L.St. **Colorado, University of**
ROBERT L. STEARNS. President, University of Colorado, Boulder, Colo.

R.Man. **Motion Pictures** (*in part*)
ROGER MANVELL. Research Officer, British Film Institute. Co-author of *Twenty Years of British Cinema.*

R.M.Fy. **Housing** (*in part*)
RAYMOND M. FOLEY. Administrator, Housing and Home Finance Agency, Washington, D.C.

Ro.B. **Zoology** (*in part*)
ROBERT BEAN. Director, The Chicago Zoological Park, Brookfield, Ill.

Ro.McG. **Baseball**
ROSCOE McGOWEN. Sports writer, *The New York Times,* New York, N.Y.

R.P.Bo. **Mathematics**
RALPH PHILIP BOAS, JR. Executive Editor of *Mathematical Reviews.*

R.P.Br. **Missouri**
RALPH P. BIEBER. Professor of History, Washington University, St. Louis, Mo.

R.P.S. **Bank for International Settlements**
ROBERT PHILIPPE SCHWARZ. Author of *Bretton Woods; L'Autriche de 1918 à 1925;* etc.

R.R.R.B. **Bowles, Chester**
ROBERT R. R. BROOKS. Dean, Williams College, Williamstown, Mass.

R.S.Cr. **Naval Academy, U.S.**
R. S. CRAIGHILL. Commander, U.S.N. Secretary, Academic Board, United States Naval Academy, Annapolis, Md.

R.S.T. **Munitions of War** (*in part*); **etc.**
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R.S.W.P. **Civil Liberties** (*in part*)
ROBERT SPENCE WATSON POLLARD. Author of *Conscience and Liberty; The New Education Act Explained.*

R.Tu. **Democratic Party; Republican Party; etc.**
RAY TUCKER. Writer of syndicated column, "The National Whirligig." Author of *The Mirrors of 1932; Sons of the Wild Jackass.*

R.W.Cr. **Radio** (*in part*)
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R.Wd. **Public Opinion Surveys**
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R.W.J.K. **Young Men's Christian Association** (*in part*)
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R.Wn. **Australia, Commonwealth of**
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S.A.L. **Prisons** (*in part*)
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S.C.Ha. **Dartmouth College**
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S.de la R. **Liberia**
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S.E.Sh. **Toronto, University of**
SIDNEY E. SMITH. President, University of Toronto, Toronto, Ont.

S.E.Ws. **Albania** (*in part*)
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S.Gn. **New Jersey**
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S.J.Bu. **Archives, National**
SOLON JUSTUS BUCK. Archivist of the United States.

S.L.S. **Clothing Industry**
STANLEY L. SIMONS. Editor, *The Clothing Trade Journal.* Director, Garment Technical Institute.

S.McC.C. **Federal Council of the Churches of Christ in America**
SAMUEL McCREA CAVERT. General Secretary, The Federal Council of the Churches of Christ in America.

S.McC.L. **International Labour Organization**
SAMUEL McCUNE LINDSAY. Professor Emeritus of Social Legislation, Columbia University, New York, N.Y. Author of *Railway Labor in the U.S.; Emergency Housing Legislation;* etc.

S.McG. **Texas**
STUART McGREGOR. Associate Editor, *The Dallas Morning News,* Dallas, Tex.

S.Nr. **Formosa; Manchuria; etc.**
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S.P.J. **Aviation, Military** (*in part*)
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S.R.S. **Glass**
SAMUEL RAY SCHOLES. Dean, New York State College of Ceramics, Alfred University, Alfred, N.Y.

S.S.H. **Stocks and Bonds** (*in part*)
SOLOMON S. HUEBNER. President, American College of Life Underwriters. Professor of Insurance and Commerce, Wharton School of Finance and Commerce, University of Pennsylvania, Philadelphia, Pa.

S.So. **Endocrinology** (*in part*)
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S.Sp. **Music** (*in part*)
SIGMUND SPAETH. Lecturer and Broadcaster. Author of *At Home With Music; Music For Fun; Read 'em and Weep;* etc.

S.Tf. **Radio** (*in part*)
SOL TAISHOFF. President, Editor and Publisher of Broadcasting Publications, Inc., Washington, D.C.

T.Bar. **Wealth and Income, Distribution of** (*in part*); **etc.**
TIBOR BARNA. Fellow, Nuffield College, Oxford, Eng. Author of *Redistribution of Incomes through Public Finance in 1937.*

T.C.Bl. **International Trade**
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T.E.S. **National Mediation Board**
TEDFORD EUGENE SCHOONOVER. Mediator, National Mediation Board, Washington, D.C.

T.E.U. **Political Parties, British; etc.**
T. E. UTLEY. Editorial staff, *The Observer,* London, England.

T.F.F. **Medicine** (*in part*)
T. F. FOX, M.D. Editor, *The Lancet,* London, Eng.

T.F.M-O. **Tokyo**
THOMAS FRANCIS MAYER-OAKES. Former Editor, the *International Quarterly.*

T.H.MacD. **Roads and Highways**
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T.Hr. **Switzerland** (*in part*)
THEODORE HALLER. London Correspondent, *Radio Berne.*

T.J.D. **Cycling; Lacrosse; etc.**
THOMAS J. DEAGAN, JR. Director of Public Relations, Chesapeake & Ohio Lines. Author of *This Is Public Relations.*

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T.S.P. **Texas, University of**
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T.T.S. **Nervous System**
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V.D.C. **Disabled American Veterans**
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W.A.Dw. **Fencing**
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W.B.Pu. **Presbyterian Church**
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W.D.K. **Christian Science**
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W.D.Mn. **Photography**
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W.E.Ga. **Disciples of Christ**
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W.E.Ry. **Price Administration, Office of**
WILLIAM E. REMY. Formerly Deputy Administrator for Enforcement, Office of Price Administration, Washington, D.C.

W.E.Ss. **New Hampshire**
WAYNE EDSON STEVENS. Professor of History, Dartmouth College, Hanover, N.H.

W.E.Th. **Permanent Joint Board on Defense (U.S. and Canada)**
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W.F.Br. **Urology**
WILLIAM F. BRAASCH, M.D. Professor of Urology, University of Minnesota Graduate School, Mayo Foundation, Rochester, Minn. Editorial Committee, *Journal of Urology.*

W.Ft. **Paraguay; etc.**
WESLEY FROST. Professor of International Relations, the American Institute for Foreign Trade, Phoenix, Ariz.

W.G. **American Federation of Labor**
WILLIAM GREEN. President, American Federation of Labor.

W.G.P. **Netherlands Indies**
WIBO G. PEEKEMA. Head of the Legal and Political Division of the Netherlands Ministry for Overseas Territories.

W.H.He. **Virgin Islands**
WILLIAM H. HASTIE. Governor of the Virgin Islands of the United States.

W.H.Se. **Protestant Episcopal Church**
WALTER H. STOWE. President, Church Historical Society. Historiographer of the Diocese of New Jersey. Author of *The Episcopal Church—A Miniature History.*

W.J.Bt. **Furs**
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W.J.C. **Railroads** (*in part*)
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W.Ju. **Shows, Animal** (*in part*)
WILL JUDY. Editor, *Dog World,* Chicago, Ill. Author of *Principles of Dog Breeding;* etc.

W.L.Be. **Eye, Diseases of**
WILLIAM L. BENEDICT, M.D. The Mayo Clinic, Rochester, Minn. Professor of Ophthalmology, University of Minnesota Graduate School, Mayo Foundation, Rochester, Minn.

W.L.T. **Intoxication, Alcoholic**
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W.McM. **Chemurgy**
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W.M.Pn. **Harvard University**
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W.Mr. **Pan American Union**
WILLIAM MANGER. Assistant Director, Pan American Union.

W.Pr. **Louisiana**
WALTER PRICHARD. François Xavier Martin Professor of Louisiana History, Louisiana State University, Baton Rouge, La.

W.P.S. **Genetics**
WARREN P. SPENCER. Professor of Genetics, College of Wooster, Wooster, Ohio.

W.S.Ad. **Telescopes**
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W.S.G. **Telephone**
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W.V.W. **Motion Pictures** (*in part*)
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W.W.B. **Indians, American**
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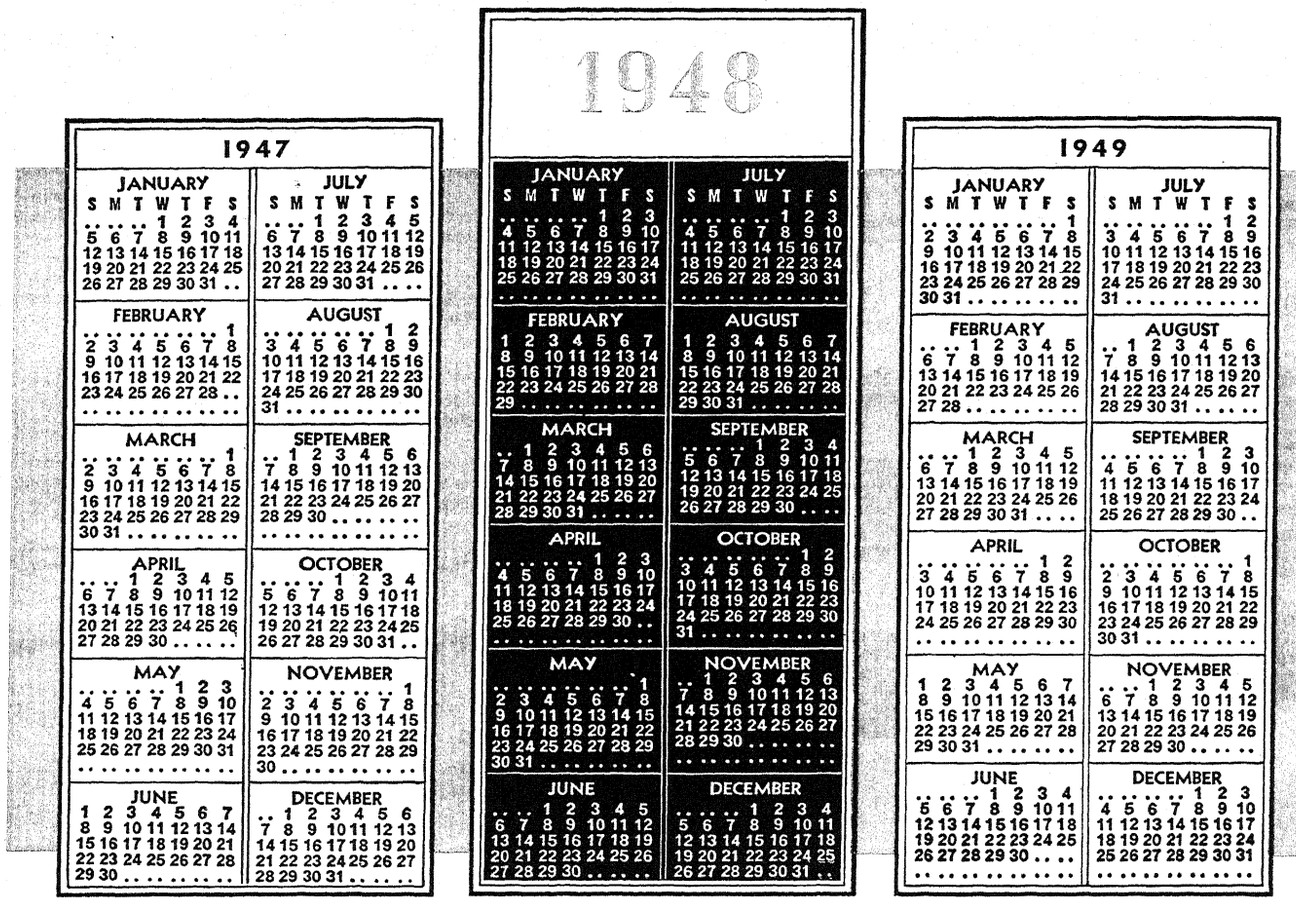
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W.W.M. **Astronomy**
WILLIAM WILSON MORGAN. Assistant Professor of Astronomy, The University of Chicago, Yerkes Observatory, Williams Bay, Wis.

W.W.Sh. **Shipping, Merchant Marine** (*in part*)
W. W. SMITH. Chairman, United States Maritime Commission, Washington, D.C.

X.
ANONYMOUS.



THE year 1948 of the Christian Era corresponds to the year of Creation 5708–5709 of the Jewish calendar; to the year 1367–1368 of the Mohammedan hegira; to the 172nd of the United States; and to the 180th year of the *Encyclopædia Britannica*.

JANUARY 1948

1 New Year's day.
4 Independence day, birth of the Republic of Burma, 1948.
6 Second session of 80th U.S. congress convenes.
6 Epiphany, or Twelfth Night.
8 Jackson day.
13 Festival of St. Veronica.
20 Eve of St. Agnes.
25 Septuagesima Sunday.
26 Foundation day, Australia.
27 Feast of St. Chrysostom.

FEBRUARY

2 Candlemas. Purification of the Virgin.
2 Ground-Hog day.
8 Quinquagesima (Shrove) Sunday.
10 Shrove Tuesday. Mardi Gras.
11 Ash Wednesday.
12 Georgia day, U.S.A.
12 Lincoln's birthday, 1809.
14 St. Valentine's day.
15 200th anniversary, birth of Jeramy Bentham, English philosopher.
22 Washington's birthday, 1732.
24 Purim (Jewish festival), 1st day.
24 Feast of St. Matthias.
24 100th anniversary, proclamation of the Second French Republic.

MARCH

1 St. David's day, patron saint of Wales.
2 Texas Independence day.
12 Girl Scout day, U.S.A.
15 Ides of March.
17 St. Patrick's day, patron saint of Ireland.
20 Equinox (4:57 P.M. Greenwich civil time), beginning of spring.
21 Palm Sunday.
25 Annunciation. Quarter day.
25 Maundy Thursday.
26 Good Friday. English bank holiday.
28 Easter Sunday.
29 Easter Monday. English bank holiday.
30 Seward day, Alaska.

APRIL

1 All Fools' day.
13 Thomas Jefferson's birthday, 1743.
14 Pan-American day.
19 Patriot's day, U.S.A.
19 Primrose day, England.
23 Partial eclipse of the moon, invisible at Washington.
23 St. George's day.
24 Jewish Passover; 1st day.
25 St. Mark's day.
25 Anzac day, Australia and New Zealand.
26 Confederate Memorial day (also May 10, May 30, June 3).

MAY

1 May day. International labour festival.
2 Rogation Sunday.
5 Cinco de Mayo, Mexican holiday.
6 Ascension day.
7 Third anniversary, German surrender at Reims, France, ending World War II in Europe.
8-9 Annular eclipse of the sun, invisible at Washington.
9 Mother's day, U.S.A.
16 Pentecost (Whitsunday).
17 Whit Monday. English bank holiday.
17 Independence day, Norway.
23 Trinity Sunday.
24 Empire day.
27 Corpus Christi.
30 Memorial (Decoration) day, U.S.A.

JUNE

5 Constitution day, Denmark.
9 Trooping the colour in honour of King George VI's birthday. His majesty was actually born on Dec. 14.
11 Kamehameha day (Hawaii).
11 Feast of St. Barnabas.
13 Shebuoth (Jewish Pentecost).
14 Flag day, U.S.A.
17 Bunker Hill day, U.S.A.
20 Father's day, U.S.A.
21 Solstice (12:11 P.M. Greenwich civil time), beginning of summer.
24 Midsummer day. Quarter day.
24 St. John's day.
26 Third anniversary of the signing of the United Nations charter.
30 St. Paul's day.

JULY

1 Dominion day, Canada.
4 Independence day, U.S.A.
4 Second anniversary of the birth of the Republic of the Philippines.
5 Independence day, Venezuela.
7 50th anniversary, U.S. annexation of Hawaii.
9 National Independence day, Argentina.
14 Bastille day.
15 St. Swithin's day.
21 Independence day, Belgium.
22 Feast of St. Mary Magdalene.
24 50th anniversary, birth of Amelia Earhart, U.S. aviatress.
26 St. Anne's day.
28 Independence day, Peru.

AUGUST

1 Independence day, Switzerland.
1 Lammas day.
2 English bank holiday.
6 Feast of the Transfiguration.
10 Feast of St. Lawrence.
12 50th anniversary, armistice ending the Spanish-American war.
14 Third anniversary, Japanese surrender note to U.S., Great Britain, U.S.S.R. and China, unofficially ending World War II.
14 Tishah Bov (Jewish Fast of Ab).
15 Assumption of the Blessed Virgin Mary.
24 Feast of St. Bartholomew.

SEPTEMBER

1 9th anniversary, beginning of World War II.
2 Third anniversary, formal surrender of Japan ending World War II.
6 Labor day, U.S.A.
11 Independence day, Brazil.
16 Independence day, Mexico.
17 Constitution day, U.S.A.
23 Equinox (3:22 A.M. Greenwich civil time), beginning of fall.
26 50th anniversary, birth of George Gershwin, U.S. composer.
27 Dominion day, New Zealand.
29 Michaelmas. Quarter day.
30 Feast of St. Jerome.

OCTOBER

4 Rosh Hashonah (Jewish holiday beginning year 5709).
4 Feast of St. Francis of Assisi.
12 Columbus day.
13 Yom Kipper (Jewish Day of Atonement).
18 Succoth (Jewish Feast of Tabernacles), 1st day.
18 Alaska day, Alaska.
25 St. Crispin and St. Crispinian.
27 Navy day, U.S.A.
28 Independence day, Czechoslovakia
31 Hallowe'en.

NOVEMBER

1 Total eclipse of the sun, invisible at Washington.
1 All Saint's day. All Hallows.
2 Mohammedan year 1368 begins at sunset.
2 General election day, U.S.A.
5 Guy Fawkes' day.
9 Lord Mayor's show, London.
10 U.S. Marine Corps day.
11 Armistice day.
16 Feast of St. Edmund.
22 St. Cecilia's day.
25 Thanksgiving day.
28 First Sunday in Advent.
30 St. Andrew's day, patron saint of Scotland.

DECEMBER

5 Constitution day, U.S.S.R.
6 Feast of St. Nicholas.
8 Immaculate Conception.
17 Aviation day, U.S.A.
21 Solstice (10:34 P.M. Greenwich civil time), beginning of winter.
22 Forefathers' day (also Dec. 20, Dec. 21, Dec. 23).
24 Second anniversary of the birth of the Fourth French Republic.
25 Christmas. Quarter day. English bank holiday.
26 Boxing day. English bank holiday.
27 Hanukkah (Jewish Feast of Dedication), 1st day.
28 Childermas. Holy Innocents' day.
30 Rizal day, Republic of the Philippines.
31 Second anniversary of the U.S. proclamation ending hostilities of World War II.

CALENDAR OF EVENTS, 1947

For elections and disasters of 1947, see under those headings in the text. For obituaries of prominent persons who died during 1947, see under the entry Obituaries.

JANUARY

1 **British government** assumed formal title to all nation's coal fields as measure nationalizing coal mines became law.

2 **Unanimous decision** was taken by senate Republicans to prevent Sen. Theodore G. Bilbo (Dem., Miss.) from taking office, pending full debate on floor of cases against him.

Rep. Charles A. Halleck of Indiana was named Republican leader of house of representatives; Rep. Sam Rayburn of Texas was appointed leader of house Democrats.

Suits seeking $400,000,000 as portal-to-portal retroactive pay adjustments were filed in Detroit federal district court against Ford, Chevrolet and Chrysler motor car companies by United Automobile Workers.

3 **Measure for 20% reduction** in personal income taxes, to become retroactive to Jan. 1, was introduced by Rep. Harold Knutson (Rep., Minn.) in house of representatives.

4 **Bernard Baruch** and other members of U.S. delegation to U.N. Atomic Energy commission resigned because work of formulating program for atomic energy control had been completed; Baruch said he saw "no reason" why U.S. should discontinue making atomic bombs until ratification of treaty.

Sen. Bilbo (Dem., Miss.) voluntarily postponed his plans to fight for seat in upper house on grounds that he needed to undergo operation for cancer of jaw.

"Dangerous and widespread plot" against Hungarian republic was announced by Hungarian interior ministry, which said conspirators sought to restore Adm. Nicholas Horthy to power.

5 **Warning of possible coal shortage,** Emanuel Shinwell, British minister of fuel and power, said fuel priority would be given to vital public utilities and industries.

Leon Henderson and Wilson W. Wyatt were named temporary co-chairmen of organizing committee of Americans for Democratic Action, new liberal organization.

6 **Pres. Truman** renewed vow of co-operation with Republican majority in congress in annual message on state of union; he urged legislators to outlaw "indefensible" jurisdictional strikes and to require "binding" settlement of labour disputes, but warned against "punitive legislation" and "vindictive" labour laws.

Soviet Union was asked by U.S. state department to return control of Dairen promptly to China.

Appointment of Lt. Gen. Lucius D. Clay as commander of U.S. forces in European theatre, succeeding Gen. Joseph T. McNarney, was announced by war department; Lt. Gen. Geoffrey Keyes was named to succeed Gen. Mark W. Clark as chief of U.S. occupation army in Austria, with Clark scheduled to become commander of U.S. 6th army.

7 **Pres. Truman** nominated Gen. George C. Marshall as secretary of state, succeeding James F. Byrnes, who resigned because of ill health; on leaving Nanking, Marshall ascribed failure of his efforts to bring peace to China to "almost overwhelming suspicion" that Chinese nationalists and communists had of each other; and denounced "dominant group of reactionaries" in Kuomintang and "irreconcilable communists."

9 **Accusations by Andrei Gromyko,** soviet delegate, that U.S. insistence on atomic energy decision was move to delay general disarmament were denied by Herschel Johnson, U.S. delegate, in debate at U.N. Security council.

Poland was advised in U.S. note that policy of "suppression, intimidation and coercion" of opposition violated both letter and spirit of Yalta and Potsdam pacts.

London dispatches reported U.S.S.R. had asked Norway for permission to establish military bases on Spitsbergen Island.

Reduction of federal budget by between $3,000,000,000 and $4,000,000,000 and temporary continuance of corporation and wartime excise tax rates so that personal income taxes could be cut 20% were advocated by Sen. Robert Taft (Rep., O.).

10 **U.N. Security council** voted 10–0 to assume responsibility for guaranteeing integrity and independence of Free Territory of Trieste; Australia abstained from voting.

Annual budget submitted to congress by Pres. Truman for fiscal year starting July 1 put expenditures at $37,528,000,000, revenue at $37,730,000,000 and military costs at $11,256,000,000; president also urged revision of postal rates to avoid substantial deficit.

Isolation of virus causing poliomyelitis in state said to be 80% pure was announced by Stanford university.

11 **Albanian government** rejected British demands for apology and compensation for lives of seamen lost when two British warships struck mines in Corfu channel, and implied that Greek vessels might have laid the mines.

Friendship pact was signed by Turkey and Trans-Jordan.

12 **Six survivors** of Navy plane that crashed in Ellsworth Land, coast of Antarctica, were saved by rescue plane and returned to Byrd expedition vessel; three of wrecked aircraft's crew had been killed in accident.

Truce between Jewish underground and British military in Palestine was ended when former blew up Haifa district police station, killing four persons.

14 **Conditional credit** of $100,000,000 was set aside by Export-Import bank for Italy to finance its imports from U.S.

Auguste Champetier de Ribes, of Popular Republican movement, was re-elected president of French council of republic.

15 **Prime Minister Clement R. Attlee's office** announced Britain and France agreement to conclude military alliance within framework of U.N. charter "at earliest possible moment."

Vyacheslav Molotov, soviet foreign minister, rejecting U.S. contention that Polish government was intimidating political opposition, said he saw no need for "interference in internal affairs of Poland."

16 **Vincent Auriol,** Socialist leader, was elected as 1st president of new 4th French republic, receiving 452 of 883 votes cast.

17 **Leon Blum's refusal** because of ill health to continue in office as premier led Pres. Auriol to select Paul Ramadier, another French Socialist, to form cabinet.

100% margin requirement for purchase of securities on stock exchange was reduced to 75% by U.S. federal reserve system.

Persons burned by atomic blasts at Hiroshima and Nagasaki suffered hair loss, reduction of white corpuscles and disfiguring scars, according to statement made by Allied Headquarters Public Health Welfare section at Tokyo; last death directly attributable to atomic bombings was said to have occurred in Oct. 1945.

18 **Ellis Arnall** resigned as governor of Georgia in favour of Lt. Gov. M. E. Thompson, who proclaimed himself "acting governor" and requested Herman Talmadge to vacate governor's office and executive mansion at Atlanta.

Hopes for Communist-Kuomintang peace in China faded when Yenan Communists rejected Nanking government's proposal for new conferences.

French forces opened drive to dislodge Viêt-Nam armies from strong positions about Hué, capital of Annam in Indo-China.

19 **British foreign office** declared it had protested to Premier Stalin against "misleading" *Pravda* article stating that Foreign Minister Bevin had disavowed Anglo-soviet alliance.

Government bloc candidates won 383 of 444 seats in election for new Polish parliament which was singularly free of disorders; Peasant party took only 27 seats.

20 **Premier Alcide de Gasperi** resigned as premier of Italian coalition government in crisis caused by split in Socialist party.

21 **Charges** that three high officials of Tennessee Valley authority were "communists," made by Sen. Kenneth D. McKellar (Dem., Tenn.) at senate hearing, were denied by Gordon R. Clapp, nominee for TVA chairmanship.

Edouard Herriot was elected president of French National assembly.

22 **Paul Ramadier** formed coalition cabinet composed of majority of French political parties with Georges Bidault as foreign minister and Maurice Thorez as a vice-premier.

Herbert Hoover accepted assignment from Pres. Truman to undertake economic mission to central Europe for study of food and other problems.

23 **Andrew J. May,** former Democratic representative from Kentucky, and Henry M.

JANUARY—*Continued*

Garsson, Murray Garsson and Joseph Freeman, officials of wartime munitions combine, were indicted by federal grand jury in Washington on charges of conspiring to defraud federal government.

24 **Premier Stalin,** agreeing that Foreign Minister Bevin's statements on British foreign policy did not repudiate Anglo-soviet alliance, said pact needed revision before it could be extended.

Argentine foreign office disclosed Pres. Juan D. Perón had issued decree empowering government to purchase assets of business firms once owned by axis nationals.

Demetrios Maximos, former banker and royalist, formed new coalition government in Greece.

25 **Warren R. Austin,** U.S. delegate on U.N. Security council, said U.S. was opposed to any change in Big Five veto power, but asserted nations participating in world atomic plan would be obligated to take punitive action against violators even if council failed to act.

Agreement was reached by U.S. Steel Corp. and C.I.O. United Steel Workers on job reclassifications under which steel workers would receive $32,000,000 in back pay and $17,000,000 in wage increases.

26 **Provision permitting** Netherlands businessmen to deal directly with Germans in merged U.S.-British economic zones was disclosed in Berlin.

27 **Premier Demetrios Maximos** announced Greek government was prepared to offer general amnesty to all guerrilla bands that capitulated within specified time, in order to halt civil war.

Mrs. Eleanor Roosevelt, elected chairman of U.N. Human Rights commission, declared main problem was how to "enforce" international bill of rights which that body would write.

28 **U.S. state department** charged that Polish government failed to carry out "solemn pledges" to hold free and unfettered elections as required in Yalta and Potsdam agreements.

Terms of British-Burma agreement under which Burma would elect constituent assembly and have interim government and ultimately complete independence were submitted to commons by Prime Minister Attlee.

29 State department announced abandonment of U.S. effort to mediate Chinese civil war.

31 **Evacuation** of British women and children from Palestine was ordered by Lt. Gen. Sir Alan G. Cunningham, British high commissioner, in move to combat Jewish underground.

Blame for ordering 10% rent increase without presidential approval was taken by Maj. Gen. Philip B. Fleming, director of Office of Temporary Controls; Fleming's measure was countermanded at last minute by Pres. Truman.

Hans Fritzsche, radio spokesman of nazi government, was sentenced to nine years at hard labour by Bavarian denazification court in Nuernberg; Heinrich Hoffman, Hitler's personal photographer, was sentenced to ten years at hard labour.

Vatican was accused by Yugoslav government of harbouring and aiding alleged Yugoslav war criminals to escape to South America.

FEBRUARY

1 **Labour-management agreement** for voluntary settlement of disputes in building and construction industries was announced by Pres. Truman.

French Government memorandum suggested France rule Ruhr basin so that area instead of serving as future arsenal for German aggression would be used to help reconstruct the destroyed communities of Europe.

2 **Gen. Marshall,** in message to Jewish Labour committee, said U.S. urged and would continue to urge all nations to cooperate for speedy resettlement of European displaced persons.

Premier Alcide de Gasperi of Italy formed new coalition cabinet embracing Christian Democrats, Communists and Socialists.

3 **Congress** was asked by Pres. Truman to extend some of his war powers for another year in order to complete effective reconversion.

Adm. William H. P. Blandy was appointed to succeed Adm. Marc Mitscher as commander of U.S. Atlantic fleet.

4 **Franz von Papen** was arrested in midst of his trial before German denazification court in Nuernberg and charged with having falsified Hindenburg's will.

5 **Jewish national council** turned down British ultimatum that official Jewry help British military ferret out underground; Irgun Zvai Leumi, aggressive underground group, said it would "fight to last breath" against British authority.

U.S. and Soviet Union were deadlocked over U.N. procedure for regulating atomic energy and armament, with U.S. wishing to treat each question separately and U.S.S.R. insisting on treating them as a whole.

Bolesław Bierut was elected president of Poland, receiving 408 of votes in parliament against 24 in opposition; Józef Cyrankiewicz, Socialist leader, was given a mandate to form cabinet.

6 **Gerhart Eisler,** alleged "brains" of Communist party in U.S., was charged by house committee on un-American activities with conspiracy to overthrow government, contempt of congress, perjury, income tax and passport falsification; committee rejected Eisler's request to make statement in own behalf.

Robert E. Hannegan (Democratic national chairman) said Pres. Truman would be called upon to become Democratic nominee for president in 1948; White House said Truman had "no comment" to make on Hannegan speech.

Appeal for truce and negotiations on basis of 1946 agreement for Indo-China was made by Viêt-Nam delegates in Paris.

7 **New law** proclaimed by British military government decreed political amnesty for about two-thirds of 1,500,000 Germans suspected of naziism in British zone.

8 **Friedrich Flick,** German steel industrialist, and four associates were indicted by U.S. military government for war crimes and crimes against humanity on "vast scale."

British proposal for compromise of Arab-Jewish problem in Palestine was rejected by Arab delegates to Palestine parley in London.

Greek government was urged by Trygve Lie, secretary general of U.N., to stay scheduled execution of group of convicted guerrillas until Security council had time to study controversy.

Claims of Mount Clemens Pottery Co. employees for portal-to-portal pay were dismissed in entirety by Federal Judge Frank A. Picard of Detroit.

10 **Industry** and public utilities in more than half of industrial Britain were halted as government cut off power in drastic move to conserve dwindling coal stocks.

State of war between Allied powers and Italy, Finland, Rumania, Bulgaria and Hungary was formally terminated by signature of peace treaties in Paris; Yugoslavia and Greece joined four of former axis satellites in protesting certain provisions of pacts; only Rumania seemed satisfied with treaty terms; in Italy, populace observed 10 min. of silence in protest against peace treaty.

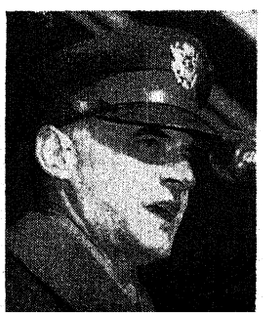
12 **U.S. and Canada** reached agreement to continue wartime military co-operation on voluntary basis "for peacetime joint security purposes."

13 **Pres. Truman** branded as "absolutely unfounded" charges made by Sen. Kenneth McKellar (Dem., Tenn.) that David E. Lilienthal, nominee for chairmanship of U.S. Atomic Energy commission, was either communist or marginal communist.

Pres. Truman reiterated oppo-

The pictures on this page are, left to right:

CLAY.....Jan. 6
THOREZ.....Jan. 22
ROOSEVELT.....Jan. 27
BIERUT.....Feb. 5
EISLER.....Feb. 6







FEBRUARY—*Continued*

sition against any reduction in proposed budget of $37,500,000,000 for next fiscal year.

John W. Snyder, secretary of treasury, announced controversy over Henry J. Morgenthau's use of treasury department material in his 900-vol. "diary" had been settled and latter would return any material needed to complete treasury's files.

Proposal to set up new Commission on Conventional Armaments, as distinct from Atomic Energy commission, was adopted 10–0 by U.N. Security council; Soviet Union refrained from voting.

14 **Foreign Secretary Bevin** announced that Britain, having failed to solve Palestine problem, had decided to put issue up before United Nations.

Soviet delegate Gromyko's proposal that violators of atomic bans should be punished by Security council was hailed as "memorable statement" by Warren R. Austin, U.S. delegate to U.N.

Pres. Truman's offer to divert coal, already en route to Europe, to Britain to help ease shortage, was declined by Prime Minister Attlee.

15 **Undersec'y of State Dean Acheson's statement** that soviet foreign policy was aggressive and expansionist was criticized as "gross slander," by Foreign Minister Molotov in formal protest to U.S.

Homer L. Loomis, Jr., secretary of Columbians, Inc., profascist organization preaching racial hatred, was convicted of incitement to riot by Atlanta jury and was sentenced to serve 12 months at hard labour.

17 **U.S.** started broadcasts designed to beam factual information on U.S. to soviet people.

The pictures on this page are, left to right:

BEVIN.....Feb. 25
BULGANIN.....March 3
TRUMAN.....March 12
ATTLEE.....March 12
HOOVER.....March 23

Justice Robert H. Jackson denounced supreme court for its alleged disregard of customs and contracts of industry when deciding wage-hour cases.

18 **Chinese government** was reported to have asked U.N.R.R.A. for permission to sell $200,000,000 worth of U.N.R.R.A. supplies on "black market."

Sec'y of State Marshall rejected soviet complaint that Undersec'y of State Acheson "grossly slandered" Soviet Union, declaring Acheson's "frank" reply was made in "line of duty."

19 **Tennessee** state legislature voted ban on closed shop.

20 **British government** announced intention of withdrawing from India by June 1948; Adm. Viscount Mountbatten was named viceroy of India, succeeding Viscount Wavell.

Irgun Zvai Leumi, Jewish underground organization in Palestine, cut oil pipe lines in two places and staged mortar and machine-gun attack against royal air force field near Hadera.

Soviet Union slashed budget for armed forces in 1947 by more than 5,600,000,000 rubles and increased funds for scientific research by about 1,500,000,000 rubles.

21 **Congress** was urged by Pres. Truman to appropriate $350,000,000 for relief in liberated areas; the president proposed also that distribution of relief supplies be controlled directly by U.S.

British government White Paper stressed necessity for continued frugal existence and harder work to meet plan for increasing 1947 exports to 140% of prewar volume.

Italy signed agreement with Argentina under which thousands of Italian workers, artisans and technicians would be permitted to emigrate to Argentina.

22 **Britain's decision** to give India independence by June 1948 was hailed as "wise and courageous" move by Jawaharlal Nehru, Congress party leader.

23 **Allied intelligence agents** arrested several hundred leaders of nazi underground movements in British and U.S. zones of reich.

Dr. Werner Heisenberg, German atomic scientist, alleged that Soviet Union was tempting German scientists with large salaries to conduct research for soviet government.

Contract for construction of Saudi-Arabian section of 1,000-mi. oil pipe line linking Saudi-Arabian oil fields with Mediterranean was awarded to five U.S. engineering companies.

24 **Lt. Gen. John R. Hodge** told U.S. newsmen in Washington reports that Soviet Union was organizing army of 500,000 Koreans in its zone were seemingly true.

Franz von Papen was sentenced to eight years in labour camp after German denazification court in Nuernberg found him guilty of being major nazi offender.

25 **Foreign Sec'y Bevin** implied that partisan politics had impelled Pres. Truman to make his demand in 1946 for admission of 100,000 Jews to Palestine, further asserting this statement wrecked hope of friendly solution of Palestine problem.

26 **Pres. William Green** of A.F. of L. conceded desirability of altering some features of Wagner act, but warned congress that "bitter hatred" of workers would rise against more drastic labour restrictions.

Lewis W. Douglas was named by Pres. Truman to become U.S. ambassador to Great Britain.

Foreign Sec'y Bevin was rebuked by White House for his "unfortunate and misleading" suggestion that Pres. Truman's statement on Palestine was meant for domestic political purposes.

40 persons were injured in riot started when 50,000 Belgian war veterans stormed Brussels to demand bonus payments and other privileges.

27 **Foreign Sec'y Bevin** minimized his clash with Pres. Truman over Palestine issue and emphasized in report to commons that his government enjoyed "most cordial" relations with U.S.

Herbert Hoover urged U.S. and Britain each to expend $475,500,000 to save Germany from starvation and chaos, warning that survival of western civilization in Europe depended on its survival in reich.

28 **P-82 U.S. fighter plane** flew 4,978 mi. nonstop from Hickam field, Hawaii, to La Guardia airport, New York City, in 14 hr. 33 min., establishing new nonstop record for fighter craft.

MARCH

1 **16 persons** were killed in Palestine as Jewish underground attacked British installations; 13 of this number were killed in bombing of British officers' club at Jerusalem.

Resignation of T. V. Soong as premier of China was announced by Executive Yuan.

2 **Warsaw dispatches** indicated Polish underground was disintegrating and that thousands of members were taking advantage of government's general amnesty pledge to lay down arms and return to civil pursuits.

2,400 Buffalo, N.Y., schoolteachers ended week-long strike after Mayor Bernard Dowd offered to provide salary increases for 1947–48 school year ranging from $300 to $625.

3 **Mexico** and other hemispheric republics were assured by Pres. Truman, who visited Pres. Miguel Alemán in Mexico City, that U.S. would adhere to policy of nonintervention in their affairs.

Winston Churchill urged British government to speed Palestine problem to U.N. to end "squalid warfare" in Holy Land.

Premier Stalin resigned post as minister of armed forces because of pressure of other duties; Gen. Nikolai A. Bulganin was named his successor.

4 **State department** disclosed that Greek government had made appeal to U.S. for prompt assistance.

France and Britain signed 50-year treaty of alliance in Dunkirk ceremony; Foreign Sec'y Bevin said pact was designed not to block Soviet Union but to build "perfect pattern for universal peace."

5 **U.N. Security council** heard Andrei Gromyko, soviet dele-







MARCH—*Continued*

gate, charge U.S. atomic energy control plan was designed to give U.S. monopoly of atomic energy and assert plan's control provisions represented meddling in internal affairs of other countries.

6 **British government's decision** to withdraw from India in June 1948 was approved in commons; Churchill voiced "grief" at "clattering down of British Empire," suggesting government should invoke aid or advice of U.N.

Contempt conviction of John L. Lewis and United Mine Workers was upheld by supreme court by 7–2 vote; $10,000 fine against Lewis was sustained but $3,500,000 levy against union was reduced to $700,000.

State department announced it had accused Soviet Union of "unjustified interference" in Hungary's internal affairs and had requested probe by Allied Control commission.

7 **John L. Lewis** told senate committee on labour and public welfare that government could do nothing to prevent coal strikes unless it was prepared to adopt totalitarianism.

8 **Jewish underground bands** in Palestine defied British martial law to stage three attacks on army and police centres in Tel Aviv area.

Sec'y of State Marshall expressed view that adoption of four-power 40-year alliance against reich should precede signature of peace treaties with Germany.

International Harvester Co. announced plan to initiate series of price cuts that would save its customers $20,000,000 annually.

9 **Tribal chieftains** of Western Samoa directly petitioned U.N. Trusteeship council for union of Western and American Samoa and self-government.

U.A.W. local voted to end 440-day strike against J. I. Case Co. in Racine, Wis., and to accept wage increases ranging from 25 cents to 26 cents hourly.

10 Supreme court ruled by 5–4 vote that foremen were employees under Wagner act and that employers must bargain collectively with unions of foremen or supervisory employees.

Herbert Hoover recommended allotment of $155,000,000 for emergency relief for Austria from April 1947 to July 1948.

Council of Foreign Ministers at opening session in Moscow approved dissolution of Prussian state.

Czechoslovakia and Poland signed 20-year pact of friendship and mutual assistance in common defense against possible renewal of German aggression.

11 **Foreign Minister Molotov's criticism** of Anglo-U.S. conduct of demilitarization in reich was answered by Sec'y of State Marshall with reminder that only Allied unity could keep Germany disarmed.

Sec'y Gen. Trygve Lie heatedly denied he was "tyrant" in conference with 2,000 U.N. employees who asked for better working conditions and salaries.

12 New foreign policy was outlined by Pres. Truman who asked joint meeting of congress to authorize fund of $400,000,000 to help strengthen Greek and Turkish regimes against "totalitarian" pressure.

U.N. investigating body was barred by Yugoslav authorities from entering Yugoslav town of Dragos near Greek frontier.

Economic policy of Prime Minister Attlee's government won 371–204 vote of confidence in commons.

Paraguayan government asserted rebellious garrison of 600 to 700 soldiers at Concepción had been placed under siege by loyalist forces.

13 **Premier Recep Peker** of Turkey hailed Truman speech on Greek-Turkish aid as one "inspired by point of view both fully realistic and fully humanitarian"; Greek Premier Demetrios Maximos said Truman speech was destined to have "decisive influence" on future of world.

14 **Soviet sources** said 890-532 German prisoners of war were still held in U.S.S.R. and that 1,003,974 others had been repatriated.

Nanking government rejected soviet proposal that China participate with Big Three in informal discussion of Chinese civil war.

Truman proposals for aid to Greece and Turkey were denounced by *Izvestia* as attempt to usurp sovereignty of those nations.

British government granted five-day work week to British miners, who in turn consented to use of displaced persons and Poles to work in coal mines.

99-year U.S.—Philippine agreement for U.S. naval and military bases on islands was signed in Manila by Pres. Manuel A. Roxas and Paul V. McNutt, U.S. ambassador.

15 ***Pravda,*** Communist party organ, said Pres. Truman's speech on Greek-Turkish aid rendered "valueless" U.S. declarations of faithfulness to U.N.

Casualties in Punjab province resulting from two-week rioting between Moslems, Sikhs and Hindus was put by Punjabi government at 1,036 killed and 1,110 seriously injured.

Gen. Joseph T. McNarney handed over command of U.S. forces in European theatre to Lt. Gen. Lucius D. Clay.

16 **Margaret Truman,** daughter of Pres. Truman, made radio debut as singer with Detroit Symphony orchestra in broadcast which was heard by estimated 13,000,000 persons.

7.6% increase in crime in 1946 established record peak for 10-year period, J. Edgar Hoover, F.B.I. director, reported.

17 **Prompt initiation** of negotiations for peace treaty with Japan and preparation for troop withdrawal as soon as treaty is signed were advocated by Gen. MacArthur.

Big Four at Moscow conference agreed to evacuate troops from Austria within 90 days of peace treaty signature.

Annulment of economic merger of U.S. and British zones of reich and share in control of Ruhr were requested by Foreign Minister Molotov during debate in Moscow Council of Foreign Ministers.

18 Sec'y of State Marshall rejected soviet figure of $10,000,000,000 as basis of German reparations to Soviet Union at Moscow Big Four parley.

"State of war" was decreed by Pres. Higinio Morinigo's government to combat Paraguayan rebels entrenched in northern provinces.

19 Herman Talmadge's claims to governorship of Georgia were rejected by state supreme court which declared M. E. Thompson acting governor.

Pres. John L. Lewis of U.M.W., yielding to supreme court order, rescinded his notice for calling soft coal strike April 1.

Warning to U.S.S.R. and France that rebuilding of German industry to pay for reparations would endanger peace was issued by Sec'y of State Marshall at Big Four parley in Moscow.

Chinese Nationalist armies occupied Yenan, former capital of Chinese Communists.

Extension of government controls over exports for year beyond expiration date of June 30 was requested by Pres. Truman to "protect" U.S. economy and to meet international obligations.

Use of thorium as well as uranium for commercial purposes save under "exceptional circumstances" was banned by U.S. Atomic Energy commission.

Premier Paul-Henri Spaak formed new Belgian government.

20 **U.S. rejection** of Yugoslav requests for grain shipments to stave off famine was announced by U.S. state department.

Georges Bidault, French foreign minister, told Big Four conference in Moscow that France would not agree to any solution of German economic problem that failed to guarantee France increased coal shipments from Ruhr.

21 **Iron and steel shipments** into soviet zone of reich were indefinitely suspended by U.S. and British authorities on ground soviets had failed to live up to trade agreement.

22 **Establishment** at early date of German national council to rule reich as provisional government was proposed by Sec'y of State Marshall at Moscow conference of Big Four.

Program designed to check "loyalty" of all federal employees in move to oust communists from government service was ordered in executive decree issued by Pres. Truman.

23 Local 248 of United Automobile Workers (C.I.O.) voted to call off its 329-day strike against Allis-Chalmers Mfg. Co. in Milwaukee and to return to work without contract.

Establishment of unified and demilitarized reich that would be permitted to rebuild its industry to restore Europe's economy was recommended by Herbert Hoover in report to Pres. Truman.

24 **U.S. and British delegates** at opening session of U.N. Commission on Conventional Armaments stressed they could accept general disarmament only if foolproof system of international inspection were established.

William L. Clayton, undersecretary of state for economic affairs, said that 62½% of proposed $400,000,000 program to help Greece and Turkey would be spent on equipping armed forces of two countries.

25 **Soviet Union** notified state department that it was ready to turn over administration of Dairen to China.

MARCH—*Continued*

Soviet veto blocked majority resolution of U.N. Security council members charging that Albania was indirectly responsible for Corfu channel mines that damaged two British warships.

Netherlands and Indonesian delegates at Batavia signed Cheribon agreement which granted *de facto* recognition to Indonesian republic.

High court of justice in Paris condemned Camille Chautemps in absentia to five years of hard labour for acts considered harmful to national defense.

Lateran pact of 1929 was affirmed by Italian constituent assembly by vote of 350 to 149; Italian Communists endorsed treaty.

26 **U.S. Communist party** was branded as "fifth column" by J. Edgar Hoover, director of F.B.I., who, however, voiced grave doubts as to advisability of outlawing party.

Soviet delegates refused to attend inaugural meeting of U.N. Trusteeship council; Francis B. Sayre, U.S. representative, was elected chairman of new body.

27 **Dr. Karl Gruber,** Austrian foreign minister, stated his country would refuse to sign any peace treaty that ceded southern Carinthia to Yugoslavia.

British foreign office disclosed that Yugoslavia had asked Britain for food and raw materials and to support Belgrade's request to U.N.R.R.A. for 200,000 tons of wheat.

Georgia's white-primary bill was vetoed by Gov. Thompson who at the same time approved measures banning closed shop.

28 **U.N. Security council** was formally apprised of Pres. Truman's Greek-Turkish aid proposal by Warren Austin, U.S. delegate, who maintained plan was "most essential" to bolster U.S. foreign policy.

50,000 Germans in British zone staged protest parades against food shortages.

Large-scale investigations of charges that private oil firms reaped huge profit from U.S. naval oil purchases in middle east were opened by Senate War Investigating committee.

Adm. Jean de Laborde, who ordered scuttling of French fleet at Toulon in 1942, was condemned to death for treason by French high court of justice in Versailles.

29 **John L. Lewis,** U.M.W. president, ordered shutdown of soft coal industry between April 1 and 6 as memorial for Centralia mine disaster in which 111 miners lost lives.

German food demonstrations in British zone spread to Ruhr where 4,000 miners refused to work and joined paraders in Dortmund.

30 **New rioting** between Hindus and Moslems in Bombay resulted in 40 deaths and 137 wounded.

31 **Sec'y of State Marshall** rejected soviet demands for reparations from current reich production and scored French insistence on German coal as advance condition for agreement on German treaty.

Selective Service act expired at midnight.

Formation of Spanish regency council that would take charge of government in event chief of state died or was incapacitated was announced by Gen. Francisco Franco.

Outbreak of wide revolt among natives in Madagascar against French rule was reported in dispatches reaching Paris.

Laws extending sugar rationing and price controls until Oct. 31 were passed by congress and signed by Pres. Truman.

APRIL

1 **Crown Prince Paul** was sworn in as King Paul I of Greece after death of brother, King George II.

Martin H. Kennelly (Dem.) was elected mayor of Chicago by substantial majority over Russell W. Root, Republican candidate.

2 Proposal to give U.S. sole trusteeship over former mandated Japanese islands in Pacific was unanimously approved by U.N. Security council.

Soviet suggestion that communist-dominated "front" groups get voice in provisional government of reich was rejected by Sec'y of State Marshall and Foreign Sec'y Bevin during Big Four parley in Moscow.

Unabated Hindu-Moslem strife paralyzed business and social life in Calcutta.

3 **Sec'y of Interior Julius A. Krug** closed indefinitely 518 mines for safety reasons.

4 **Demand** that Austria pay $150,000,000 in reparations to Yugoslavia out of current production and permit removal of industrial plants was made at Moscow Council of Foreign Ministers by Edward Kardelj, Yugoslav vice-premier.

5 **Five U.S. marines** were killed and 16 others wounded in battle with Chinese "dissident" force that attempted to raid marine munitions dump at Tangku.

Japanese Communist party polled only 1% of total votes cast during Japan's nation-wide mayoralty elections.

7 **About half** of estimated 615,000 workers employed by American Telephone and Telegraph Co. went out on strike in all except 9 of 48 states.

Opposition to U.S. aid to Greece was voiced by Andrei Gromyko, soviet delegate, who told U.N. Security council measure would gravely undermine U.N. authority; Gromyko added he was opposed to giving any aid to Turkey.

U.S., Britain and France rejected soviet proposal that issue whether reich was to have decentralized or federal government should be decided by German plebiscite.

8 **Foreign Minister Molotov** was notified by Sec'y of State Marshall that U.S. was preparing to institute, unilaterally, measures leading toward ultimate independence of U.S. zone of Korea.

Andrei Gromyko, soviet delegate, agreed to principle of mine-to-plant atomic inspection, but rejected theory of aerial surveys in U.N. Atomic Energy commission debate.

9 David E. Lilienthal was confirmed in senate as chairman of U.S. Atomic Energy commission by 50–31 vote.

U.N. Security council voted to refer British-Albanian dispute on Corfu channel mine incident to International Court of Justice, the U.S.S.R. and Poland abstaining.

Suggestion that Poland's western frontiers would require revision to meet needs of both Poland and reich was made by Sec'y of State Marshall at Moscow Council of Foreign Ministers.

Prime Minister Stalin told Harold Stassen in Kremlin conference that differences in economic systems were no bar to U.S.-soviet co-operation, adding Russia desired co-operation with U.S. to achieve world peace; he also predicted ultimate agreement on international atomic controls.

Leo Durocher, manager of Brooklyn National League baseball club, was suspended for 1947 season by A. B. Chandler, baseball commissioner.

10 **French plan** to integrate Saar economically and financially into France was approved by Sec'y of State Marshall; he, however, rejected proposal to internationalize Ruhr.

Amendment to Greek-Turkish aid bill permitting U.N. to modify or halt program at any time was approved without opposition in senate; U.N. Security council was told by Warren R. Austin, U.S. delegate, amendment was proof of "firm determination" of U.S. people to uphold U.N.

11 **Henry A. Wallace,** in London speech, warned Pres. Truman's "two-world" program would lead to communist revolution rather than halt communism; Sen. James O. Eastland (Dem., Miss.) accused Wallace of violating his rights as U.S. citizen by his statements and speeches abroad.

12 **Agreement** that German land reform should be completed by end of 1947 and that major German war plants be destroyed by June 30, 1948, was reached by Big Four foreign ministers at Moscow.

Second death from smallpox in New York city led Mayor William O'Dwyer to issue urgent appeal to all residents to become vaccinated within three weeks.

John L. Lewis ordered district leaders of United Mine Workers to terminate two-week strike called in protest against unsafe mines.

13 **Henry A. Wallace,** in Liverpool speech, branded as hysterical congressional criticism of his statements made in Britain; Sen. Claude Pepper (Dem., Fla.) rejected Wallace's suggestion that he (Pepper) might head third party, declaring he would remain in Democratic party as long as it was "truly liberal."

"Big business" was accused by Pres. Philip Murray of C.I.O. of seeking to foment strikes by withholding wage increases necessary to offset 20% increase in living costs.

14 **Soviet agreement** to negotiate lend-lease indebtedness to U.S. was announced by U.S. state department.

Adm. Richard E. Byrd, on return from Antarctica, denied he requested U.S. to stake out polar territorial claims and said he did not consider Antarctica strategically important.

15 **Congress** was asked by Pres. Truman to revise neutrality act; he stressed that obligation of U.S. under law to "treat aggressor and aggrieved" alike was no longer consistent with U.S. commitments and requirements.

APRIL—*Continued*

Surplus of £248,000,000 in British budget for 1947–48 fiscal year was announced by Hugh Dalton, chancellor of exchequer; duties on tobacco were being raised 50%.

Former army bomber carrying Milton J. Reynolds, William P. Odom and T. Carroll Sallee landed at La Guardia field, New York, completing round-the-world flight in record time (unofficial) of 78 hr. 56 min.

Mgr. Joseph Tiso, Slovak leader who collaborated with nazis in World War II as head of Slovak republic, was convicted of treason in Prague court and sentenced to hang.

17 **Hartley omnibus labour bill** was passed in house of representatives by 308–107 vote.

Appointment of earl of Listowel as secretary of state for India and Burma, replacing Lord Pethick-Lawrence, who resigned, was announced by British government; Arthur Greenwood was named minister without portfolio.

18 **Sec'y of State Marshall** told Council of Foreign Ministers at Moscow that soviet proposal for Austrian treaty was inacceptable to U.S. because it would make Austria puppet state.

U.N. Security council rejected by 4–2 vote soviet proposal that council send commission to Greece to supervise U.S. aid program.

German naval base at Helgoland was destroyed by 3,500 tons of high explosives set off on island by British naval authorities.

Controlling share of voting stock of Ford Motor Co. was bequeathed by Henry Ford to four grandchildren; bulk of his personal fortune was left to Ford foundation.

19 **Council of Foreign Ministers** in Moscow was asked by Foreign Minister Molotov to grant Yugoslav demand for portion of Austrian Carinthia.

Prediction federal government would end current fiscal year with $1,250,000,000 surplus was made by Pres. Truman.

20 **Agreement** that Austria's responsibility in World War II should be recognized in peace treaty was reached by Council of Foreign Ministers in Moscow.

Crown Prince Frederik succeeded to throne of Denmark as King Frederik IX upon death of his father, Christian X.

Two-year contract on basis of 15-cent hourly pay increase for about 142,000 production employees of U.S. Steel Corp. and five subsidiaries was signed by United Steel Workers of America (C.I.O.) and management.

21 **Princess Elizabeth,** heiress presumptive to British throne, marked 21st birthday while visiting Capetown and in empire-wide broadcast dedicated life to cause of British empire.

C.I.O. and A.F. of L. members joined one-day labour holiday in Iowa to protest passage of state measure banning closed shop.

22 **Pres. Truman's measure** to lend $400,000,000 to Greece and Turkey to aid their fight against totalitarianism was passed by 67–23 vote in senate.

Extension by U.S. of "nonpolitical" loan to Soviet Union for reconstruction of that country's devastated areas was proposed by Henry A. Wallace in Paris speech.

23 **William L. Clayton,** undersecretary of state for economic affairs, was named by Pres. Truman to represent U.S. on Economic Commission for Europe established by United Nations Economic and Social council.

One-party rule of government in China was ended as Executive Yuan (cabinet) was broadened to include three political parties and independent members.

New autonomous government of Inner Mongolia was set up at Wangyehmiao in western Manchuria, according to Nanking dispatches.

24 **General Motors** and United Automobile Workers (C.I.O.) settled wage dispute as company granted 11½-cent hourly wage increase to workers.

Council of Foreign Ministers concluded Moscow sessions after reaching agreement to cut size of occupation forces in reich by Sept. 1.

Six gestapo members responsible for Lidice massacre were hanged in Prague.

25 **C.I.O. unions** reached agreements for wage increases approximating 15 cents hourly with General Electric, Chrysler Corp. and Jones & Laughlin Steel Corp.

Socialist party, with 143 seats, emerged as victor in Japan's second general election after end of World War II; Democrats won 124 seats, Liberals 131 and 68 seats went to other parties.

27 **Gen. MacArthur** hailed results of Japanese general elections as convincing repudiation of communism.

28 **Sec'y of State Marshall** said in nation-wide broadcast that "some progress, however painfully slow" was made at Moscow Council of Foreign Ministers.

Siam was formally admitted to United Nations as 55th member.

29 **Abolition** of "untouchability" in any form was adopted by India's constituent assembly.

U.S. recognized independence and established diplomatic relations with Himalayan kingdom of Nepal, state department announced.

30 **Arab proposal** to place issue of Palestinian independence on agenda of U.N. general assembly's special session was rejected by 8–1 vote by assembly's general committee.

Bill nationalizing all inland transport in Great Britain by Jan. 1, 1948, was approved by house of commons.

MAY

1 **U.N. general assembly** rejected Arab proposal to discuss termination of British mandate and independence of Palestine.

2 **Congress** was asked by navy department to appropriate $55,580,000 to convert 15 ships to new types of warfare with emphasis on submarine and arctic operations.

3 **First report** of U.N. Military Staff committee disclosed delegates had reached no agreement on major principles for organizing world police force.

24 top officials of I. G. Farbenindustrie in reich were indicted by U.S. on charges of fomenting and waging war, committing mass murder and plundering and spoliating foreign countries.

New Japanese constitution went into effect as Gen. MacArthur permitted Japanese to display Rising Sun banner for first time since end of World War II.

4 **120 Jewish** and 131 Arab prisoners were freed by Jewish terrorists who blasted holes into walls of Acre's central prison in Palestine.

Premier Paul Ramadier ousted French Communists from his cabinet after Communist members of parliament voted against his wage-freezing policy.

6 **House of representatives** heard Sec'y of State Marshall declare that his experiences at Moscow foreign ministers parley made passage of bill to aid Greece and Turkey all the more imperative.

7 **Brazilian Communist party** was outlawed by 3–2 vote of nation's supreme electoral tribunal.

8 **Legislation** that would give "some measure" of responsibility and authority to Negroes in South Africa was promised by Prime Minister Jan C. Smuts.

9 **World bank** in first loan made under its charter lent $250,000,000 to France for reconstruction purposes.

Estimated 120,000 workers in Hamburg, Germany, staged mass demonstration against "starvation diet."

10 **U.S. proposal** to consult more Korean political groups with view toward forming that country's provisional government was accepted by Vyacheslav Molotov, soviet foreign minister.

12 German generals, including Field Marshals Siegmund Wil-

The pictures on this page are, left to right:

LILIENTHAL.....**April 9**
DUROCHER.....**April 9**
WALLACE.....**April 11**
DE GASPERI.....**May 13**
NAGY.....**May 31**







MAY—*Continued*

helm List and Maximilian von Weichs, were indicted at Nuernberg on charges of having committed war crimes in Norway, Greece, Yugoslavia and Albania.

12 **Freight classification rates** favouring southern and western states were upheld by supreme court in 7–2 ruling.

Decision to exclude all reference to independence of Palestine in proposed U.N. inquiry was voted 29–14 by Political and Security committee of U.N. general assembly.

13 **Financial difficulties** confronting Italian government resulted in resignation of Premier Alcide de Gasperi and his cabinet.

Proposal to drop Spain as member of International Civil Aviation organization was approved by 27–3 vote at I.C.A.O.'s assembly session in Montreal.

14 **Measure outlawing portal pay suits** in interest of nation's "economic stability" was signed by Pres. Truman.

War department announced emergency plans to speed more than 1,200,000 tons of food to U.S. and British zones of reich.

Bill authorizing U.S. government to spend up to $350,000,000 for relief in liberated countries was passed by 79–4 vote in senate.

15 **U.N. general assembly** formally established 11-nation committee of inquiry into Palestine question by 46–7 vote and urged Palestinians to refrain from violence pending decision by regular assembly session in autumn of 1947.

16 **Agreement** to start negotiations for settling Yugoslavia's $32,000,000 lend-lease debt to U.S. was announced jointly by state department and Yugoslav embassy in Washington.

17 **Public disclosure** that U.S. army and navy were experimenting with deadly radioactive cloud which could be discharged from nonexplosive shells dropped by planes was made by Glenn L. Martin before senate subcommittee.

18 **Irgun Zvai Leumi,** Palestinian underground force, said it would agree to truce during U.N. on-the-spot inquiry provided British forces also stopped fighting.

Warning that U.S. would be especially vulnerable to biological warfare was contained in 40,000-word technical summary of dangers of bacterial warfare issued simultaneously in New York and Chicago by American Association of Scientific Workers.

19 **U.S.** was advised by Andrei Gromyko, soviet representative on U.N., that continuance of its atomic energy monopoly was "illusory."

U.S. supreme court ruled in 6–3 verdict that news stories criticizing a trial judge do not constitute contempt, thus setting aside conviction of three Texas newspapermen on these grounds.

20 **Additional appropriations** similar to $400,000,000 fund sought for Greece and Turkey and $350,000,000 foreign relief fund were temporarily ruled out by Sec'y of State Marshall.

Proposal to establish a national science foundation that would overcome nation's shortages in scientific skills was approved in senate by 79–8 vote.

21 **All 28 defendants** accused of lynching Negro were acquitted by jury of 12 white men in trial held in Greenville, S.C.; Judge J. Robert Martin, Jr., expressed displeasure with verdict by refusing to thank jurors for their services.

60 railroads in eastern district of U.S. were granted fare increases by Interstate Commerce commission.

22 **Greek-Turkish aid bill** was signed by Pres. Truman who hailed it as "vigorous effort to help create conditions" of world peace.

Soviet resolution to curb activities of U.N. subcommission watching for incidents at Greek frontiers was rejected in Security council by 6–2 vote.

23 **Congress** was urged by Pres. Truman to extend limited portion of his war powers until July 1948, to control domestic use and export of few critical materials necessary to national interest.

24 **Premier Ramadier** issued decree under which personnel of French public utilities would be kept on job under military rule in event of strike.

26 **Herbert Hoover** urged immediate negotiation of peace treaty with Japan as well as conclusion of Anglo-U.S. peace settlement with their respective occupation zones in reich.

Coup d'état staged by former president Gen. Anastasio Somoza unseated duly elected Nicaraguan government headed by Pres. Leonardo Arguello.

27 **22 nazi guards** and foremen of Mauthausen concentration camp who were found guilty by U.S. military court of wholesale slaughter of prisoners were hanged in Landsberg prison.

Benjamín Lacayo Sacasa was designated provisional president of Nicaragua pending new elections; Pres. Arguello was declared by congress "incapacitated" to hold office for failure to preserve public order.

28 **Left-wing Socialists and Communists** were left out of new Italian cabinet formed by Premier Alcide de Gasperi.

29 **House appropriations committee** was told by Gen. Carl A. Spaatz, air force commander, that army expects its main defenses to be on "Arctic frontier" in event of another war.

30 **Madrid dispatches** reported Spanish government would not put obstacles in way of Spanish businessmen wishing to trade with Soviet Union.

31 **Ferenc Nagy** was ousted as premier of Hungary while vacationing in Switzerland and was replaced by Lajos Dinnyes, prosoviet member of Small Landholders party.

Abd el Krim jumped ship at Port Said, Egypt, allegedly upon personal invitation of King Farouk who asked Rif leader to stay in Egypt under his protection.

JUNE

1 **Compulsory military training** for all U.S. males reaching age of 18 was recommended by Pres. Truman's advisory commission on military training, which said such training was indispensable to nation's security in atomic age; commission also warned 12 largest U.S. cities could be destroyed in single day's attack.

Katayama Tetsu, Japan's new prime minister, expressed hope that Japanese democracy would be "permeated by spirit of Christian love and humanism."

2 **State department** suspended $15,000,000 credit to Hungary.

Emil Sandstroem, Swedish jurist, was elected chairman of U.N. Committee of Inquiry on Palestine.

3 **British proposal** for partitioning India into separate Hindu and Moslem states, with both states operating at least temporarily within British commonwealth, was announced jointly in New Delhi and London.

Sen. Arthur H. Vandenberg (Rep., Mich.) denounced "apparent treacherous conquest" of Hungary by communists and told senate it might become necessary for U.S. to bring Hungary's case to "trial" before U.N.

4 **Resignation of Spruille Braden** as assistant secretary of state for American republic affairs as of July 1 was announced by Pres. Truman.

5 **Sec'y of State Marshall** in Harvard university speech suggested U.S. would help Europe solve its economic ills provided European countries themselves adopted joint program (this so-called "Marshall plan" was later known as the European Recovery program).

Senate approved Italian peace treaty by 79–10 vote and accepted Hungarian, Rumanian and Bulgarian peace treaties without recorded vote.

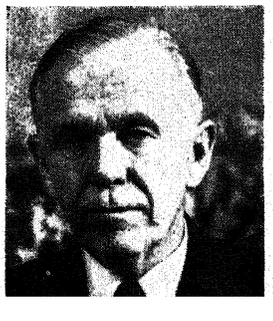
Pres. Truman announced appointment of Dwight P. Griswold and Richard F. Allen as heads of Greek aid program and field administrator of foreign relief fund.

Pres. Truman declared Argen-

The pictures on this page are, left to right:

MARSHALL.....June 5
TAFT.....June 6
PERÓN.....June 8
GROMYKO.....June 11
EISENHOWER.....June 24

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JUNE—*Continued*

tine-U.S. estrangement was ended as state department announced resignation of George Messersmith as ambassador at Buenos Aires; president gave Messersmith credit for establishing good relations between governments.

6 **Taft-Hartley labour bill** was voted 54–17 in senate.

7 **"Law of succession,"** restoring status of traditional monarchy in Spain and making Dictator Franco chief of state for life, was unanimously approved by Spanish cortes.

8 **Señora Eva Duarte Perón,** wife of Pres. Juan D. Perón of Argentina, was given 21-gun salute on arrival in Madrid.

9 **Norman Armour** was nominated assistant secretary of state by Pres. Truman to fill vacancy caused by resignation of Spruille Braden.

10 **Pres. Truman** paid state visit to Ottawa, becoming first U.S. president ever to make state visit to Canada.

11 Rationing of sugar, except for industrial uses, was lifted by Sec'y of Agriculture Clinton P. Anderson as of June 12.

Andrei Gromyko, soviet delegate to U.N., accepted international inspection of atomic energy but insisted atomic bomb should be outlawed before international agreement is reached.

State department disclosed U.S. sent note to soviet authorities in Budapest charging that Russians had taken unilateral action "in most flagrant interference in Hungarian affairs."

12 **Mrs. Mildred (Babe) Didrikson Zaharias** defeated Jacqueline Gordon of London, at Gullane, Scotland, becoming first U.S.-born woman ever to win Women's British Amateur golf championship.

13 **Foreign Sec'y Ernest Bevin** hailed Sec'y of State Marshall's address at Harvard university as great speech, declaring Britain would take initiative in preparing joint European economic program.

14 **Pres. Truman** lauded Italy, but sharply reproved Hungary, Bulgaria and Rumania for their oppressive measures, as he signed peace treaties with all four states.

15 **British plan** for partitioning India into Hindu and Moslem states was accepted by All-India committee of Congress party, which however rejected independence for princely states.

16 Tax bill calling for cuts in personal income taxes ranging from 16.5% to 30% was vetoed by Pres. Truman on grounds it would probably induce "very recession we seek to avoid."

17 Pres. Truman's veto of tax reduction bill was sustained in house of representatives as opponents failed by two votes to obtain necessary two-thirds majority to override it.

Frank Hague, Democratic political boss, resigned as mayor of Jersey City, N.J., and was succeeded by his nephew, Frank Hague Eggers.

18 **Warning** that rejection of soviet efforts to place atomic questions on agenda of U.N. Commission for Conventional Armaments would mean "collapse" of disarmament efforts was sounded by Andrei Gromyko, soviet delegate to U.N.

Denial that he had influenced changes in Hungarian regime was issued by Lt. Gen. V. P. Sviridov, soviet chairman of Allied Control commission in Hungary.

19 **Foreign Secretary Ernest Bevin** told commons that British "appeasement" of Russia had ended and that Britain was determined to work for European reconstruction with or without U.S.S.R.

World speed record of 623.8 mi. per hour was established by Col. Albert Boyd flying a P-80R, U.S. army jet-propelled aeroplane.

20 After Pres. Truman vetoed Taft-Hartley labour bill as "menace to successful democratic society," house of representatives overrode his veto by 331–83 vote.

21 **Italian constituent assembly** gave Premier de Gasperi's government confidence vote by narrow margin of 274–231.

23 Taft-Hartley labour bill became law as senate overrode Pres. Truman's veto by 68–25 vote.

Department of justice's anti-trust division filed suit in N.Y. federal court against A.S.C.A.P. (American Society of Composers, Authors and Publishers) charging A.S.C.A.P. with engaging illegally in world-wide cartel and conspiring to monopolize music-performing rights.

Soviet agreement to attend conference of Big Three foreign ministers with Britain and France to discuss Marshall plan was announced by Moscow radio.

24 **Gen. Eisenhower's appointment** as president of Columbia university, succeeding Dr. Nicholas Murray Butler, was officially announced in New York city.

Standard Oil Co. of Indiana rationed its gasoline stocks to retailers in 12 midwestern states because demand was running 15% ahead of supply.

Nearly 200,000 U.S. soft-coal miners staged walkout in apparent protest against passage of Taft-Hartley labour bill.

25 **U.S. note to Rumania** charged that arrest of opposition members was deliberate effort to suppress democratic elements by "terroristic intimidation."

26 Wool price-support bill was vetoed by Pres. Truman as measure whose tariff prohibitions would undermine "our leadership in world affairs."

27 **U.N. Security council** was urged by Warren R. Austin, U.S. delegate, to permit use of force to prevent Yugoslavia, Albania and Bulgaria from aiding armed bands that might violate Greek territory.

Gerhart Eisler, alleged Communist "brain" in U.S., was sentenced to one year in jail and fined $1,000 by federal court in Washington.

28 **Congress** was told by Gen. Eisenhower that U.S. army was "poor second" to soviet armed forces.

29 **Warning** that "death of our society" would result unless "imperative problem" of international control of atomic energy was solved was issued at Princeton, N.J., by Emergency Committee of Atomic Scientists.

30 **Announcement** that French government broke up plot instigated by monarchists and Vichyites to overthrow republic and set up fascist dictatorship was made by Interior Minister Edouard Depreux.

Bill that would make Hawaii 49th state of union was adopted by house of representatives by 196–133 vote.

Measure extending rent control in adulterated form was reluctantly signed by Pres. Truman, who labelled it as "most unsatisfactory law," but added rentals would be much worse without it.

U.N.R.R.A. was officially ended as of midnight.

JULY

1 **Sec'y of State Marshall** branded as "malicious distortion," charges that U.S. employed its foreign aid program to secure political and economic domination in Europe.

2 **Threat of soft-coal strike** vanished with John L. Lewis' disclosure that 40% of coal industry agreed to give miners improved contract and wage boosts totalling more than $3 daily per worker.

Anglo-French-Russian aid conference in Paris broke up after soviet Foreign Minister Molotov rejected Marshall plan and warned France and Britain not to act alone on European reconstruction lest they split continent into eastern and western blocs; Bevin declared Britain had faced threats before and would not be deterred from doing "what we consider our duty."

3 **Ernest Bevin** and Georges Bidault, British and French foreign ministers respectively, summoned 22 European states to convene in Paris July 12 to discuss French proposal on Marshall plan for aiding Europe.

United Nations was advised in blunt language by Sir Alexander Cadogan, British delegate to Security council, to "tear up the Charter and pack up" if it could not take action to settle Balkan border warfare.

Former Rep. Andrew J. May was convicted by federal grand jury in Washington of taking bribes from Henry and Murray Garsson in return for using his congressional influence to secure favours for Garsson munitions enterprises; Garsson brothers were found guilty of conspiring to defraud U.S. government of May's services through bribery.

4 **Pres. Truman** inferentially rebuked Soviet Union for allegedly obstructing world reconstruction in Fourth of July address at Charlottesville, Va.; Foreign Sec'y Ernest Bevin told Independence day gathering in London that nothing would ever divide U.S. and Britain and warned U.S.S.R. against carrying "provocation too far."

Premier Paul Ramadier won 331-247 vote of confidence from French assembly on his anti-inflation program; he said during debate that France accepted Marshall plan without qualifications.

5 Pres. Truman disclosed that U.S. shipped abroad 18,433,000 long tons of grains and other foodstuffs during year ending June 30, but urged no relaxation in food-export program because millions of "still desperately hungry" persons needed U.S. food products.

Epidemic of "flying discs" or saucers allegedly seen through-

JULY—*Continued*

out U.S. were dismissed by military and civilian experts as possible prank of nature magnified by "popular imagination."

6 **Pledge** that Argentina's resources would be made available for "material and economic rehabilitation of all suffering nations" was made by Pres. Juan D. Perón; he also urged eradication of all forms of totalitarianism, whether of right or left.

Spanish national radio said 80% of electorate turned out to vote in referendum to approve Dictator Franco's law of succession; impartial reports said many Basques in Bilbao area remained away from polls.

U.N. inquiry committee holding sessions in Jerusalem was told by Jewish agency spokesmen that Britain deliberately obstructed expansion of Jewish industry and was engaged in large-scale "exploitation" of Jewish Palestine.

7 **Congress** was called upon again by Pres. Truman to admit into the U.S. a "substantial number" of displaced persons from eastern Europe who had refused repatriation to communist-controlled countries.

House of representatives ignored treasury warning of inflation and passed by 386-0 vote bill permitting veterans to cash total of $1,792,000,000 in terminal leave bonds.

8 **Resolution** that U.N. Security council recommend withdrawal of foreign troops and military personnel from Greece was introduced by Andrei Gromyko, soviet delegate.

Eugene Dennis, secretary of U.S. Communist party, was sentenced to year in jail and fined $1,000 for contempt of court; Dennis rejected judge's offer to appear before congress and purge self of contempt charge.

9 **Soviet Union** was urged by Norman Armour, assistant secretary of state, to reconsider stand on Marshall plan and attend Paris conference.

Estimated 2,800 persons in Athens and Peiraeeus areas were arrested by order of Greek government to foil alleged communist revolution.

10 **Betrothal** of Princess Elizabeth to Lt. Philip Mountbatten, former Prince Philip of Greece, was formally announced by King George VI, although the fact was known on the 9th.

Czechoslovakia reversed decision to attend Paris parley on Marshall plan presumably because of pressure put on Premier Klement Gottwald by soviet leaders.

11 **Announcement** was made by Dwight P. Griswold, U.S. administrator of Greek aid, that $35,000,000 worth of U.S. military supplies were being prepared for shipment to Greece to aid latter's armies in their fight against "bandits."

Pres. Truman disclosed that Gen. Albert Coady Wedemeyer would be dispatched to far east to appraise "over-all situation" in China and Korea.

12 **Representatives** of 16 nations opened conference in Paris to work out program for economic rehabilitation of Europe under Marshall plan, leaving door open to other European countries not represented.

Federal court in Charleston, S.C., ruled that Negroes were entitled to vote in state's democratic primary elections, hitherto reserved exclusively for whites.

14 **Sec'y of State Marshall** told annual conference of governors in Salt Lake City, Utah, that western European countries would drift into soviet economic orbit unless they received U.S. aid.

Second bill to cut personal income taxes was passed in senate by 60-32 vote.

15 Drive by 2,500 Greek guerrillas against Yanina was halted by Greek government troops according to statement by Athens cabinet minister.

Gen. Lucius D. Clay, commander of U.S. zone of Germany, received new directives from joint chiefs of staff to take measures to stabilize political and economic conditions, thus enabling reich to make maximum contribution to European recovery.

16 **U.S. proposal** to call 11-nation conference as soon as possible to discuss drafting of Japanese peace treaty was submitted to Allied Far Eastern commission.

17 **Robert N. Denham** was named by Pres. Truman as general counsel to reorganized five-man National Labor Relations board.

More than 800 federal employees were ousted from jobs on disloyalty charges following secret investigations, civil service commission disclosed.

18 **Robert P. Patterson** resigned as secretary of war and Kenneth C. Royall was appointed his successor by Pres. Truman.

French protest against any scheme that would expand Germany's industrial potential was communicated to U.S. state department by Henri Bonnet, French ambassador.

Bill under which speaker of house would succeed president when there is no vice-president was signed by Pres. Truman; under new measure, Joseph W. Martin, Jr. (Rep., Mass.), would succeed Truman should latter fail to complete his term.

Pres. Truman's veto of tax reduction bill was overriden by 299-108 vote in house of representatives, but was sustained in senate where vote of 57 to 36 to override was 5 short of required two-thirds majority.

Legislation terminating British rule over India was completed when royal commission signified assent to British independence bill.

19 **Bill** authorizing cash redemption of terminal leave bonds issued to veterans was passed unanimously in senate by 85-0 vote.

20 **Netherlands troops** opened military operations against Indonesian Republican forces in Java in what was described as "police action" by Hubertus J. van Mook, acting governor-general.

Former premier U Saw and 19 of his aides were arrested while 3 others were killed by Burmese police in raid connected with machine-gun massacre of 7 Burmese council ministers.

21 **Anti-poll tax bill** was adopted in house of representatives by 290-112 vote.

22 **Pres. Truman's plan** to co-ordinate major federal housing agencies into single unit was approved in senate.

House un-American activities commission was told by Victor A. Kravchenko that Soviet Union was infesting U.S. with spies and pursuing policy that would make war "inevitable."

23 **Herschel V. Johnson,** deputy U.S. delegate, told U.N. Security council that Albania, Bulgaria and Yugoslavia menaced world peace and that entire globe would suffer if war broke out in Balkans.

Moscow radio disclosed Soviet Union rejected U.S. proposal to call preliminary 11-nation conference in Washington to discuss Japanese peace treaty; Russians protested that U.S. acted unilaterally in calling parley without having consulted U.S.S.R., Britain or China.

24 **Batavia** dispatches indicated Netherlands troops had won control of Java's strategic areas, but that Indonesians were preparing to conduct guerrilla warfare.

Measure designed to fix social security payroll tax at its prevailing levels until Jan. 1, 1950, was approved by congress and sent to Pres. Truman for signature.

25 **Strong Democratic opposition** thwarted effort of senate Republicans to force probe of Att'y Gen. Clark's handling of fraud charges in Kansas City elections of 1946.

Large collection of documents in files of Abraham Lincoln which had been ordered sealed by Robert T. Lincoln, son of civil war president, for 21 years after his own death, were formally opened to public in Washington.

Andrew J. May, former representative, and Henry and Murray Garsson were sentenced from eight months to two years in federal prison after conviction on war bribe charges.

26 Legislation unifying U.S. armed forces was signed by Pres. Truman, who appointed Sec'y of Navy James Forrestal as secretary of defense.

Bill permitting veterans to cash terminal leave bonds was signed by Pres. Truman who advised, however, they keep bonds if need for funds was not imperative.

27 **Pres. Chiang Kai-shek** complained that dispatches of certain U.S. writers and correspondents on Chinese government corruption and inefficiency endangered Sino-U.S. relations.

Saudi-Arabian plans to expend $270,000,000 on internal projects were disclosed by Fuad Bey Hamza, minister of development; funds for development were expected to accrue from royalties paid King Ibn Sa'ud by U.S. oil companies.

29 **Senate subcommittee** investigating government contract given to Howard Hughes for construction of $18,000,000 flying boat during World War II heard industrialist Henry J. Kaiser declare that "very beautiful frameup" blocked his wartime efforts to build fleet of 200-ton cargo-carrying planes.

U.S. Steel Corp. and other steel plants announced move to increase steel products $5 per ton as of Aug. 1.

U.S. resolution for establishment of semipermanent Balkan frontier commission was vetoed in U.N. Security council by Andrei A. Gromyko, soviet delegate.

JULY—*Continued*

30 **U.N. Security council** was asked by Australia to order both Netherlands and Indonesian republic to cease hostilities promptly and arbitrate differences peaceably.

31 **U.S. offer** of its "good offices" to mediate Netherlands-Indonesian war was placed before U.N. Security council by Herschel V. Johnson, U.S. deputy delegate.

Peace treaty with Allies was ratified by 262 to 68 vote in Italian constituent assembly.

Buckingham palace announced Princess Elizabeth would wed Lt. Philip Mountbatten Nov. 20 in Westminster abbey.

AUGUST

1 **U.N. Security council** voted 8-0 to call on Indonesian and Netherlands governments to cease fighting and settle differences by arbitration; Britain, France and Belgium abstained.

2 **John W. Meyer,** publicity aide for Howard Hughes, disclosed that from 1943 to 1945 he expended $5,083 in entertaining Elliott Roosevelt (then army air officer) in effort to get war contract for reconnaissance planes.

3 **Indonesian and Netherlands governments** announced willingness to call off hostilities in compliance with U.N. Security council's request.

5 **Demand** that U.N. Security council order British to evacuate Egypt and Sudan was placed before council by Mahmoud Fahmy el-Nokrashy Pasha, Egyptian prime minister.

Failure of grand jury sitting in Jackson, N.C., to indict seven white men on charges of attempting to lynch young Negro was denounced as "miscarriage of justice" by Gov. R. Gregg Cherry, who said he would order reopening of case.

6 **Howard Hughes,** testifying before senate investigating committee, said Sen. Owen Brewster, committee chairman, had offered to kill inquiry into military aviation contracts if Hughes would agree to merge Pan-American Airlines with TWA.

Prime Minister Attlee warned in commons speech that government would order new sacrifices to increase production for export and save dollar balances; Attlee also disclosed that balance of U.S. loan would be gone by end of 1947.

State department charged that Rumania, by suppressing National Peasant party and arresting Juliu Maniu, its leader, had violated peace treaty with U.S.

7 **Labour government's drastic program** to meet economic crisis was approved in British house of commons by 318-170 vote.

New bill which would provide for merit promotion of officers in army and navy was signed by Pres. Truman.

International Bank for Reconstruction and Development approved loan of $195,000,000 to the Netherlands, but stipulated funds were to be used solely for reconstruction of homeland, and not for Netherlands Indies or military purposes.

8 **House of commons** passed on second reading Labour government bill asking for sweeping emergency powers to deal with Britain's economic crisis; opposition leader Winston Churchill accused Labourites of seeking "blank check for totalitarianism."

Eight largest U.S. moving-picture companies agreed to suspend indefinitely shipment of U.S. films to Britain, because of "confiscatory" British tax on earnings of imported films.

Pres. Truman signed Sugar act of 1948 after making public assurances from Sec'y of State Marshall that measure would not become "economic threat" to hemispheric sugar producers.

9 **Sec'y of State Marshall** informed France of U.S. willingness to confer with France and Britain "without delay" on plans for raising industrial production in Germany.

10 **Gen. Lucius D. Clay** reported that U.S. had released last of 8,010,007 German prisoners of war and had completed destruction of German military defense works in U.S. zone.

William P. Odom, landing his aircraft at Chicago's Douglas airport, established record for solo round-the-world trip, flying 19,645-mi. course in 73 hr. 5 min. 11 sec.

11 **Sen. Homer Ferguson** (Rep., Mich.) suddenly called suspension of senatorial inquiry into Howard Hughes's war contracts.

U.N. Sec'y Gen. Trygve Lie admitted deterioration in world political situation, but added he did not believe that any responsible statesman "can, or does, contemplate the prospect of war."

12 **Declaring Greece** was in "grave peril," Deputy U.S. Delegate Herschel V. Johnson introduced resolution before U.N. Security council ordering Albania, Bulgaria and Yugoslavia to stop helping Greek guerrillas.

Britain, France and Belgium lost fight to prevent Indonesian republic from giving its view on Indonesian-Netherlands dispute in U.N. Security council.

13 **Thousands of new casualties** were caused by Hindu-Moslem rioting in Lahore and other areas of Punjab province.

Sec'y of Treasury Snyder moved to spike rumours of U.S. increase in gold price by declaring that responsible Washington quarters neither planned nor discussed such action.

14 **Att'y Gen. Tom Clark's investigation** to determine responsibility for conspiracy to increase prices of food, housing and clothing was approved by Pres. Truman.

Italian debt of about $1,000,000,000 was cancelled by U.S. which also liberalized many of "burdensome" financial and economic clauses in Italian peace treaty.

U.S. resolution ordering three soviet satellites in Balkans to cease aiding Greek guerrillas was branded in U.N. Security council as "crudest interference" in Greece's internal affairs by Andrei Gromyko, soviet delegate.

15 **Britain's long rule over India** was formally ended and country achieved independence as two separate dominions, India and Pakistan; Mohammed Ali Jinnah was sworn in as governor-general of Pakistan and Jawaharlal Nehru as prime minister of dominion of India; in London, India office was abolished and King George VI formally approved appointment of Arthur Henderson as minister of state for commonwealth relations, and conferred an earldom on Viscount Mountbatten who became governor-general of dominion of India.

Sec'y Marshall's rejection of soviet proposal that Japanese peace treaty be written only by U.S., Soviet Union, Britain and China was disclosed by state department.

U.S. delegation at opening of Inter-American conference near Rio de Janeiro proposed all nations covered by hemisphere defense treaty be obliged to take part in defense against aggressor.

Gerhart Eisler, regarded as top Communist agent in U.S., was convicted in federal court on passport fraud charges.

16 **Establishment of military government** of "Free Greece" was proclaimed in broadcast by Gen. Markos Vafeiades, Greek guerrilla leader.

Nikola Petkov, Bulgar opposition leader, was sentenced to death on charges of conspiracy against government by Sofia district court.

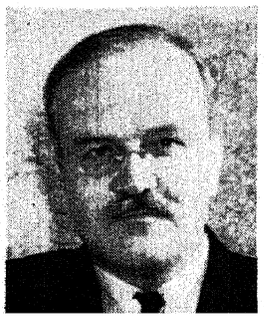
17 **U.S. steel industry** was charged with illegal price-fixing and restraint of competition by Federal Trade commission.

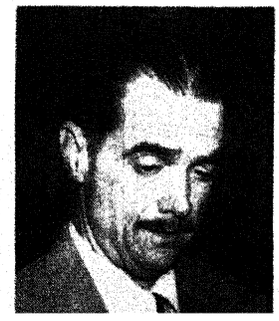
18 **Branding** Bulgarian death sentence passed on Opposition Leader Nikola Petkov as "gross miscarriage of justice," U.S. called on Soviet Union to urge Bulgar government to suspend sentence pending review of case.

Admission of Yemen and Pakistan to U.N. was voted unanimously by Security council but applications of Albania, Outer Mongolia, Trans-Jordan, Eire and Portugal were rejected.

The pictures on this page are, left to right:

MOLOTOV ..... July 2
ELIZABETH ..... July 10
FORRESTAL ..... July 26
HUGHES ..... Aug. 6
ODOM ..... Aug. 10




AUGUST—*Continued*

19 **Australian and U.S. resolutions** aimed at solving Balkan controversy were vetoed by Andrei Gromyko, soviet delegate in U.N. Security council.

U.S. offer to settle Indonesian-Netherlands dispute was rejected by Sutan Sjahrir, Indonesian representative, who renewed demand that U.N. Security council set up arbitration commission to settle controversy.

20 **Delegates** to Inter-American peace conference at Petrópolis, Brazil, heard Sec'y of State Marshall warn that U.S. economic aid to Europe must take precedence over any "Marshall plan" for Latin America.

Britain and U.S. announced joint agreement to end free convertibility of pounds sterling into dollars in move to halt drain of Britain's slim dollar resources.

Herschel V. Johnson, U.S. deputy delegate to U.N. Security council, asked U.N. general assembly to assume jurisdiction on Balkan question.

New NLRB policy of dismissing cases where unions failed to comply with Taft-Hartley law's registration requirements was announced by Robert N. Denham, NLRB's general counsel.

Record surplus of $4,700,000,000 at end of 1948 fiscal year was forecast by Pres. Truman in annual midyear budget review.

21 **Pres. Truman** named Kenneth C. Royall as secretary of army, John L. Sullivan as secretary of navy and W. Stuart Symington as secretary for air.

State department disclosed U.S.S.R. protested against impending Anglo-U.S.-French parley to increase industrial output in Anglo-U.S. zones of Germany; department also revealed that U.S. lodged another protest with U.S.S.R. over continued Russian occupation of Chinese port of Dairen.

Andrei Gromyko, soviet delegate, vetoed applications of Italy and Austria for U.N. membership on ground that Italian peace treaty had not yet been ratified and that peace negotiations with Austria had not yet been started.

22 **Anglo-French-U.S.** parley to discuss measures for raising industrial production in Anglo-U.S. zones of Germany opened in London.

Argentina jolted Inter-American Defense conference with proposal that Americas agree to act collectively to repel aggression only in case of external aggression.

23 **Failure** to rally country in fight against guerrillas was one of major factors in resignation of Greek government headed by Premier Demetrios Maximos.

Army revolt in Ecuador led to overthrow of Pres. José María Velasco Ibarra and assumption of power by Defense Minister Col. Carlos Mancheno who proclaimed himself president.

24 **Need** for "drastic, far-reaching political and economic reforms" in Chiang Kai-shek's government was stressed by Lt. Gen. Albert C. Wedemeyer on concluding his study of Chinese situation as Pres. Truman's personal representative.

French People's rally was formally launched by Gen. De Gaulle who announced he would present lists of candidates for October municipal elections.

Dispatches from Lahore in Pakistan reported that Sikhs in eastern Punjab province were slaughtering hundreds of Moslems daily and burning Moslem villages.

25 **Soviet delegation in Korea** was charged with attempting to "usurp" functions of U.S.-soviet joint commission by Maj. Gen. Albert E. Brown, chief of U.S. delegation.

26 **U.S. proposal** that Allies review death sentence passed on Nikola Petkov by Bulgar government was rejected as "interference" in Bulgarian internal affairs by Moscow government.

10 of U.N. Security council's 11 members appealed to Netherlands and Indonesian republic to obey cease-fire order issued nearly four weeks earlier; United Kingdom abstained from voting.

27 **"Siege economy" measures** under which food, motoring and foreign travel were placed under severe rationing was ordered by British Labour government.

Program calling for expansion of scientific research at cost of at least 1% of national income was laid before Pres. Truman by his scientific research board.

28 **Both Pres. Truman and Gov. Dewey** of New York called for universal military training in messages to American Legion convention opening in New York city.

Pres. Truman and Pope Pius XII mutually pledged in exchange of letters to work jointly for permanent world peace.

29 **Disclosure** that atomic power plant had been successfully operating at low power from Nov. 1946 was made by Dr. Norris E. Bradbury, director of Los Alamos Scientific laboratory.

Constantin Tsaldaris was sworn into office as premier of Greece.

Anglo-U.S. plan to raise industrial output of their merged zones of Germany to 1936 production levels was jointly announced in Berlin.

Four-power conference for setting up united, independent Korea was urged on Soviet Union by U.S. state department.

Moscow radio announced soviet ratification of peace treaties with Italy, Finland, Hungary, Bulgaria and Rumania.

30 **Treaty of Rio de Janeiro** for hemispheric defense was formally and unanimously adopted by delegates of all 19 nations in Inter-American parley at Petrópolis, Brazil.

Plan for raising industrial production in Anglo-U.S. areas of Germany was denounced by Marshal Vassily D. Sokolovsky, soviet military governor, as violation of 1946 four-power agreement.

Bendix Trophy race was won by Paul Mantz, covering 2,054-mi. distance from Van Nuys, Calif., to Cleveland, O., at average speed of 460.423 mi. per hour.

31 Termination of British mandate in Palestine and partition of country into Arab and Jewish states were recommended by majority of U.N. special committee on Palestine; Zionists generally approved U.N. report although Arabs were opposed to any division of Holy Land.

Results of Hungarian national elections assured Communists of victory; observers claimed voting was fraudulent and dishonest.

Food Minister John Strachey announced that Britain would suspend temporarily all purchases of food from U.S.

SEPTEMBER

1 **William Green,** A.F. of L. president, exhorted U.S. labour and friends to rally in voting bloc to defeat in 1948 elections those federal and state legislators who supported "new wave of hostile anti-labour legislation"; Philip Murray, C.I.O. president, said determination of U.S. workers to change antilabour complexion of congress was being translated into political action; former Vice-Pres. Henry Wallace warned at Detroit labour rally that third party would be created in U.S. unless Democratic party was transformed into "party of peace and prosperity."

Communist party won first place in Hungary's national elections while Catholic-supported People's Democratic party was second in polling.

2 **Pres. Truman** in speech before Inter-American Defense parley in Petrópolis, Brazil, reiterated fidelity to U.N., but emphasized that U.S. was determined to remain strong to carry out objectives of permanent peace.

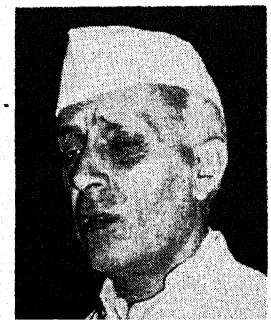
Soviet-U.S. impasse was deepened by Moscow rejection of U.S. demand to open Dairen as international port and by Washington rebuff of soviet protest against plans for raising German industrial output in Anglo-U.S. zones of reich.

3 **Pres. Truman** announced lifting of ban prohibiting export of radioactive isotopes to scientists in foreign countries.

The pictures on this page are, left to right:

DE GAULLE	Aug. 24
TSALDARIS	Aug. 29
NEHRU	Sept. 13
TOGLIATTI	Sept. 14
CRIPPS	Sept. 29







SEPTEMBER—*Continued*

British Foreign Sec'y Ernest Bevin called on U.S. to "redistribute gold in Fort Knox," and to use storaged ingots to finance world recovery.

4 **Themistocles Sophoulis** became Greek prime minister after Constantin Tsaldaris agreed to serve as deputy premier in Sophoulis' government.

5 **Fourth International Cancer Research congress** at St. Louis was told by Dr. Richard Lewisohn of N.Y. that regressions of breast cancers were produced in 43% of experimental animals injected with newly discovered vitamin.

Washington dispatches disclosed that Office of Naval Research was co-operating with 100 leading U.S. universities in developing scientific projects and in training graduate students in science.

Cyrus S. Ching was sworn in as director of new Federal Mediation and Conciliation service.

6 **Berlin dispatches** said U.S. military government was asked by Washington not to overemphasize German bungling of food and farm program lest congress refuse to authorize funds for export of food to reich.

30 countries, including Russia, filed applications with U.S. Atomic Energy commission for radioactive isotopes, according to statement made at Fourth International Cancer Research congress in St. Louis.

John Deferrari, former fruit peddler, presented $1,000,000 gift to Boston Public library.

7 **Pope Pius XII** appealed to world Catholics to rally with all their strength to fight foes of church.

Fighting between Moslems and Hindus spread to New Delhi, capital of India.

8 **German V-2 rocket** was successfully fired from U.S. aircraft carrier "Midway" in Atlantic tests.

Greek Prime Minister Sophoulis announced plan to invite international board to supervise and guarantee full amnesty for all guerrillas who laid down their arms.

10 **British Foreign Sec'y Ernest Bevin** suggested U.S. institute peacetime program of lend-lease to help Europe.

12-point program to raise Ruhr coal output to 300,000 tons daily under German management was jointly announced by U.S. and Britain.

12 **Warning British government** might start new manufactures unless private business produced more and better export goods was sounded by Sir Stafford Cripps, president of board of trade.

Disclosure that 12 European nations and Iceland decided to form group to study customs unions was made by French foreign ministry.

13 **NBC stations** voted unanimously to ban broadcast of all crime and mystery shows before 9:30 P.M. (New York time) to minimize possibility that they would be heard by children.

Prime Minister Nehru of India said flareup of Hindu-Moslem fighting forced India and Pakistan into hasty exchange of populations involving about 4,000,000 persons.

14 **Premier Ahmad Ghavam-es-Saltaneh** presented new cabinet to Iranian parliament, declaring his government would not permit interference in country's affairs.

Palmiro Togliatti, Italian Communist leader, denounced U.S. as "world dictatorship" trying to "spread another war" in speech before 100,000 Communists who shouted "Death to Truman!"

15 **Andrei Gromyko,** soviet representative on U.N., used double veto in Security council to block U.S. plan to permit general assembly to make recommendations on Greek question.

Warning of "boom-and-bust" danger in rising grain prices, Commodity Exchange authority asked big U.S. grain exchanges to double margin requirements in grain futures.

16 **Dr. Oswaldo Aranha** of Brazil was elected president of second regular session of U.N. general assembly, defeating H. V. Evatt of Australia, 29 votes to 22.

Approval of revised draft report submitted by 16 nations to receive aid under Marshall plan was announced by William L. Clayton, undersecretary of state.

17 **Sec'y of State Marshall** proposed that U.N. set up standing committee within general assembly to "consider situations and disputes impairing friendly relations."

Pres. Truman, travelling back to U.S. from Brazil aboard battleship, radioed orders to Washington that James Forrestal be sworn in as secretary of defense in view of "whole general international situation."

18 **Andrei Vishinsky,** soviet deputy foreign minister, charged before U.N. general assembly that U.S. had expansionist plans centring about world domination; he accused influential U.S. circles of trying to fan war psychosis, naming as "instigators" John Foster Dulles, Morgan, Ford and Rockefeller interests and American Legion and others.

John L. Sullivan and W. Stuart Symington were sworn in as secretaries of navy and air force, respectively.

19 **European conferees** on Marshall plan adopted report estimating that western European trading area would need $19,310,000,000 from American countries during next four years.

20 **Warren R. Austin,** chief U.S. delegate to U.N., branded as "absolute falsification" charges of "warmongering" laid to certain U.S. circles by Andrei Vishinsky, Russian deputy foreign minister.

French Foreign Minister Georges Bidault denied Vishinsky's charge that Marshall plan was attempt to make Europe subservient to U.S., and said France would continue its task of trying to unite world's "two hostile blocs."

21 **Rumanian, Hungarian and Bulgarian governments** were advised by British spokesman that additional flagrant infringements of freedom in their countries would be regarded as criminal violations of peace treaties.

Archbishop Joseph E. Ritter warned Roman Catholics of St. Louis, Mo., that they would be excommunicated automatically if they persisted in plans to take civil action against him to prevent admission of Negroes to parochial schools.

22 **Robot-piloted** Douglas C-54 Skymaster transport plane flew from Newfoundland to London without human aid.

16-nation European conference on Marshall plan ended after conferees signed and dispatched to Washington their requests for economic aid.

23 **U.N. general assembly** overrode soviet objections to inclusion on agenda of Greek question, problem of Korean independence and Italian peace treaty.

Nikola Petkov, Bulgarian opposition leader who was convicted of plotting against government, was hanged in Sofia prison.

NLRB's general counsel sued two union locals (one for alleged refusal to bargain and other for carrying on secondary boycott) for violating Taft-Hartley labour law.

25 **Pres. Truman** urged all Americans to conserve food to bring down prices and to release supplies to Europe's hungry.

Pres. Truman appointed Gen. Carl A. Spaatz to new office of chief of staff to U.S. air force; Arthur S. Barrows was named undersecretary of air force and Dr. Vannevar Bush was named chairman of Research and Development board.

Andrei Gromyko, soviet delegate, proposed in U.N. Security council to vote for Italy's admission to U.N. provided Hungary, Bulgaria, Rumania and Finland were admitted simultaneously.

26 **Britain's decision** to end its Palestine mandate was announced before U.N. general assembly's committee on Palestine by Arthur Creech Jones, colonial secretary.

Andrei Vishinsky, soviet deputy foreign minister, said any attempt to destroy principle of unanimity in U.N. Security council would make great-power cooperation "impossible"; Yugoslav delegation to U.N. warned that U.S. resolution charging Albania, Bulgaria and Yugoslavia with Balkan aggression "smells of dynamite of new world war."

Simultaneous withdrawal of U.S. and soviet troops from Korea by beginning of 1948 was proposed by Gen. Terentyi Shtikov, chief of soviet delegation.

27 **Claim** that U.S. could export 500,000,000 bu. of wheat during 1947–48 crop year without "grave hardship" was made by Pres. Truman's committee on foreign aid.

Sen. J. Howard McGrath succeeded Robert E. Hannegan as chairman of Democratic national committee.

29 **Jamal el-Husseini,** spokesman of Arab Higher committee, told U.N. special committee on Palestine that Holy Land Arabs would not accept partition or a federal Palestine.

State department disclosed Foreign Minister Molotov rejected U.S. protest against Moscow magazine article slurring Pres. Truman, disclaiming government responsibility for press statements.

Prime Minister Attlee overhauled Labour government, naming Sir Stafford Cripps as minister for economic affairs with

SEPTEMBER—*Continued*

sweeping powers to co-ordinate country's whole economic policy.

30 **Refusal** of soviet foreign ministry to permit U.S. senatorial delegation to enter Russia to inspect U.S. embassy at Moscow was disclosed by state department.

Argentina and Canada were elected on first ballot to seats on U.N. Security council.

OCTOBER

1 **U.S. air force** formally achieved independence as military organization on par with army and navy.

Capture of Communist-held port of Chefoo was announced by Chiang Kai-shek's government.

U.S. decision to resume full diplomatic ties with Bulgaria was announced by Robert A. Lovett, acting secretary of state.

2 **Britain's Conservative party** unanimously adopted politically "advanced" charter recognizing need of government controls and desirability of some phases of nationalization.

3 **Netherlands government** disclosed that Queen Wilhelmina for "reasons of health," would temporarily turn over royal power to Crown Princess Juliana.

5 **U.S. people** were urged by Pres. Truman to observe voluntarily meatless Tuesdays, poultryless Thursdays and to conserve food for starving Europe.

At secret meeting in Poland, communist leaders of nine nations adopted manifesto opposing U.S. "dollar imperialism" and decided to set up "information bureau" in Belgrade; new organization called "Cominform" was tantamount to re-establishment of Comintern.

Voters in Saar reversed plebiscite of 1935 which had turned basin over to Germany and elected candidates pledged to economic fusion with France.

6 **U.S. was accused** of converting Greece into "military base" and of destroying Greek "independence and sovereignty" by Andrei Vishinsky, soviet deputy foreign minister.

New York Yankees won baseball's world series, defeating Brooklyn Dodgers 4 games to 3.

7 **11 cabinet ministers** were dropped by Prime Minister Attlee as he overhauled British government in economic crisis.

U.S. railroads were granted 10% emergency increase in freight charges on all commodities except coal, coke and iron ore which were put on special rate schedule.

NLRB overrode by 4–1 vote ruling of its general counsel, Robert N. Denham, that top officers of A.F. of L. and C.I.O. were required to sign noncommunist affidavits to comply with Taft-Hartley labour law.

8 **Approval** of U.S. proposal to create special U.N. committee to watch over Greece's border was voted by U.N. general assembly's Political and Security committee.

Arrest of two former army photographers on charges of theft of atomic energy photographs was disclosed by FBI Director J. Edgar Hoover.

9 **Decision** of Union of South Africa to lend Britain about $320,000,000 in gold was announced by Prime Minister Jan C. Smuts.

10 **U.S.-British-Italian** protocol provided for prompt return to Italy of $25,000,000 in gold discovered in north Italy by U.S. 5th army.

First contingent of U.S. war dead was returned to U.S. at San Francisco on steamer "Honda Knot."

11 **More than 1,000 mayors** of U.S. cities received telegraphed appeals from Charles Luckman, head of Citizens Food committee, to co-operate with nation-wide food conservation program.

Partition of Palestine was endorsed by Herschel V. Johnson, U.S. representative on U.N. general assembly's Palestine committee, who also suggested establishment of "special constabulary" to keep order in Holy Land.

Yugoslavia broke off diplomatic relations with Chile in answer to latter's charges that Yugoslav government had sponsored "communist plot" in South America.

12 **Leftist People's bloc** nosed out Christian Democratic party for first place in Rome's municipal elections.

13 **Soviet proposal** for resolving Greek question was defeated 40 votes to 6 with 11 abstentions in U.N. Political and Security committee.

Soviet delegate to U.N. general assembly's committee on Palestine endorsed partition of Palestine on grounds that Arab-Jewish tension made single state unfeasible.

14 **Soviet Deputy Foreign Minister Vishinsky** charged U.S. proposal to set up "little assembly" in U.N. was a "farce" and said U.S. was attempting to "steamroller" its plan through general assembly on discovery that "liquidation of veto was legally impossible."

Premier Paul Ramadier denounced as "political manoeuvre" strike of Parisian transit workers that paralyzed all of city's bus and subway services.

A.F. of L. delegates at San Francisco annual convention overrode John L. Lewis' objections and agreed to amend federation's constitution to comply with Taft-Hartley labour law.

15 **Delegates** to C.I.O. annual convention in Boston unanimously endorsed U.S. foreign policy after hearing address by Sec'y of State Marshall who said basic tenet was freedom or totalitarian enslavement.

16 **Pres. Truman** charged that gambling on grain exchanges was responsible for large part of food price increases and disclosed that Att'y Gen. Tom C. Clark was investigating grain speculations.

17 **Treaty** giving Burma complete independence in Jan. 1948 was signed in London by Prime Minister Attlee and Premier Thakin Nu of Burma.

Resolution calling for Korean elections under U.N. commission and establishment of Korean government was placed before U.N.'s Political and Security committee by Warren R. Austin, U.S. delegate.

18 **Making of recordings** and transcriptions by 225,000 members of American Federation of Musicians was banned "once and for all" by A.F.M. President James C. Petrillo; ban was to become operative Dec. 31, 1947.

Sec'y of Interior Julius A. Krug reported to Pres. Truman that U.S. economy was capable of undertaking substantial foreign aid program without jeopardizing U.S. security or living standards.

Official boycott of U.N. subcommittee set up to work out compromise of "little assembly" plan was announced by U.S.S.R. and its supporting states in eastern Europe.

19 **French People's Rally,** headed by Gen. de Gaulle, replaced Communists as strongest single party in France after polling more than 40% of vote in municipal elections.

21 **Brazil and Chile** formally severed diplomatic relations with Soviet Union.

U.S. resolution to establish permanent committee to assist in settling disputes between Greece and soviet satellites in Balkans was voted 40–6 in U.N. general assembly.

22 **Chairman J. Parnell Thomas** of house un-American activities committee said his group would produce evidence that at least 79 persons in Hollywood had been engaged in subversive activities.

Soviet demands for oil concession were rejected by 102–2 vote in Iranian parliament.

23 **Sir Stafford Cripps,** Britain's economic czar, disclosed country halted tobacco purchases from U.S. and ordered new cuts in food rations; Swedish government said its own imports of motor cars, nylons, plastics and films from U.S. would be halted.

Pres. Truman called special session of congress for Nov. 17 to appropriate funds for relief in western Europe and to curb soaring domestic prices.

Dr. Carl F. Cori and his wife, Dr. Gerty T. Cori, of U.S. and Dr. Bernardo Houssay of Argentina were jointly awarded Nobel prize in medicine.

24 **Sen. Robert Taft** (Rep., O.) formally announced his candidacy for Republican nomination to presidency.

25 **State of Maine** was proclaimed disaster area by Pres. Truman who ordered Federal Works agency to provide assistance to regions destroyed or damaged by forest fires.

Distilleries producing more than 95% of U.S. whisky and alcohol closed down at midnight for 60-day period to release grains for Europe's needy.

26 **Second balloting** in French municipal elections showed Socialists running far ahead of Communists.

27 **Hollywood** "revolt" against "communist" inquiry staged by house committee on un-American activities started with refusal of John Howard Lawson, film writer, to answer whether he was Communist party member; Eric Johnston told committee not to imprison Americans merely "on suspicion" of being communists.

Gen. Charles de Gaulle called for dissolution of assembly and national elections in France "as soon as possible."

Compromise resolution condemning all forms of propaganda in any country that might encourage act of aggression was

OCTOBER—*Continued*

unanimously voted 56–0 by Political and Security committee of U.N. general assembly.

Maharajah Sir Hari Singh provisionally joined his state of Kashmir and Jammu to dominion of India as air-borne Indian Sikh troops fought Moslems in Kashmir's mountains.

28 **Russia** requested simultaneous withdrawal of U.S. and soviet troops from Korea by beginning of 1948 and suggested that elected Korean delegates from both zones be permitted to take part in discussions of Korean questions at U.N. general assembly.

Danish Communists lost 9 of 18 seats in parliamentary elections while Social Democrats and Agrarians shared major electoral honours.

Spreading cholera epidemic in Egypt took 6,132 lives from its beginning Sept. 3; offer of Jerusalem's Hebrew university to dispatch anticholera serum to fight epidemic was ignored by Egyptian government.

30 **17 leading** U.S. investment banking houses were accused of violating antitrust laws in civil complaint filed by department of justice.

Premier Paul Ramadier won vote of confidence in French assembly by narrow margin of 300 to 280 votes.

House committee on un-American activities abruptly halted inquiry into Hollywood "communism."

U.S. proposal to set up U.N. commission to watch over Korean elections was voted 41–0 in Political and Security committee of U.N. general assembly; Russia and several other countries abstained from voting.

31 **Greek government** announced emergency tax program to raise additional $120,000,000 to meet increased military expenditures and other costs arising from war with guerrillas.

Slovak semiautonomous government resigned under pressure from Slovak Communists.

U.A.W. reversed earlier stand and voted to sign anticommunist affidavits in compliance with Taft-Hartley labour law.

NOVEMBER

1 **British Labour party** was decisively defeated by Conservatives in municipal elections in England and Wales.

2 **Howard Hughes** put his 200-ton flying boat, which cost $25,000,000, through successful test flight.

Conservative party's demand for general elections, based on its successes in Britain's municipal elections, was rejected by Labour party.

U.S. Communist party decided not to join newly formed Communist information bureau because of domestic "political situation."

3 **Compromise resolution** condemning all war propaganda was voted unanimously by U.N. general assembly.

Stanislaw Mikolajczyk reached London after escaping from Poland.

4 **Republican victory forecasts** were upset in Kentucky where Earle C. Clements, Democrat, was elected governor over G.O.P. opponent; Judge John Cornelius Stennis was elected to fill unexpired senate term of Theodore Bilbo in five-man Mississippi contest in which Rep. John E. Rankin ran last.

U.S. was accused by soviet and Slav delegates at U.N. general assembly's Political and Security committee of having suppressed democratic elements in Korea.

5 **U.S. army newspaper** in Vienna reported that Zoltan Pfeiffer, leader of Hungarian Independence party, fled Hungary to escape Communist wrath.

6 Soviet Foreign Minister Molotov told Moscow audience on 30th anniversary of bolshevist revolution that atom bomb secret "has long ceased to exist"; most U.S. authorities held Molotov's speech meant Russia had merely learned technique of making bomb.

7 **Mme. Ana Pauker,** Communist member of Rumanian government, was appointed Rumanian foreign minister.

8 **Proposal for expenditure** of up to $17,000,000,000 on European aid with objective of preventing World War III was sent to Pres. Truman by his committee on foreign aid, headed by Sec'y of Commerce W. Averell Harriman.

9 **Bangkok** was seized in coup d'état staged by Siamese military clique headed by Field Marshal Luang Pibul Songgram who announced overthrow of Premier Thawan Thamrong Nawasawat's government.

Rationing of potatoes to three pounds weekly per person was put into effect in Britain by John Strachey, food minister.

10 **Sec'y of State Marshall** asked congress to take prompt and urgent action to provide $597,000,000 of stopgap aid to France, Italy and Austria; Pres. Truman reported that U.S. aid had helped Greece to avert economic collapse and preserve freedom.

Kashmir city of Baramula was completely wrecked after 13-day raid staged by Moslem tribesmen.

U.S. and U.S.S.R. reached compromise agreement over Palestine and endorsed new U.N. partition plan under which Britain would end mandate and military occupation by May 1, 1948.

11 **United Automobile Workers** endorsed anti-communist position of its right-wing faction and re-elected Walter Reuther president; George F. Addes, left-wing leader, was defeated for vice-presidency by Emil Mazey, a Reuther supporter.

Bucharest military tribunal sentenced Dr. Juliu Maniu and Ion Mihalache, both Rumanian Peasant party leaders, to life imprisonment on treason charges.

12 **Pres. Walter Reuther** consolidated grip on U.A.W. as his right-wing supporters ousted R. J. Thomas and Richard T. Leonard from top-level offices.

Britain's new tax program called for raising £208,000,000 by increasing sales taxes, doubling profit taxes and issuing levies on advertising appropriations.

Communist riots widened in Italy as Palmiro Togliatti, Communist chieftain, called on party's central committee to "intensify agitation against" government both inside and outside parliament.

13 **French Communists** were accused of fomenting Marseilles riot by Premier Paul Ramadier, who told excited national assembly that government would "go limit" in defending republic against them.

Sir Stafford Cripps was appointed chancellor of exchequer following resignation of Hugh Dalton, who admitted he had inadvertently released information on new budget to press.

Nobel prizes went to: André Gide, French writer, for literature; Sir Edward Victor Appleton for physics and Sir Robert Robinson for chemistry.

U.N. general assembly adopted U.S. proposal creating "little assembly" by 41-6 vote over bitter protests of Soviet Union and its bloc; 6 Arab states abstained from voting.

14 **Majority** of U.N. members ignored soviet warning of "grave consequences" and voted 43-0 with 6 abstentions, to establish U.N. commission to supervise elections and establish provisional government in Korea.

Sec'y of Army Royall announced U.S. army would add 170 officers and men to existing complement of 40 officers and men in its Greek military mission.

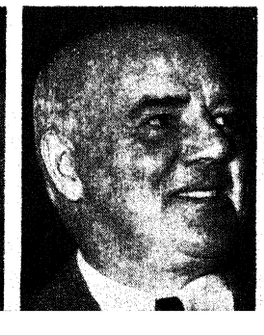
Wage raises totalling $100,000,000 yearly and changes in four working rules were granted to two railroad unions by Class I railroads in first settlement of kind worked out without government mediation.

15 **Four-year** $600,000,000 program for construction of 46 passenger liners was recommended by Pres. Truman's ad-

The pictures on this page are, left to right:

LUCKMAN.....Oct. 11
NU.....Oct. 17
PETRILLO.....Oct. 18
THOMAS.....Oct. 22
MIKOLAJCZYK.....Nov. 3




NOVEMBER—*Continued*

visory committee on merchant marine.

16 **British military forces** started scheduled withdrawal from Palestine.

American Iron and Steel institute and 101 steel producers were accused by Federal Trade commission of combining to block increased production and of discriminating against far west in selling methods.

17 Pres. Truman asked congress for authority to reimpose price controls, rationing and wage controls to prevent economic disaster in U.S. and to enable country to fulfil foreign-aid commitments; Truman's program was denounced by Sen. Taft as "step toward a completely totalitarian nation."

State department sources disclosed that U.S. tariff reductions, ranging up to 50% on major imports, had given stimulus to world trade.

18 **Soviet officialdom** and communist groups were warned to end "calculated campaign of vilification and distortion of American motives in foreign affairs" by Sec'y Marshall who asserted there was "no truth whatsoever" to their charges of U.S. imperialism and warmongering.

19 **Paul Ramadier** resigned as premier as French strike movement spread to coal and steel industries.

20 Princess Elizabeth, heiress presumptive to British throne, and Prince Philip, duke of Edinburgh, were married in London.

Charles Luckman resigned as director of government's food conservation program with Pres. Truman's assent, although latter asked Luckman to be part-time head of Citizens Food Advisory committee.

Russia informed Iranian government that cancellation of Russo-Iranian oil treaty was hostile action incompatible with normal relations between two countries.

21 **Gen. Omar N. Bradley** was appointed by Pres. Truman to become chief of staff of U.S. army upon Gen. Eisenhower's retirement; former Maj. Gen. Carl R. Gray, Jr., was named Bradley's successor as administrator of veterans' affairs and Maj. Gen. Clifford B. Cates was made commandant of U.S. marine corps.

Congress was asked by Sec'y of Agriculture Anderson for broad powers to curb speculation on grain exchanges.

At least 3 persons were killed and 30 others injured in fresh outbreak of rioting in Italy between communists and security forces.

U.N. conference on trade and employment opened in Havana.

22 Robert Schuman of Popular Republican Movement became premier of France after government he formed won 412–184 vote of confidence in national assembly.

23 **Six-engine XC-99** military transport—world's largest land aircraft—successfully completed 62-min. test flight near San Diego, Calif.

24 **Price ceilings** were reimposed on canned fruits and vegetables by Canadian government.

Debate on administration's $597,000,000 stopgap aid plan for European relief was opened with warning by Sen. Arthur Vandenberg that prompt action was needed to block Communist "wrecking crews" from killing recovery in western Europe.

Federal reserve board asked for authority to restrict instalment purchases for at least three-year period after three government agencies warned banks to exercise "extreme caution" in lending policies.

25 **Federal reserve board's** anti-inflation program calling for continued high taxes, tighter housing credit, longer working hours and strict government economy was presented to congress by Chairman Marriner S. Eccles; he also requested authority to make all commercial banks maintain new "special reserve" to reduce "swollen money supply."

Opening in London of Big Four's Council of Foreign Ministers was marked by soviet Foreign Minister Molotov's request to place Austrian peace treaty last on agenda.

Robert E. Hannegan resigned as postmaster general to head syndicate which bought controlling interest in St. Louis Cardinals baseball team and farm clubs for $3,000,000; Pres. Truman nominated Jesse M. Donaldson as Hannegan's successor.

26 **Molotov-Marshall tiff** snagged proceedings in Council of Foreign Ministers, with soviet foreign minister assailing western democracies as imperialist war fomenters and with Marshall replying that Molotov did not believe his own accusations.

Pres. Truman's air policy commission was told by W. Stuart Symington, secretary for air, that at least 630 of heaviest bombers strategically distributed throughout world were needed to meet state department's estimate of international situation.

27 **Plan to abolish** artificial exchange rate and to let lira's value be determined by supply and demand was announced by Italian cabinet.

28 **Premier Robert Schuman** won 322–186 vote of confidence in French assembly after promising energetic action to meet strike situation.

13 high nazi generals were indicted on charges of war crimes and crimes against humanity by U.S. military government tribunal in Nuernberg.

29 **U.S. army** ordered remaining 2,500 U.S. officers and men to prolong stay in Italy; move was linked to Washington's anxiety over continued Italian unrest.

Paris police entered Communist newspaper plants and suppressed editions after Premier Schuman asked French national assembly for six-month emergency police powers to suppress Communist agitators.

U.N. general assembly approved by 33–13 vote proposal to divide Palestine into Arab and Jewish states, both to achieve full independence by Oct. 1, 1948; Zionists expressed joy over U.N. action while Arab delegates were bitter.

30 **French national assembly** approved Premier Schuman's measure authorizing call of 80,000 reservists to use as police force to combat strikes.

DECEMBER

1 **NLRB** disclosed it had brought suit in federal court in Utica, N.Y., against union violation of Taft-Hartley act.

Disclosure that proving ground for military and peaceful products and nuclear fission was being built on Eniwetok atoll was made by U.S. Atomic Energy commission.

French Communists seized possession of national assembly to prevent expulsion of Communist member whose ouster was ordered by Pres. Edouard Herriot.

2 **Anti-inflation program** of Chairman Marriner S. Eccles of federal reserve board was rejected as unsound by members of Eccles' own advisory council.

Arabs and Jews battled in Jerusalem with Haganah, Zionist defense army, leading reprisals against Arabs who looted Jewish shops; call on Arab world to start Holy War against Palestine partition was issued by Moslem holy men of El Azhar university in Cairo.

4 **Government bill** providing heavy penalties for sabotage and strikes was approved by 413–183 vote in French national assembly.

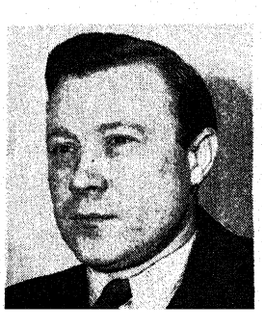
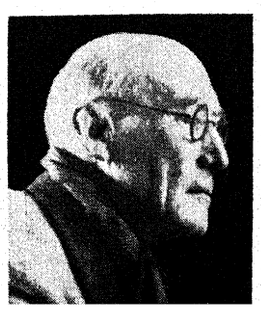
List of 90 organizations of alleged questionable loyalty to U.S., prepared under Att'y Gen. Tom C. Clark's supervision, was made public by special board reviewing federal employee loyalty.

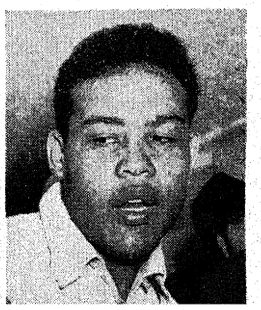
Soviet Foreign Minister Molotov was accused by Sec'y of State Marshall during session of London Council of Foreign Ministers of trying to disrupt European recovery program with his attacks on U.S. policy.

5 **44 persons** were killed in outbreak of Arab-Jewish violence in Aden.

The pictures on this page are, left to right:

REUTHER	Nov. 11
GIDE	Nov. 13
SCHUMAN	Nov. 22
LOUIS	Dec. 5
MICHAEL I	Dec. 30




DECEMBER—*Continued*

10 Hollywood figures who refused to tell Thomas committee whether they were communists were indicted by federal grand jury for contempt of congress.

Joe Louis retained world's heavyweight title by narrow margin after being twice floored by Jersey Joe Walcott in 15-round title bout in New York city.

Campaign plans to raise $8,000,000 for drive to repeal Taft-Hartley labour law were unanimously approved by more than 200 top members of A.F. of L.

6 Plea for unceasing battle to conserve country's natural resources was made by Pres. Truman in speech at Everglades National park, Fla.

8 U.S. supreme court ordered new trial for Eddie Patton, Mississippi Negro condemned to die on murder charge, on ground that Negroes were excluded from jury that convicted him of slaying white man.

Inter-American Defense treaty was ratified in U.S. senate by 72–1 vote.

9 Communist labour leaders in France called off strikes, summoning all workers to return to jobs.

Russia and France exchanged insults, with Moscow expelling French repatriation mission and breaking off trade talks and Paris retaliating by ousting soviet repatriation mission.

Complete authority to allocate and ration steel, fuel and most foods was requested of congress by administration to carry out four of ten points in Pres. Truman's anti-inflation program.

10 Sec'y Marshall called on Russia to end practice of seizing German assets in occupation zone after charging that Soviet Union expropriated German assets at rate of $500,000,000 yearly.

Iranian Prime Minister Ahmad Ghavam-es-Saltaneh failed in a vote of confidence in the Majlis (parliament) and resigned.

11 London Council of Foreign Ministers dispelled some of gloom surrounding it by agreeing to set level of German steel output at 11,500,000 ingot tons yearly.

Pres. Truman announced he would oppose any G.O.P. measure to relax antitrust laws and told congress that nothing short of his own ten-point program would curb inflation.

Russia and Britain reached basic agreement on trade pact under which Britain would receive food and Soviet Union machinery, J. Harold Wilson, president of board of trade, told commons.

12 Edwin W. Pauley defended his commodity trading as normal hedge against inflation and told senate appropriations committee that he relinquished $100,000 paper profit after accepting post as special assistant to secretary of war.

Pres. John L. Lewis of U.M.W.A. sent curt note to William Green announcing mine union's withdrawal from A.F. of L.

Leftist-dominated chamber of labour called off two-day general strike in Rome after Italian government acceded to some demands made by strikers.

Soviet Foreign Minister Molotov's angry criticism of western attitude on reparations, at London Council of Foreign Ministers, led Sec'y Marshall to retort that Molotov's procedure made it difficult to respect "dignity of Soviet government."

14 Soviet government announced plans to fight inflation by issuing new currency and abolishing all food rationing starting Dec. 16.

Last of U.S. troops in Italy left country aboard transport that sailed from Leghorn (Livorno).

Sec'y Marshall flatly denied Russian charges that U.S. business interests were acquiring German property and profiting on German coal and lumber exports at London Council of Foreign Ministers.

15 East-West chasm widened as London Council of Foreign Ministers adjourned with little accomplished.

Drastic reorganization of U.S. higher education was recommended by Pres. Truman's 28-man commission on higher education; group denounced as wasteful, segregation and quota systems practised in many higher institutions.

Moscow radio announced complete evacuation of all Russian troops from Bulgaria on Dec. 14 in accordance with peace treaty.

16 Charge that Russia had taken from its German occupation zone "considerably more" than $7,000,000,000 worth of reparations was made by Foreign Sec'y Bevin.

17 U.S. agreed to pay most of cost of running Anglo-U.S. zone of reich in return for controlling voice in zone's economic affairs.

18 U.S.S.R. was accused by Foreign Sec'y Bevin of infringing on sovereignty of satellites by preventing their participation in European Recovery program.

19 Congress was asked by Pres. Truman to authorize 4-year European Recovery program costing $17,000,000,000 to halt "selfish totalitarian aggression."

Alcide de Gasperi's 5th government won 303-118 vote of confidence from Italian constituent assembly after he vigorously denied opposition accusations that his government toadied to U.S.

Maj. Gen. Bennett E. Meyers and former associate Bleriot Lamarre were indicted by federal grand jury in Washington on charges of giving false testimony at senate inquiry.

Bill directing Sec'y of Agriculture Anderson to supply names of "all traders" on commodities exchanges was approved by congress and signed by Pres. Truman.

20 Sen. Taft contended congressional powers voted in special session would permit Pres. Truman to check virtually all principal inflationary causes "if he really wishes to do so."

21 Report calling for $135,000,000 national scholarship program for colleges and universities was issued by Pres. Truman's commission on higher education.

Iranian press dispatches said former Premier Ahmad Ghavam-es-Saltaneh was arrested and his passport seized as he was about to board U.S.-bound plane.

22 Constitution creating Italian republic was approved in constituent assembly by 453–62 vote.

U.S. action in detaining two Greek Communist correspondents on Ellis Island brought rebuke from U.N. Sec'y Gen. Trygve Lie who pointed out that U.S. was obliged to grant special status to accredited reporters under U.N. headquarters agreement.

Sec'y of Agriculture Anderson published list of 711 large traders in commodities exchanges.

Agreement leasing 13 military bases to U.S. for defense of Panama canal was rejected by 51–0 vote in Panamá assembly.

Friedrich Flick, German industrialist, was found guilty of war crimes by U.S. military court in Nuernberg and sentenced to 7 years in prison from the time of his arrest in Aug. 1945.

23 Harold Stassen, G.O.P. presidential aspirant, obliquely charged that "administration insiders" had improperly profited in commodities markets.

"First Provisional Democratic Government of Free Greece" was proclaimed by Gen. Markos Vafeiades, Greek guerrilla chieftain, in communist-dominated areas.

Bill providing $522,000,000 in stopgap relief for France, Italy and Austria, $18,000,000 for China and $340,000,000 for U.S. occupational expenses was signed by Pres. Truman.

U.S. government announced it was evacuating all military bases in Panamanian republic outside of Canal Zone.

Pres. Truman pardoned 1,523 men convicted during World War II of violating Selective Service act.

24 Creation of interdepartmental committee for scientific research and development was announced by Pres. Truman, who appointed John R. Steelman as his liaison agent with new body.

25 Proof that scientists could produce an infectious cold was offered in article by Dr. Norman H. Topping and Dr. Leon T. Atlas issued by U.S. public health service.

Nationalist China's new constitution was proclaimed as being in force by Nanking's publicity organs.

26 Pres. Truman delegated all authority for European stopgap aid plan to Sec'y Marshall.

Gen. Hideki Tojo charged U.S. and Britain forced war on Japan as he took witness stand in trial of Tokyo war criminals.

28 Pres. Truman announced he would sign G.O.P. anti-inflation bill, but said he would be shirking duty if he failed to tell public that measure was "pitifully inadequate."

29 Henry A. Wallace announced plans to run for president on third-party platform pledged "to positive peace program of abundance and security, not scarcity and war."

30 King Michael of Rumania announced decision to abdicate; shortly thereafter Rumanian government proclaimed "People's Republic."

31 Sec'y of Agriculture Anderson urged congress to halt listing of commodity speculators on ground that it caused "heartache" to many innocent people, but added that listing of public officials involved in grain speculation should continue.



BOOK OF THE YEAR

Abrasives. The salient data on abrasives in the United States are presented in the accompanying table, supplemented by brief notes on general conditions.

United States Production of Abrasives

(In short tons, or as indicated)

	1943	1944	1945	1946
Aluminous Abrasives				
Corundum*	5,686	6,402	6,244	4,207
Emery	6,666	6,940	7,856	6,188
Carbon Abrasives				
Industrial diamonds, carats*	12,175,430	12,656,835	10,793,285	4,705,118
Silica Abrasives				
Quartz	99,445	82,379	57,764	73,179
Sand (abrasive)	837,662	897,983	642,511	906,889
Sand and sandstone (ground)	541,350	558,606	533,656	575,888
Tripoli	14,912	18,425	18,247	28,955
Silica Stone Abrasives				
Grindstones	10,732	9,373	10,033	11,605
Millstones (value)	$9,240	$9,700	$15,018	$14,780
Pulpstones	1,891	?	?	72
Tube mill liners	2,585	2,063	1,982	2,375
Grinding pebbles	9,924	8,012	8,615	4,652
Silicate Abrasives				
Garnet	5,935	?	6,306	7,743
Pumice	85,150	88,757	157,011	319,883
Artificial Abrasives				
Silicon carbide†	69,706	56,291	53,733	63,849
Aluminum oxide†	217,425	185,573	147,016	132,084
Metallic abrasives†	124,954	144,550	146,771	111,512

*Imports; no domestic production. †Includes Canada also.

Most types of abrasives were in greater demand in 1946, and both domestic production and imports reacted accordingly. Tripoli, quartz, grindstones and tube mill liners increased in output, sales of garnet were the greatest after 1925, and new high records were made by sand abrasives and pumice. Pulpstones were again produced in small amount, after two years of inactivity. Of the list, declines were limited to emery and millstones. The demand for artificial abrasives was concentrated on silicon carbide, which increased 19% in output, while metallic abrasives dropped 24% and aluminum oxide fell 10%.

Foreign Trade.—The dollar value of all natural abrasives imported into the U.S. in 1946 was $15,320,284, compared with $13,493,381 in 1945 and a high of $23,456,221 in 1944. Heavy increases in the value per carat for certain types of industrial diamonds were mostly responsible for the 1946 increase, though the weight of stones imported dropped sharply. Besides diamonds, there were increased values for pumice and flint, while corundum, emery wheels, and burrstones declined.

Exports of abrasive materials from the U.S. rose from $2,087,598 in 1945 to $2,426,853 in 1946, as compared with the 1942 high of $6,684,352.

Canada.—Except for sand and quartz there is little production of abrasives in Canada. Ontario has a small output of corundum, which decreased from 1,317 short tons in 1945 to 1,190 tons in 1946, while New Brunswick turned out 225 tons of grindstones in 1945 and 250 tons in 1946. (G. A. Ro.)

Abyssinia: *see* ETHIOPIA.

Academy of Arts and Letters, American: *see* SOCIETIES AND ASSOCIATIONS.

Academy of Political and Social Science, American: *see* SOCIETIES AND ASSOCIATIONS.

Accident Insurance: *see* INSURANCE.

Accidents. Accidental deaths in the U. S. during the first nine months of 1947 totalled 75,900, an increase of more than 3,000 over the nine-month total in 1946. The largest portion of the increase was in public nonmotor vehicle deaths, but occupational and home deaths were also more numerous than in 1946. Motor vehicle deaths, however, totalled about 1,700 less than during the preceding year.

Home accidents were responsible for 25,200 deaths during the first nine months of 1947, which was 1,200 more than the corresponding figure for 1946.

Safety work throughout the nation continued to expand during 1947. Activities of the National Safety council and its affiliated state and community organizations were intensified, along with the accident prevention efforts of industry, schools, and governments, and private agencies of many kinds.

A National Safety congress was held in Chicago in 1947. The 10,000 delegates attending represented every phase of

safety in every part of the country.

A Highway Safety conference—a follow-up of the one in 1946—was called by President Harry S. Truman in June of 1947. At this meeting educators, engineers, police, jurists, motor vehicle administrators, safety council executives, governors, and mayors worked out recommendations covering accident records, laws and ordinances, education, enforcement, engineering, motor vehicle administration, public information and organized public support. (*See* also FEDERAL WORKS AGENCY.) (R. L. Fo.)

Traffic Accidents.—Although considerable progress was made in highway safety during 1947, there still remained a tremendous amount of work to be done.

The 1947 traffic toll was 32,000 deaths and approximately 1,100,000 nonfatal injuries. The value of property destroyed and damaged by 1947 traffic accidents was estimated at $900,000,000. The 1946 death toll was 33,700.

The mileage death rate—deaths per 100,000,000 vehicle miles—was estimated at 8.6, lowest in the nation's history. Travel was generally about 10% above 1946 and 12% higher than in 1941.

The nation's top safety experts gathered in Washington, D.C., June 18-20 to study progress made since adoption of the Action Program of the president's Highway Safety conference in 1946. Delegates reported need for more rapid adoption of the program at the community level.

Two committees, the Federal Committee on Highway Safety and the State Officials' National Highway Safety committee, were activated to assist in this work. They were to co-operate with the National Committee for Traffic Safety, the third major committee established by the 1946 conference.

One of the most important developments of the 1947 conference was establishment of a new advisory group on highway safety research which was to re-examine and reappraise knowledge of highway accident causes and remedies. The advisory group was appointed by Major General Philip B. Fleming, general chairman of the conference. Sidney J. Williams, assistant to the president of the National Safety council, was chairman of the group.



"YOU GAMBLED BUT I PAID," an indictment by Fitzpatrick of the *St. Louis Post-Dispatch*, charging negligence in the tragic mine explosion at Centralia, Ill., in March 1947

Grand award winners in the National Traffic Safety contest, conducted by the National Safety council, were Washington, D.C., in the intercity section and Connecticut in the state section. Cities winning first place in their respective population groups were: Washington, D.C. (500,000 and more); San Diego, Calif., and Memphis, Tenn., tie (250,000 to 500,000); Omaha, Neb. (100,000 to 250,000); Hamtramck, Mich. (50,000 to 100,000); Rochester, Minn. (25,000 to 50,000); and Logan, Utah, and Albert Lea, Minn., tie (10,000 to 25,000).

A special honour roll listed 160 cities with population from 5,000 to 10,000 which went through 1946 without a traffic death.

Omaha, Neb., took the grand award prize in the National Pedestrian Protection contest sponsored by the American Automobile association. Top honour among states was won by Connecticut. Detroit won first place among cities of more than 500,000 population. Other first place winners were Schenectady, N.Y. (50,000 to 100,000); Hamtramck, Mich. (25,000 to 50,000)[1]; Wilmette, Ill. (10,000 to 25,000); and Ely, Minn. (less than 10,000).

Considerable improvement was noted in the police phases of enforcement, particularly in the areas of personnel increases and selective enforcement.

Both Los Angeles and Chicago, assisted by the Traffic Division of the International Association of Chiefs of Police, reorganized their traffic control programs. Los Angeles increased its general police budget by $3,000,000 for purchase of new equipment and addition of 1,170 officers, a portion of which would be assigned to traffic. Traffic personnel was increased 70%.

Chicago reorganized its control program, including court handling of traffic cases, in an effort to reduce deaths and injuries. Traffic personnel was being increased from 569 to 1,040. The city planned to spend approximately $5,000,000 for enforcement during 1948.

The American Bar association took the lead in the work of improving court handling of traffic cases. Working with the Northwestern University Traffic institute as co-sponsor, the association held regional conferences for traffic court judges and prosecutors for the purpose of acquainting them with modern problems of enforcement and adjudication. Funds for the program were provided by the Kemper Foundation for Traffic Safety.

The state of New York established a division of safety under the direction of Thomas W. Ryan. Its purpose was to coordinate safety efforts of government departments with other interested organizations and agencies in a state-wide co-operative safety effort.

Organization of the California highway patrol as a separate state agency, recommended by the International Association of Chiefs of Police Traffic division in a survey of the state's law enforcement agencies in 1946, was accomplished in October. Clifford E. Peterson was named commissioner.

A comprehensive survey of safety education programs in colleges and universities was undertaken by the National Commission on Safety Education. The study also outlined best methods of initiating safety activity, particularly those organized as special bureaus of public safety.

The National Committee on Uniform Traffic Laws and Ordinances was organized during 1947. Its purpose was to make periodic reviews of the Uniform Vehicle code and the Model Traffic ordinance—the recognized national standards for state

[1]Hamtramck's population is approximately 50,000. It was placed in the 50,000 to 100,000 population group for the National Traffic Safety contest; in the lower group for the National Pedestrian Protection contest.

and municipal traffic legislation.

The Uniform Laws division of the Automotive Safety foundation conducted pilot studies for cities and states wishing to determine how their traffic laws conform with national standards. Representative states and cities which had such comparative analyses made during 1947 were Michigan, Indiana, Arizona, New York city, Lansing, Mich., and Lafayette, Ind. A similar study was made of the Model ordinance for Colorado cities under the sponsorship of the Colorado Municipal league.

Twenty-nine colleges and universities held training courses for motor vehicle fleet supervisors during 1947. Approximately 900 supervisors, having management of about 185,000 drivers of commercial vehicles, were enrolled.

The Inter-Industry Highway Safety committee was organized by the automotive and allied industries. Its purpose was to encourage dealer and sales representatives of these industries to assist and co-operate with state and local officials having legal responsibility for safety, and with all civic and business groups enlisted in the safety movement.

The Public Roads administration of the Federal Works agency reported that improvement of the nation's highways proceeded at a faster rate in 1947 than in previous years. Contract awards authorized by the states during the year called for $895,000,000 worth of work on 44,700 mi. of road. This was approximately $150,000,000 more than the cost of road construction contracted for in 1946.

The 1947 total included contracts for Federal-aid projects to cost $640,000,000 and involving 19,800 mi. of roads.

The Institute of Traffic Engineers appointed one of its members to the position of its first full-time executive secretary in April. The institute was planning a series of regional traffic engineering conferences to provide in-service training for highway and municipal engineers and others having responsibility for facilitation and safety of traffic movement. The first of the conferences was to be held at the University of Minnesota early in 1948. Others were to be held in Florida, Texas, southern California and Oregon.

The Alfred P. Sloan Foundation, Inc., awarded a $15,000 grant to the Yale university Bureau of Highway Traffic for a special study of relationships, policies and technical practices of state and local agencies concerned with traffic administration. The grant would finance two research fellowships for the project, which would attempt to establish a more effective approach to the application of modern engineering techniques of street and road problems.

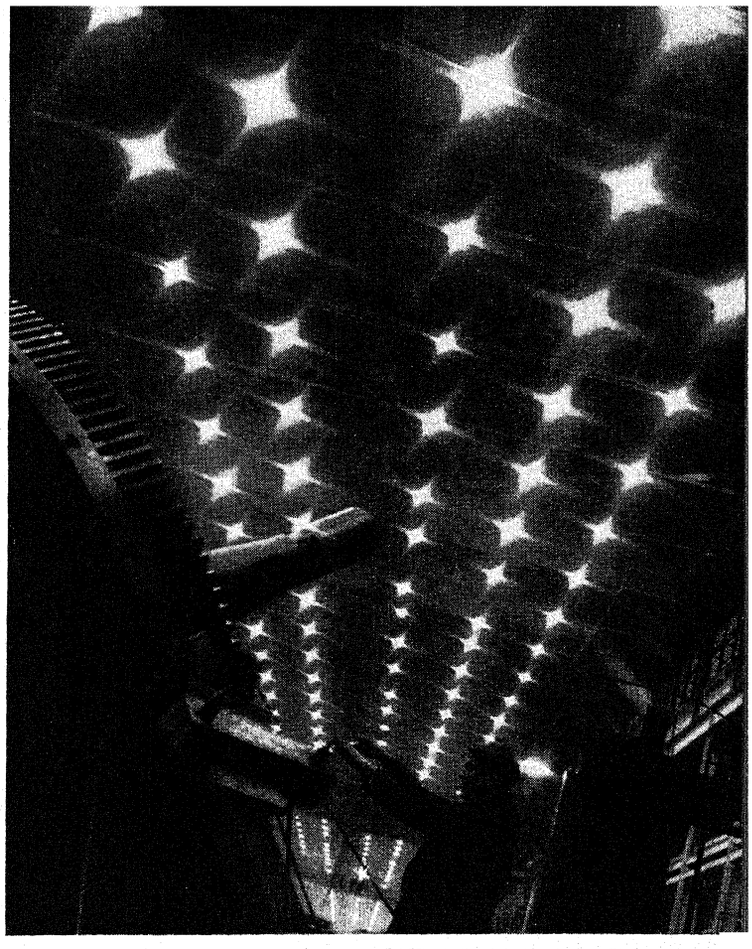
The Northwestern University Traffic institute finished its 11th year of training city and state police in specialized traffic control. Training of key army personnel was continued at the institute as part of the traffic phase of the army-wide safety program. Four courses had been held.

Work of the Traffic division of the International Association of Chiefs of Police was expanded to include administrative traffic engineering surveys and assistance in remodeling traffic legislation and courts, as well as routine traffic control installations.

Reorganizational work in Chicago, Los Angeles and Denver was the most important undertaken by the Traffic division during the year. The organization also worked with the Utah State Highway Patrol; and departments at Billings, Mont.; Salt Lake City, Utah; Portland, Ore.; Richmond, Calif.; Montgomery, Ala.; Jamestown, N.Y.; Fort Wayne, Ind.; Waterbury, Conn.; and Oakland County, Mich.

The I.A.C.P. regional training program was expanded. New York university, the University of Southern California and Georgia School of Technology co-operated in offering courses.

(F. M. K.)



MERCURY VAPOUR LAMPS installed during 1947 at the Westinghouse Electric Corp. plant in Pittsburgh, Pa., creating an average of 45 footcandles of light near floor level to provide a maximum of safety against industrial hazards

Canada.—Industrial accidents cost Canada $48,200,000 in compensation and medical bills in 1946 (1945: $25,100,000). The 1946 figure was 375,804 accidents (1945: 331,483), of which 1,010 were fatalities (1945: 1,101).

Accidents on Canadian farms during the 12 months ended June 1, 1947, totalled 37,200 of which about half involved lay-offs from work of more than 3 weeks. Percentages were: 11.9% in the maritimes, 28.7% in Quebec, 24.1% in Ontario, 32.9% on the prairies, and 2.4% in British Columbia; 31.5% happened to farm people within the age group of 25-44 years and 25.3% in the group of 45-64 years; 56.2% happened in the six months May to October; 6.7% caused partial or permanent disability. About 600,000 man-hours were lost.

During the 16-year period ended Sept. 1947, 10,066 persons were killed and 175,168 were injured in automobile highway accidents in Ontario. Property damage amounted to $31,000,000. In 1947 the Ontario government took measures to control these fatalities by (1) stiffening the Highway Traffic act which provided suspension of licenses for 14 traffic offenses, (2) ordering the department of highways to conduct a vigorous educational campaign, (3) providing the provincial police with 300 cars having two-way frequency modulation radio equipment. Similar stiffening of highway traffic regulations in Manitoba reduced accidents 30.2% (1946: 1,914; 1947: 1,335). (C. Cy.)

Great Britain.—Eighty-eight people lost their lives and more than 220 were injured in railway accidents in Great Britain during the year. Aircraft accidents in Great Britain were responsible for 31 deaths. Although some improvement was shown in road accident statistics during the earlier part of the year, the total of 523 deaths in September was the highest for that month since 1942. Total killed and injured during the first 9 months was 125,166. On Oct. 7, the Committee on Road

Safety (chairman, G. R. Strauss, until September parliamentary secretary to the ministry of transport) presented its final report. Recommendations included periodical inspection of all motor vehicles, and penalties for pedestrians and cyclists guilty of traffic offenses.

(*See* also DEATH STATISTICS; DISASTERS; INDUSTRIAL HEALTH.) (J. LN.)

Acheson, Dean Gooderham (1893–), U.S. government official, was born on April 11, in Middletown, Conn., and received a law degree from Harvard in 1918. He served as a naval ensign in World War I and later became private secretary to Louis D. Brandeis, associate justice of the U.S. supreme court. He then engaged in law practice. In Feb. 1941 he was appointed assistant secretary of state, and with the formation of the United Nations Relief and Rehabilitation administration in 1943, Acheson became the U.S. member of its council. After the resignation of Joseph C. Grew, Acheson was named (Aug. 16, 1945) to succeed him as undersecretary of state.

In 1947, Acheson became one of the foremost champions of the Truman doctrine, and in a statement before the house foreign affairs committee on March 20, he discounted the possibility that implementation of the administration's Greek-Turkish aid program would lead to war, declaring that failure to make the doctrine effective might lead to conflict. In subsequent statements, Acheson called for extension of the administration's authority to embargo exports to certain foreign countries (May 8) and blamed (June 15) Russia's "pursuit of policies diametrically opposed to the very premises of international accord" for retarding world recovery.

Acheson left the government's service to return to his private law practice on June 30.

Actors and Acting: *see* THEATRE.

Aden. A British colony in southwest Arabia, including Perim Island in the strait of Bab-el-Mandeb and the Kuria Muria islands, five in number, off the Dhufar coast of Oman. Area (Aden and Perim): 80 sq.mi.; pop. (1946 census): 86,309. The Aden protectorate (western and eastern) covers an area of about 112,000 sq.mi.; pop. (estimated): 630,000. Languages: English and Arabic (Indian languages and Somali also spoken in the colony); religion: predominantly Moslem. Governor: Sir Reginald S. Champion (appointed 1944).

History.—Much attention was given to housing and town-planning in the colony during 1947. In July 1947 it was announced that 57 licences had been given for the construction and reconstruction of houses in Aden and 4 for the erection of new temporary buildings. A grant of £27,500 was approved under the Colonial Development and Welfare act toward the cost of constructing working-class dwellings. In educational matters, the project for the establishment of a new ("Lord Lloyd") college in the protectorate proceeded somewhat slowly. The British council felt themselves compelled, for financial reasons, to withdraw from the scheme; but later in the year a grant of £100,000 for its support was sanctioned under the Colonial Development and Welfare act.

Finance and Trade.—The monetary unit in the colony is the Indian rupee (30.17 U.S. cents in 1947); in parts of the protectorate the Maria Theresa dollar is also used. Revenue in the colony (1946–47 estimated): Rs. 99,50,000, expenditure Rs. 94,04,000. In the protectorate: expenditure for 1946–47 was estimated at £305,150. Imports (1945) were valued at £11,536,000 and exports at £5,838,000. There is no public debt. (J. E. SH.)

Adjusted Compensation: *see* VETERANS' ADMINISTRATION.

Adult Education: *see* EDUCATION.

Advertising. Advertising in 1947 was marked by increased volume that reflected the unprecedented business activity in the United States. Expenditures for 1947 and 1946 were estimated as follows:

*Advertising Expenditures**
(Millions of Dollars)

	1947	1946
Newspapers	$1,302.1	$963.8
Radio	485.1	489.5
Magazines	464.7	402.7
Direct mail	324.8	278.8
Trade and business papers	207.4	178.0
Outdoor	110.8	85.9
Farm papers	47.0	35.7
Miscellaneous	762.4	654.5
Total	$3,704.3	$3,088.9

*Estimates by Hans Zeisel, McCann-Erickson, Inc.

The increase was caused to some extent by rises in rates and changes from black and white to colour in publication advertising. Although volume was higher than ever before, students of advertising speculated upon the fact that the proportion of national income spent for advertising in 1947 was only 1½%, whereas the $2,600,000,000 spent in 1929 represented 3%.

Advertising was marked during 1947 by competitive selling that had been largely absent during World War II. It became more competitive not only in the more direct selling appeals used, but also in the devices employed. Increasing use was made of premiums and contests, for example.

Costs of advertising continued to rise. A typical advertiser who spent $1,000,000 for magazine advertising in 1945 found that he had to budget $1,300,000 in 1948 to secure the same number of pages in the same magazines, because both space charges and costs of mechanical preparation had risen.

After several months of research, a joint committee of the Association of National Advertisers and the American Asso-



ONE OF A SERIES of advertisements sponsored by the Scripps-Howard newspapers and selected by the Annual Advertising Awards jury as contributing most to the advancement of advertising as a social force during 1947

ciation of Advertising Agencies announced a program of advertising to promote understanding of the U.S. economic system. Subsequently the Advertising council announced that it would help put this program into effect.

Shortage of paper continued to be a limiting factor in the development of European advertising. In England, France and several other countries, it remained still impossible to buy much advertising space in the newspapers. Schedules had to be placed on a problematical basis, with size of individual advertisements strictly limited. Equipment for outdoor advertising suffered badly, and metal sheets to replace panels destroyed were largely unavailable. Printing presses of the continent had insufficient parts available to keep them in good condition. In spite of these many drawbacks, however, volume of European advertising was increasing.

Many European advertising agencies disappeared completely during World War II or were greatly harmed by it. Although conditions were generally improved, countries such as Poland, Yugoslavia and Rumania were still unable to handle U.S. advertising as the year ended.

Newspapers.—The Bureau of Advertising of the American Newspaper Publishers association estimated that national advertising placed in U.S. newspapers during 1947 amounted to $372,000,000, or $102,000,000 more in dollar volume than for 1946. In a study of the readership by women of 979 grocery advertisements, conducted by the bureau, it was found that newspaper advertisements with dominant illustrations were better read than those with incidental illustrations, that those with photographic illustrations received better readership than those using wash or line drawings, that those with dominant reverse plate areas were less effective than those with positive treatment. The average readership of advertisements with food illustrations was 50% higher than that of the other advertisements.

In the move for more postwar advertising, weeklies were joining the Audit Bureau of Circulations at a faster rate than before. It was announced that 556 of them had enrolled and that applications were in from 147 others, so they were outnumbered only by the 1,117 daily newspapers represented in the bureau.

In the competition to retain their share of the advertising dollar, newspapers were turning to the use of colour. At the start of 1947, it was estimated that only 398 daily newspapers were equipped to accept advertising in at least one colour besides black; of these, 156 could reproduce two colours in addition to black and white and 86 the maximum three additional colours. It was estimated that by the end of the year approximately 500 newspapers were equipped to print in colour. Of the newspaper presses on order, colour printing was specified in 90%. (*See* also NEWSPAPERS AND MAGAZINES.)

Radio.—In 1947 radio ownership, multiple-set ownership and total radio listening in the U.S. were at all-time peaks, as the radio manufacturers were establishing all-time production records. Columbia Broadcasting system stated, on the basis of a survey, that 35,900,000 homes in the United States, or 93% of all, had 52,500,000 operating receivers, exclusive of automobile and portable radios. One out of every three families had more than one radio, an increase of 89% over figures for 1944. Two sets for each family instead of one increased listening 28% or 62 minutes a day, according to CBS. With one set, the family devoted 223 minutes a day to listening; with two sets, 285 minutes.

The year saw accentuation of trends that had been apparent in commercial radio after the end of World War II. There was a general swing back to less expensive shows. Creation of programs was being taken up increasingly by the networks, with the agencies and clients tending to control the various elements of the

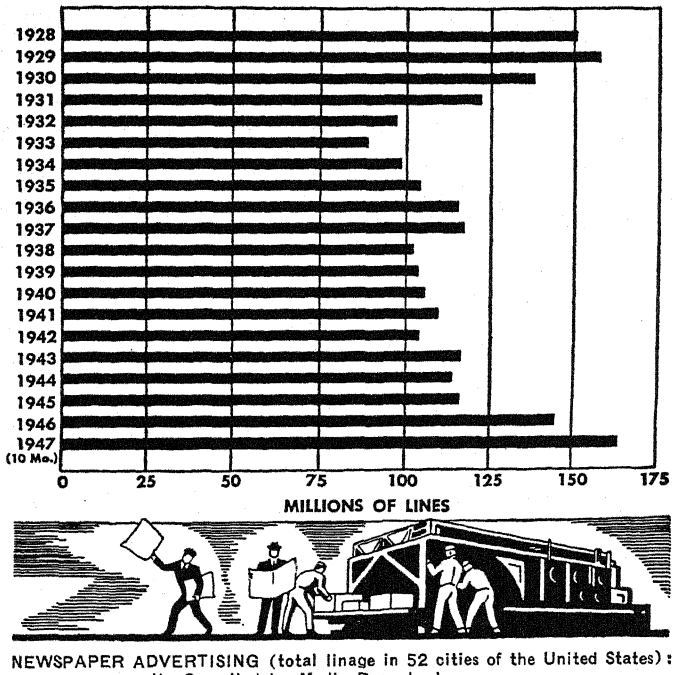


DIAMOND ADVERTISEMENT (original in colour) prepared for De Beers Consolidated Mines, Ltd., adjudged the most technically distinguished of 1947 by criteria of visual presentation (layout, art, typography)

programs. Another trend was toward transcribed programs. Surveys showed listener indifference as to whether or not a show was transcribed and a wide general acceptance of transcribed programs by local stations with a strong dependence upon them for programming. The "disc jockey," or radio commentator whose chief task is to play records, came into prominence. Another trend was for cigarette companies to buy time during the day in an effort to reach more women. Still another development was the use of limited networks for supplemental campaigns, the introduction of new products, trials of new programs, and so on.

There was widespread criticism of radio commercials. One move by the industry to offset this criticism was the proposal by the National Association of Broadcasters of a code of standards. If adopted, this would reduce advertising on the air from 3% to 20%. The code proposed the following reforms: (1) a stipulation that no 15-minute program contain more than three minutes of commercials; (2) the placing of only one commercial spot announcement between regularly scheduled programs; (3) a ban on any commercial announcement in the middle of a news broadcast less than 15 minutes long; (4) an unqualified prohibition on the dramatization of political or other controversial issues.

In March the Broadcast Measurement bureau's Area Audience Report was received by its subscribing stations and members of the American Association of Advertising Agencies and the Association of National Advertisers. A project upon which the BMB had been working from 1945, the 780-page book showed audiences of 800 radio stations in 3,500 United States and Canadian counties and in 1,200 cities. BMB also reported 575 subscribers as of Jan. 1, 1948, including 568 stations, 4 national and 3 regional networks.



NEWSPAPER ADVERTISING (total linage in 52 cities of the United States): average per month. Compiled by Media Records, Inc.

A study of merchandising aids offered by radio covered 535 amplitude modulation (AM) stations in cities of 50,000 population or more and revealed that 73% of these stations offered some form of merchandising assistance, the most common form consisting of notification of distributors and dealers of advertising campaigns and providing advertisers with market data.

Facsimile broadcasting, bringing a small printed newspaper broadcast directly into the family living room, grew in importance as a form of news dissemination. A facsimile set produces on a roll of sensitized paper the same shades of black and gray that appear on the original copy at the broadcasting station. It permits the transmission of pictures as well as copy at the rate of 500 words a minute. (*See* also RADIO.)

Television.—Television made great strides during the year. As of Jan. 1, 1948, there were approximately 170,000 sets in operation in the United States, compared with 8,000 a year before.

A survey made for General Foods corporation studied television audiences in the New York city area, where it was estimated that 64% of television sets were situated. It was found that 71% of owners called their sets "wonderful," that an average family owning television in New York had a set with a seven-inch or ten-inch screen and had owned the set from 4 to 12 months. The family was composed of 3.3 persons, had an average evening audience of 3.47 persons for each viewing set. Average tune-in was 17 hours a week. First preference of the audience in respect to programs was for more new movies. Sponsor identification of seven programs checked by the coincidental method was 68%. (*See* also TELEVISION.)

Magazines.—An estimate by the Magazine Advertising bureau put 1947 as the greatest year in the history of magazine advertising. The 101 general and 11 national and regional farm magazines reported upon (Sunday supplements excluded) were estimated to have gross advertising revenue of $440,000,000, a figure $59,000,000 higher than in 1946 and nearly twice as high as the total advertising volume carried in magazines in 1943.

In July the bureau reported on individual advertisers of the previous year. In 1946 there were 57 advertisers who spent $1,000,000 or more in the nation's magazines, as against 49 in 1945, 27 in 1942 and 24 in 1939. These 57 advertisers invested $113,200,000 in magazine advertising during 1946.

In Jan. 1948 the bureau released the first report on its Nationwide Magazine Audience Study. It showed that 68.9% of all persons 15 years old or more in the United States, both urban and rural areas, read at least one magazine, and in 82.5% of all families at least one individual was a magazine reader. Hence, it was said, magazines had an audience of more than 75,000,000 persons and 31,000,000 families. The report showed that 89% of all individuals with high school or college education read magazines.

Magazines continued to expand in other countries. *World Horizons,* the first of a projected overseas chain of 55 magazines affiliated with *United Nations World,* appeared in May 1947 in Sweden. Other overseas editions were planned for France, Great Britain, Uruguay, Mexico. Macfadden Publications, Inc., announced that after World War II it had established or re-established 9 overseas editions out of a total of 15 planned, and announced that they shortly would be taking U.S. advertising. Beginning with the 1948 February edition, *The Reader's Digest* planned to publish a special edition for South Africa to carry advertising. Crowell-Collier Publishing company announced it was planning to issue a multilingual international magazine to be prepared editorially in New York city, then translated into foreign languages and printed and distributed in other areas of the world by local publishers.

The first report of the Continuing Study of Farm Publications was issued by the Advertising Research foundation. It measured the readership of *The Ohio Farmer* and was sent to advertisers, agencies and publishers. Subsequent reports studied *The Washington Farmer* and *Successful Farming.* Among matters studied were number of readers per subscriber family, readership of individual advertisements and editorial features, subscribers' acreage, livestock and crops.

The average circulation per issue during the first six months of 1947 for 249 magazine members of the Audit Bureau of Circulations was 163,118,748, compared with 161,022,740 for 1946 and 100,044,196 for 1940. A survey showed that approximately 40,000,000 copies of comics magazines were sold each month, at a cost of some $4,000,000.

The Hulton Readership survey was conducted in Great Britain for the first time since before the war. It was an analysis for advertisers of the readers of British national, seminational and local morning and evening daily newspapers; local weekly and biweekly newspapers; national and seminational Sunday newspapers; and fortnightly and monthly magazines. The analysis was by region, sex, age, social class and other characteristics. It estimated a total population of 35,800,000 aged 16 and more as readers, and that percentages of this population reading the various types of periodicals were as follows: national morning newspapers, 78.3%; national Sunday newspapers, 89.9%; evening newspapers, 66.6%; local weeklies or biweeklies, 56.5%; general weekly magazines, 70.3%; general monthly magazines, 29.0%.

Direct Advertising.—An estimate by the Direct Mail Advertising Association, Inc., put U.S. direct advertising expenditures in 1947 at $750,000,000, with approximately half of this in direct mail. Its definition of direct advertising included direct mail and all unmailed printed promotion such as product literature, dealer helps, printed point-of-sale material, house organs, catalogues, printed public relations materials, annual reports, package inserts, calendars, letters. A year-end survey by the association stated that 70.8% of the reporting firms declared that they would increase their budgets for direct advertising in 1948, with 27.8% planning the same expenditure as in 1947 and 1.4% expecting to spend less.

The association, with a membership of 1,500 companies, announced the establishment of a new advisory board to promote

the more effective and extensive use of direct advertising in all parts of the United States.

Trade and Business Papers.—The Business Paper Advertising competition conducted by the Associated Business Papers included 912 campaigns represented by 2,736 individual advertisements, or 163 more entries than in 1946. Judges expressed concern over the large number of entries in which the advertiser made no effort to check effectiveness of his advertising and the lack of continuity in advertising campaigns.

The National Conference of Business Paper Editors changed a 29-year-old rule to admit editors of publications not members of the Associated Business Papers group.

In April it was announced that in 1946 U.S. manufacturers had used approximately 25,000 pages of advertising in U.S. business and class magazines in the export field. The information was based upon a survey among 26 U.S. companies publishing magazines in the export field.

Outdoor Advertising.—National outdoor advertising in 1947 was estimated as 26.3% greater in volume than in the previous year. Equipment was being expanded as materials became available, and it was expected that there would be sufficient facilities in 1948 to take care of the 19% increase in business with which the year opened.

Traffic Audit Bureau, Inc., published a study of outdoor advertising in Ft. Wayne, Ind., a city chosen as typically U.S. It was the first TAB study since the war.

A total traffic or gross outdoor advertising circulation increase of 37.6% compared with 1939 was recorded by the TAB study. Passenger automobiles constituted 82.3% of total vehicular traffic; trucks, 13.1%; other vehicles, 4.6%. It was found that 76% of persons more than 14 years old go outdoors daily, and that 35% of the trips are in connection with jobs, 22.6% for social purposes, 14.7% for shopping, 8.1% to go to church, 4.8% to attend school and 14.8% for other reasons. Of a total of 3,547 trips analyzed, 47.2% were by automobile only and 20.2% by foot only.

Transportation.—Volume of transportation advertising was $23,000,000 in 1947, or 7% higher than in 1946, according to an estimate by the National Association of Transportation Advertising, Inc. Rate increases accounted for more than half of this increase. The volume was divided almost equally between local and national advertising, both classifications showing same percentage of increase.

A major development during the year that helped account for some of the gain was standardization of sizes and additional installations of travelling displays on the outside of transit vehicles.

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Aerial Photography: *see* PHOTOGRAPHY.
Aeronautics: *see* AVIATION, CIVIL; AVIATION, MILITARY.

Afghanistan.

A Moslem kingdom lying between U.S.S.R. (N.), China and India (E.), Pakistan (S.) and Iran (W.). Area: *c.* 270,000 sq.mi.; pop. (est. 1946): 12,000,000. Chief towns (pop. est. 1946): Kabul (cap., 206,200); Kandahar (77,200); Herat (75,600); Mazar (41,900). Language: Persian, Pashtu; religion: Mohammedan. Ruler: Mohammad Zahir Shah; prime minister: Sardar Shah Mahmud.

History.—The change of cabinet that took place in 1946, after a period of 17 years without change, led to the proclamation of a general amnesty for political prisoners and the setting up of a high court of justice for the trial of future political offenders. Because of close ties of kinship and common cultural tradition, Afghanistan was deeply concerned over the question of the right to self-determination of the Afghans of the North-West Frontier province of India, arising from the creation of the separate independent states of India and Pakistan. Afghanistan sent an observer-delegate to the Geneva meetings of the U.N. Conference on Trade and Employment. (A. R. PK.)

Education.—1946: schools 369, pupils *c.* 100,000; the University of Kabul was extended to five faculties.

Finance.—1946: currency, Rs. 3.95 (Afghan) = Rs. 1 (Indian) = 30.23 U.S. cents.

Trade and Communication.—Foreign trade: exports (1945–46) Rs. 718,431,373; exports to Great Britain (1946) Rs. 294,030; imports from Great Britain (1946) Rs. 1,696,840. Roads (1947): motor roads 5,107 mi., caravan roads *c.* 1,500 mi. At the beginning of 1947 there was one radio broadcasting station, at Kabul.

Agriculture.—By 1945 one-fifth of the soil was under cultivation. Production for export, 1945–46 (in short tons): dried fruit 44,000; wool 7,700; cotton 4,400; karakuls 2,400,000 skins.

A. F. of L.: *see* AMERICAN FEDERATION OF LABOR.
Africa: *see* BRITISH EAST AFRICA; BRITISH SOUTH AFRICAN PROTECTORATES; BRITISH WEST AFRICA; FRENCH OVERSEAS TERRITORIES; ITALIAN COLONIAL EMPIRE; PORTUGUESE COLONIAL EMPIRE; SOUTH AFRICA, THE UNION OF; SPANISH COLONIAL EMPIRE; TRUSTEE TERRITORIES, etc.
Agricultural and Industrial Chemistry, Bureau of: *see* AGRICULTURAL RESEARCH ADMINISTRATION.
Agricultural Machinery: *see* AGRICULTURE.

Agricultural Research Administration.

Established in 1941 to direct and co-ordinate research in the United States department of agriculture, the Agricultural Research administration comprises seven agencies whose functions are the conduct of research and certain regulatory activities based on research. The component agencies are the bureaus of agricultural and industrial chemistry; animal industry; dairy industry; entomology and plant quarantine; human nutrition and home economics; plant industry, soils and agricultural engineering; and the office of experiment stations.

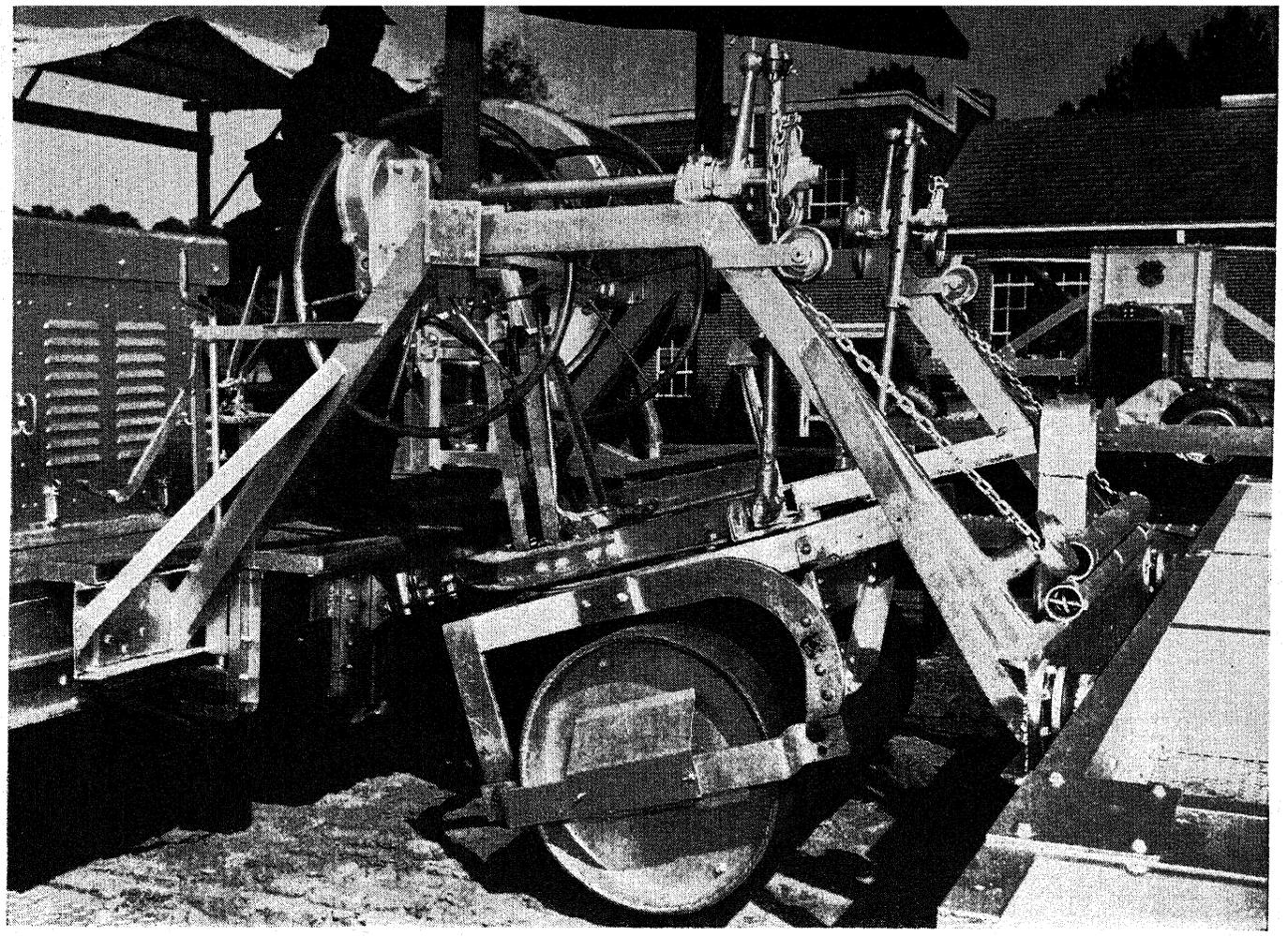
The congress of the U.S. in 1947 provided funds to put into effect the provisions of the Research and Marketing act of 1946. The ARA has responsibility for planning and carrying out much of the research to be done under the act, in co-operation with state agricultural experiment stations and other research agencies. Many projects were set up and work was begun on a large number in 1947.

Several years of intensive research by the bureau of agricultural and industrial chemistry reached fruition in 1947 in the successful operation of a continuous-process turpentine still. Gum from southern pine trees, diluted with turpentine and heated to 350° F., is sprayed continuously into a chamber at the top of a 20-ft. vertical pipe, where the turpentine in the gum vaporizes and the rosin flows downward. The new-type still uses less than two-thirds as much steam as the conventional batch-type still and requires only half as much labour to operate, while the products are of a more uniform quality.

A method for utilizing soybean protein as an adhesive in the manufacture of casings for shotgun shells was put into commercial practice after being devised by bureau scientists.

It was shown that farmers can keep home-rendered lard fresh in home storage for a year or more by adding 2 or 3 lb. of hydrogenated vegetable fat to each 50 lb. of lard at the time of rendering.

Biochemists at the Southern Regional Research laboratory



SOIL FITTING CAR used by the U.S. department of agriculture in 1947 to condition soil for experimental purposes at its field laboratory in Auburn, Ala.

found that the pigments of cottonseed can readily be separated from the oil and meal by solvents. Removal of the pigments improves the quality of the meal as a livestock feed and for other uses.

During 1947, advances were made by the bureau of animal industry in showing further the possibilities of hybridization of farm animals. Hybrid hogs produced large litters of pigs that made fast and economical gains. In poultry breeding, 65 lines of inbred poultry were made ready for experiments in crossing.

It was shown that losses of poultry from Newcastle disease can be considerably reduced through the use of vaccines. Average production of eggs by turkeys of the Beltsville Small White breed was increased experimentally through selective breeding. This was a promising development, because higher egg production tends to reduce the cost of turkey poults, an important economic factor in turkey raising.

A compound of benzene hexachloride, xylol and pine oil, introduced into the ears of cattle infested with the spinose ear tick, killed the ticks and protected the cattle against reinfestation for about 3 weeks. Toluene (methyl benzene) was found to be effective for removing internal parasites from several kinds of animals.

Feeding experiments by the bureau of dairy industry showed that dairy heifers can be successfully raised from 10 months to 2 years of age without any grain in their ration provided they are given all the good-quality hay and other roughage they will eat. This reduces by half the amount of grain formerly thought necessary for proper development of the dairy heifer during this period.

A test developed earlier for determining whether Cheddar cheese had been made from raw or pasteurized milk was improved and adapted in 1947 for application to practically all milk products, including cheeses of all kinds, butter, buttermilk, ice creams and sherbets and milk drinks. It is possible through the use of this test to determine, for the protection of the public, whether milk used in one of these products has been properly pasteurized. A variation of 1° F. below the standard in the pasteurization temperature used can be detected.

A method was developed for recovering protein from cheese whey, 7,000,000,000 lb. of which is fed to livestock or wasted annually in the U.S. Each 100 lb. of whey yields 3½ pounds of protein.

A number of new insecticidal materials were tested against insects in fields and greenhouses in 1947 by the bureau of entomology and plant quarantine. Chlorinated camphene, hexaethyl tetraphosphate and tetraethyl pyrophosphate each showed promise of being effective for controlling certain insect species. Chlordane proved toxic to grasshoppers and roaches. Aerosol formulations containing hexaethyl tetraphosphate were found to be more effective against some greenhouse pests than aerosols containing DDT. Benzene hexachloride continued to show promise against certain cotton pests.

Many of the compounds under test as insecticides were found to have the advantage over standard materials of being effective in very small—in some cases minute—quantities.

In connection with studies of bees, it was found that the bacterium which causes the bee disease American foulbrood produced a substance that inhibited the growth of organisms causing a number of human and animal diseases. The National Institute of Health entered into co-operation with the bureau in studies to determine the medical importance of this possible new antibiotic.

An important regulatory activity of the bureau of entomology and plant quarantine in the last few years was the inspection of aeroplanes at ports of entry into the U.S. In 1947 harmful insects and plant matter that carried infection were found on

more than ¼ of the 58,500 planes inspected.

Three years of research by the bureau of human nutrition and home economics resulted in 1947 in the publication of new directions for home canning of 12 low-acid vegetables in pressure canners. Processing periods 25% to 50% shorter than previously recommended were shown to be safe for a number of these vegetables. This meant a saving of time and fuel for the home canner, as well as better flavour, texture and vitamin value of the canned food.

The protein values of several important food grains were compared by nutritionists of the bureau. Rolled oats were found equal or superior to all the other grains tested, both in quality and quantity of protein. Rice, though lowest in quantity of protein, was equal to oats in protein quality. Rye, whole wheat, barley and corn followed, in that order, in nutritional quality of protein.

Work on fibres and fabrics was advanced through studies on cotton, wool and synthetic fibres. It was shown that elastic recovery of fabrics cannot be predicted from that of the yarns from which they are made. For example, nylon yarn has greater elasticity than wool, but nylon fabric does not have as much stretch as a similar wool material.

A series of publications on planning, constructing or remodelling, and equipping farmhouses for greater comfort and efficiency was begun co-operatively by the bureaus of human nutrition and home economics, and plant industry, soils and agricultural engineering. Three bulletins were issued, one on how to plan remodelling, one providing cut-outs to aid in planning and one on easy-to-build kitchen cabinets.

Plant breeding, control of plant diseases, the study of soils, the influence of fertilizers on plant growth and farm machinery are the major fields of research of the bureau of plant industry, soils and agricultural engineering. Many of its investigations are carried on in co-operation with one or more of the state agricultural experiment stations.

Each year a number of new varieties of crop plants, promising higher yields and better disease resistance, are released to growers. Among the new varieties of 1947 were an early peach for the southeast, a new sugar cane that will not lose its sugar content when held in the field for a considerable time, a sugar beet for the west that is resistant to curly top disease and yields a high percentage of sugar, new hybrid corns with desirable characteristics for certain localities or purposes, a new variety of oats for New York that is well suited to combine harvesting, improved cotton varieties, a strawberry high in vitamin C (ascorbic acid), a Lima bean that produces well in hot weather, a midwinter lettuce for the southwest and a disease-resistant white cabbage.

A new kind of nitrogen fertilizer was developed which becomes available to plants more slowly because of a slow rate of solubility. A combination of urea and formaldehyde (both of which unfortunately are scarce at present), it was named "Uraform." Because it supplies nitrogen at a uniform rate over a long growing period and does not leach out of the soil easily, it promised to eliminate the need for additional fertilizer applications during the growing season.

Spraying equipment was designed to facilitate the application of the herbicide 2,4-D from aeroplanes to kill weeds in grain crops without using great quantities of water, which had been a limiting factor in spraying from the air.

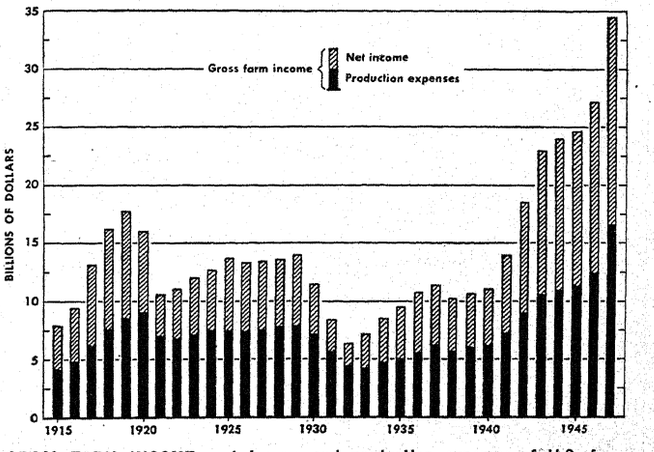
The office of experiment stations administers federal grants to the state agricultural experiment stations. State stations were granted $7,206,208 of federal money in the fiscal year 1947, under which more than 3,300 research projects were active. The Research and Marketing act of 1946 expanded the responsibilities of the office in 1947. (W. V. L.)

Agriculture.

A new high record of prosperity was attained by United States agriculture in 1947 in income although total production was about equal to the record years 1944 and 1946. The assets of the industry were estimated by the U.S. department of agriculture on Jan. 1, 1947, at $111,209,000,000, the largest in history, and gross income in 1947 at $34,600,000,000. Total assets at the end of 1947 were even higher but exact estimates would not be available until midyear 1948. The year was characterized by indications of a turn downward in livestock and crop production while prices rose to new record heights; demand for farm products continued unabated at home and abroad. The postwar decline, so long feared by farmers, did not arrive and government appeals for continued maximum production of most crops were repeated for the ninth successive year. No such long-continued period of farm prosperity had ever occurred in the country's history.

The world food crisis continued and became even more acute in the second half of the year, creating world-wide political and economic problems for governments. From early spring numerous agencies, national and international, began surveys and warnings of the vital importance of feeding the distressed peoples as an essential to peace and to prevent revolution and political chaos. (*See* FOOD SUPPLY OF THE WORLD.) U.S. farmers at first were cautious, however, and seemed inclined to retrench their operations. The total acreage had declined from the peak in 1944 through 1945 and 1946. While the cultivated area expanded in 1947, it did not quite reach the level of 1944. Food grains production was the largest on record but livestock feed grains were the smallest after 1939. This was not planned by producers but was the result of unfavourable weather for the corn crop. This decline in feed grains combined with high prices of all feeds caused a further decline in livestock production which began in 1945. The significant changes in 1947 briefly summarized were: record crops of wheat, rice, peanuts, sugar beets and pears; below-average crops of corn, barley, rye, cotton, sweet potatoes, sugar cane. Other crops were near record in size or about the average of recent years. In livestock the changes were: heavy marketings of beef cattle, a slight recovery in hog production, continued decline of sheep and lambs, dairying and poultry raising showing little change. Farm prices reached new peaks for all crops and livestock except fruits. Farm debts were paid and large balances were accumulated by farmers in cash bank deposits, bonds and investments.

Crop Production.—Total U.S. crop production in 1947 as estimated by the U.S. department of agriculture was slightly



GROSS FARM INCOME: net income and production expenses of U.S. farm operators, 1915–47, including government payments beginning in 1933. Compiled by the U.S. bureau of agricultural economics. 1947 data are tentative estimates

Table I.—*Index Numbers of the Volume of Agricultural Production through Two War Periods**
(1935–39 = 100)

	1915	1920	1925	1930	1935	1940	1943	1944	1945	1946	1947
Crops											
Food grains	147	126	95	109	81	110	116	148	155	164	199
Feed grains and hay	126	149	128	83	91	114	125	153	144	172	140
Cotton	86	100	122	105	81	95	87	94	68	66	90
Tobacco	80	104	95	113	89	101	97	135	137	159	148
Truck crops (vegetables)	35	51	74	91	92	110	124	137	142	157	141
Fruits and nuts	73	76	74	89	95	110	107	123	112	133	129
Sugar crops	73	98	73	85	89	104	81	82	94	103	114
Total crops	95	102	99	96	89	107	114	128	122	135	136
Livestock											
Meat animals	92	99	107	100	90	118	150	155	147	145	144
Poultry and eggs	78	78	93	106	92	109	152	153	163	153	147
Dairy products	70	72	85	94	98	105	113	115	119	119	120
Total livestock	81	85	96	99	93	112	137	141	140	137	136
Grand total	86	92	97	98	91	110	128	136	133	136	136

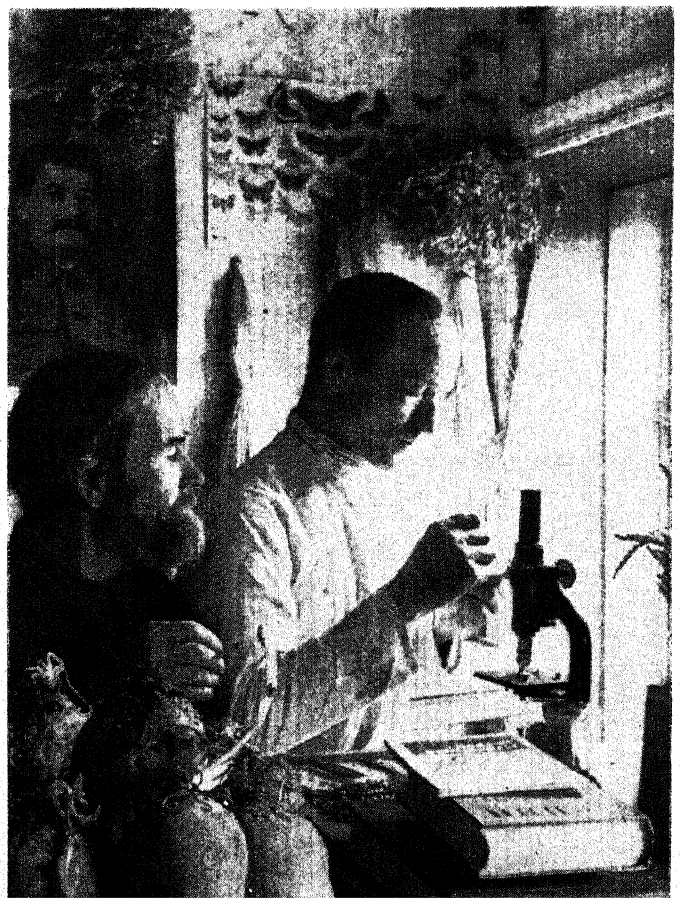
*Estimates by the U.S. department of agriculture.

less than the totals of 1942, 1944 and the all-time record of 1946. This was chiefly the result of the smaller corn crop. The total acreage of 52 crops harvested was 348,355,000 ac. compared with 344,931,000 ac. in 1946, the high total of 352,538,000 ac. in 1944 and the 10-year average, 1936-45, of 336,550,000 ac. Unfavourable weather made it impossible to attain the record of 1946 even with nearly 4,000,000 ac. larger area. Nearly 358,000,000 ac. were planted to crops but 9,500,000 ac., or about 2½%, was lost. This was a relatively small loss, which is usually 12,000,000 ac.-16,000,000 ac. and once was 46,000,000 ac. in 1936. Floods caused most of the acreage abandonment in 1947.

Corn planting was delayed by wet spring weather and the harvested acreage was 5% less than in 1946 and 7% less than the average. It was also the smallest after 1894. Yields also declined and were 8 bu. per acre less than in 1946 at 28.6 bu. per acre. The result was a crop of corn 26% less than in 1946, and the smallest after 1936.

The 1947 wheat crop was the outstanding record of the year amounting to 1,365,000,000 bu., 18% more than the 1946 crop, more than 50% more than the 10-year average and the 4th

COLLECTIVE FARMER at a rural laboratory in the Mari autonomous republic, U.S.S.R., in 1947. Experimental tests helped peasants select those crops which would yield the most fruitful harvest and increase the national food supply



crop of more than 1,000,000,000 bu. Winter wheat, sown in good condition in the fall of 1946, was alone more than 1,000,000,000 bu. for the first time, since spring wheat amounted to only 22% of the total. Nine states, including the principal wheat states of Kansas and Oklahoma, had record-breaking crops, Kansas alone producing 21% of the nation's total crop. Wheat growers responded to the high market price and the government's request for expansion in 1946 by planting nearly 78,000,000 ac. The average yield, 18.4 bu. per acre, was exceeded only in 1942. So little of the seeded area was abandoned that the 74,186,000 ac. harvested was the largest on record. The crop was concentrated in the great plains wheat belt. Five states —Nebraska, Kansas, Oklahoma, Texas and Colorado—produced about 62% of the entire winter wheat crop, or 661,000,000 bu., which was more than the 10-year average for the entire country. Of the spring wheats the increase was chiefly in durum which was 19% more than in 1946 with a yield of more than the average.

Four 1,000,000,000-bu. wheat crops together with the large surplus carried over in 1942 and 1943 made up the enormous supply of more than 8,000,000,000 bu., or an average of more than 1,500,000,000 bu. per year. Domestic consumption increased to more than 951,000,000 bu. in 1942 and to 1,216,000,000 bu. in 1943. Exports were small in these years and did not increase until 1945 when the total reached 391,000,000 bu. In 1947 about 400,000,000 bu. was exported and for 1948 the goal was set at 450,000,000 bu. The large six-year supply of wheat was largely consumed in the U.S. and not exported at

Table II.—*Production of Principal U.S. Crops, 1933–47*
(In thousands)

Year	Corn bu.	Oats bu.	Wheat bu.	Cotton bales	Tame hay tons	Rice bu.	Tobacco lb.	Potatoes bu.
1933	2,399,632	733,166	551,683	13,049	66,530	37,651	1,371,131	342,306
1934	1,461,123	542,306	526,393	9,636	55,270	39,047	1,081,629	406,105
1935	2,303,747	1,194,902	626,344	10,638	78,138	38,784	1,297,155	386,380
1936	1,507,089	785,506	626,766	12,399	63,536	49,002	1,154,131	331,918
1937	2,644,995	1,146,258	873,993	18,946	73,785	53,364	1,553,405	393,289
1938	2,542,238	1,053,839	930,801	11,943	80,299	52,303	1,378,534	371,617
1939	2,619,137	937,215	754,971	11,817	75,726	52,306	1,848,654	364,016
1940	2,449,200	1,235,628	816,698	12,566	86,312	52,754	1,451,966	397,722
1941	2,672,541	1,176,107	945,937	10,744	82,358	54,028	1,261,364	357,783
1942	3,175,154	1,358,730	981,327	12,824	92,245	66,363	1,412,437	371,150
1943	3,034,354	1,137,504	841,023	11,427	87,244	64,843	1,402,988	464,999
1944	3,203,310	1,154,666	1,072,177	12,230	84,076	68,161	1,956,022	383,134
1945	2,880,933	1,535,676	1,108,224	9,015	95,289	68,150	1,993,837	418,020
1946	3,249,950	1,497,904	1,153,046	8,640	89,195	72,216	2,319,409	484,174
1947	2,400,952	1,215,970	1,364,919	11,694	89,194	79,345	2,167,702	384,407

the expense of domestic consumption. The high consumption of 1943 was because of the use of about 487,000,000 bu. for feed and 108,000,000 bu. for alcohol making. Consumption for food averaged about 520,000,000 bu. after 1940.

The short corn crop reduced feed grains, and barley and rye were also less than average while oats, sorghum and peas were more than average. The four feed grains totalled the smallest after 1939. The total tonnage of feed grains was estimated at 96,000,000 tons compared with 124,000,000 tons produced in 1946. The yields of all crops considered together was 129% of the 1923-32 average compared with 134% in 1946 and the peak of 136% in 1942. Oilseed crops yielded a high total, soybeans, flaxseed and peanuts all turning out well. Tobacco declined about 4.5% from 1946. Sugar from cane and beets increased about one-eighth more than in 1946.

The 1947 cotton crop was put at 11,694,000 bales, which was about 3,000,000 bales more than the 1946 crop but almost 1,000,000 bales less than the 1936-45 average. The yield was high, however, at 265.4 lb. per acre.

Potatoes, which had been heavily overproduced in 1946, declined one-fifth in total output even though the yield was near the record. The sweet potato crop was grown on the smallest acreage after 1924 and was less than average. Hay production was more than average. Commercial truck crops for fresh market amounted to 15% more than average but 12% less than



EIGHT COMBINES harvesting wheat in a field of cut grain near Gilby, N.D., in Sept. 1947. Trucks in the foreground waited to carry the record-priced harvest to nearby elevators

in 1946. Canning crops also declined 13% from 1946 but were still 21% more than average.

Fruits and nuts were less in total quantity than the record of 1946 but generally more than average. Apples were 6% less than in 1946, peaches 4%, grapes 1%, while pears made a new high record. Oranges were 5% less than in the previous year, but grapefruit and lemons about 5% more. Tree nuts were about 12% more than average.

The four World War II years of high agricultural production and two postwar years of even larger output led farmers to think of retrenchment if a period of surplus was to be avoided. The needs of Europe, Britain and other countries, the proposal of the Marshall plan, etc., led the U.S. government to call again for maximum goals for 1948. The program for 1948 as announced in November asked for 9,000,000 more acres than were cultivated in 1947. The increases were principally in feed grain, sorghum, beans, potatoes and corn. All livestock and products were put at lower totals than 1947 and the average.

Table III.—*U.S. Production and Yield Per Acre, 1947 and 1946*

	1947		1946	
	Yield	Production in thousands	Yield	Production in thousands
Field Crops				
Corn, bu.	28.6	2,400,952	36.7	3,249,950
Wheat, bu.	18.4	1,346,919	17.2	1,153,046
Oats, bu.	31.5	1,215,970	34.7	1,497,904
Barley, bu.	25.5	279,182	25.2	262,258
Rye, bu.	12.8	25,977	11.7	18,879
Flaxseed, bu.	9.9	39,763	9.3	22,585
Rice, bu.	47.3	79,345	45.9	72,216
Hay, all, tons	1.36	102,500	1.36	100,739
Beans, lb.	9.76	17,164	9.81	15,859
Soybeans, bu.	16.3	181,362	20.5	201,275
Peanuts, lb.	667.0	2,251,640	649.0	2,038,355
Potatoes, bu.	182.0	384,407	186.3	484,174
Sweet Potatoes, bu.	93.5	57,178	98.3	66,424
Tobacco, lb.	1,156.0	2,167,702	1,182.0	2,319,409
Sugar beets, tons	13.8	12,248	13.2	10,562
Cotton, bales (yield in lb.)	265.4	11,694	235.4	8,640
Fruit Crops				
Apples, bu.	...	112,503	...	119,410
Peaches, bu.	...	82,981	...	86,643
Pears, bu.	...	35,350	...	34,447
Grapes, tons	...	3,094	...	3,120
Oranges, boxes	...	112,560	...	118,680
Grapefruit, crates	...	62,270	...	59,520

The continuing high farm prices were considered a stronger supporting factor than the general appeals for a surplus for export. Many farmers remembered the depression that followed World War I when export demand was expected to continue strong.

Livestock Production.—The livestock cycle, which swings up and down at periods of seven to ten years, started a decline in 1945 that was gaining speed in 1947. The long-continued decline of horses and mules went on steadily, sheep numbers reached new lows, the heavy slaughter of cattle in late 1947 reduced the breeding stock and the number of dairy cows also slumped.

The principal reason for the continued declines in 1947 was the shortage and high cost of feed. While prices for meat were high, this was not enough to offset the hazard of using expensive feeds, in the opinion of stockmen.

Cattle numbers were down almost 1,500,000 head at the beginning of 1947. Slaughter of beef animals was heavy through the year and further reduced numbers. Prices for all classes of cattle advanced steadily, making new high records in the fall of more than the top in 1946 when price controls were removed. The top was $40 per 100 lb. for fat steers paid in Chicago, Ill., and Omaha, Neb., in December.

The number of milk cows declined about 2% in 1946 and the high price of veal led to heavy marketing of young stock. Beef and veal slaughter in 1947 made a record of more than 12,000,000,000 lb., almost two-fifths larger than the prewar average, 1935-39. The high prices of beef and veal in the retail markets were reflected in high prices of feeder cattle which discouraged stockmen in view of the poor corn prospects early in the year. Stocks of beef declined from the high of 1945 but were larger in 1947 than in 1946. Exports were more than double any previous year and five times the total of 1946. Civilian consumption rose to nearly 70 lb. per capita compared with the prewar average of about 55 lb. per capita. The unusual situation was that in a year of high production came the highest prices and the greatest rate of consumption.

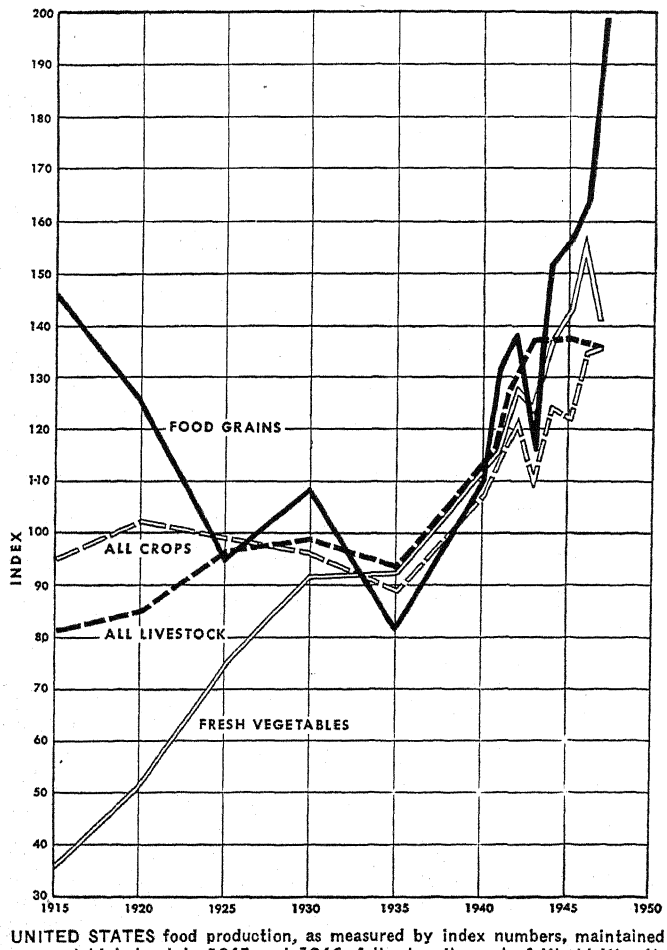
Pork production continued the decline begun in 1944 after the high record output. The number of hogs declined about 7%

in 1946 and was 32% less than the peak of 1944 on Jan. 1, 1947. The pig crop in the spring of 1947 was 52,786,000 head which was more than that of a year earlier and the fall crop 31,352,000 head, making a total of 84,138,000 head, about 1% more than was raised in 1946, but about 1% less than the 10-year average. Total pork production for the year 1947 was less than a year earlier and civilian consumption of pork declined to 69 lb. per capita compared with 75.7 lb. consumed in 1946 and the high record of 80.2 lb. in 1944. The smaller corn crop discouraged farmers and a decrease of 10% in sows kept for spring pigs was reported in Dec. 1947. The number of hogs on farms was estimated to have declined 6% during 1947. Hog production was also smaller in Canada, Europe and Argentina because of the high prices of feed grains. Average prices of hogs to farmers reached a peak of $27.20 per cwt. in September and then declined under the pressure of heavy marketings resulting from the poor corn prospects.

Sheep numbers at the beginning of 1947 were the smallest after records began in 1867. Both eastern farms and western ranges had fewer animals and the lamb crop declined 2,300,000 head from 1946 to the smallest number in 22 years. Less than the average number of sheep were fed in the corn belt. Sheep and lambs reached the peak of prices in Sept. 1947, then declined to the end of the year. While these prices were about three times the prewar average, the interest in sheep raising appeared to be waning. On the ranges the lack of experienced herders was the principal complaint.

Average consumption of lamb and mutton continued at about 6 lb. per capita compared with the record of 7.2 lb. in 1942 and 1945.

Numbers of dairy cows and of replacement heifers were both lower at the beginning of 1947, but high milk and butter prices stimulated some increase in heifers kept for milk production. The herds were closely culled because of the high prices that could be had for beef. This resulted in higher production per cow and a slight increase in total milk production. Prices of milk paid to dairymen declined through 1947 on the average although retail milk prices were advanced in some areas late in the year.



UNITED STATES food production, as measured by index numbers, maintained a record high level in 1945 and 1946, following the end of World War II. Food grains reached new high records while livestock declined slightly

The poultry industry, which had declined through 1946, recovered slightly in 1947 and late in the year was larger than the same period a year earlier. The total output of poultry meat and eggs was almost the same as in 1946 but more potential laying hens were on farms in the early fall. The campaign to have poultryless days to save grain put on by the president's food committee was soon found to be a mistake and had little effect on the marketing of hens. Egg production actually increased while the campaign was going on. The chief factor in holding down egg production was the high price of feed. Poultry and egg prices held steady through 1947 to September, then declined slightly.

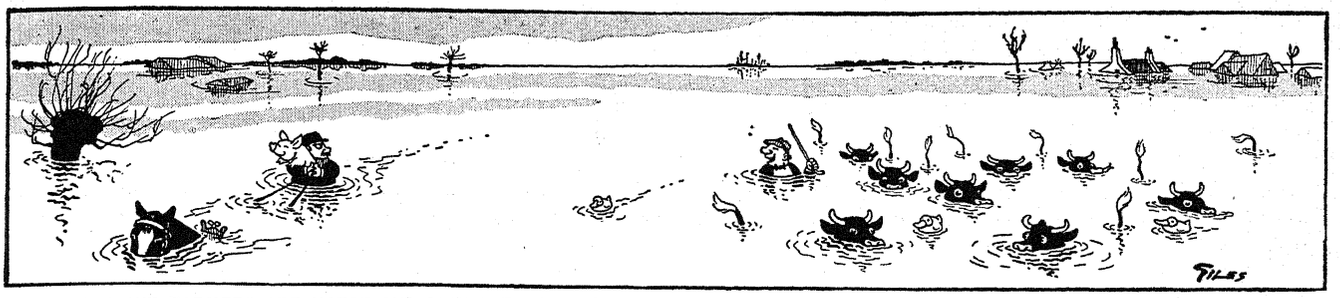
The decline in numbers of horses and mules continued. Purchases for export helped to maintain prices which were about the same in the fall of 1947 as a year earlier. Mules advanced a little in price when considerable numbers were purchased for export to Mexico to replace animals killed in the foot and mouth disease campaign.

Food Stocks and Exports.—The large production of foodstuffs, combined with larger than average surpluses and reserves, made possible the largest exports of foodstuffs in the history of the United States in the year ending June 30, 1947. In fact, it was more food than any other country ever exported in a single year, amounting to more than 19,000,000 tons.

Stocks of various foodstuffs varied widely. U.S. stocks of wheat which had reached 1,000,000,000 bu. in 1943 were only 682,000,000 bu. in 1946 which was slightly more than the prewar average. Rice, rye, corn and barley were not much more than average. Oats reserves were at a record high in 1946, however, almost twice the average. Meats of all kinds were about average and fats and oils were low. The large exports came from the increased production almost entirely, in spite of high civilian consumption. Exports absorbed the surplus that had been used for military forces in the war years.

The U.S. exports went principally to the U.S. and British zones in Europe 3,200,000 tons; United Kingdom 1,700,000 tons; Italy 1,464,000 tons; France and North Africa 830,000 tons; other European countries 4,500,000 tons; Japan and Korea 1,708,000 tons; India 1,027,000 tons; China, East Indies, Philippines 1,030,000 tons; Latin American countries 2,000,000 tons and the remainder to various parts of the world. Food grains made up more than 15,000,000 tons of the total of 19,000,000 tons, and wheat and flour accounted for 10,000,000 tons of the grain. The estimated needs under the proposed Marshall plan amounted to a similar large total which the large crops of 1947 could supply provided domestic consumption did not increase, which was regarded as unlikely at the high prices prevailing in late 1947. While U.S. reserves were lower than they had been for some time they were not less than the prewar average.

Wheat exports in the year ending July 1, 1947, amounted to the record total of 574,000,000 bu. The goal for the next fiscal year was put at 570,000,000 bu. and the Citizens Food committee plan for saving wheat was begun in September to save 100,000,000 bu. of grain, mostly wheat, in order to make the goal by July 1948. Plans to save grain by limiting the feeding of livestock were proposed to save even a larger amount but congress had taken no action by the year's end.



"MIND YOU, WE FARMERS ARE NOTORIOUS GRUMBLERS," by Giles of the *Daily Express* (London), a wry defense of the British farmers' burdens as increased by floods and unusually bad weather early in 1947

Farm Prices.—The prices of farm products followed the rising general price level to new heights in 1947, exceeding all previous records. The index of prices paid to producers for all crops and livestock started the year at 260 (100=average 1909-14) which was somewhat less than the peak of 273 reached in Oct. 1946. The general farm price level rose quickly to 280 in March, then dropped to 271 in June, to be followed by a recovery to 286 in September, 289 in October, a slight decline in November and a new high record of 301 in December. This curve of prices followed the general pattern of previous years except that seldom before had record high prices been reached in the midst of the harvest season in the fall.

The price advances occurred in nearly all groups of farm products except tobacco, cotton, fruit and vegetables, which fluctuated but made little or no gain for the year as a whole. The greatest increases in prices were in food and feed grains, the former advancing about 75 points and the latter 100 points during the year. The price of wheat reached the all-time-high record of $2.74 per bushel to growers in November and stood at $2.79 in December compared with $1.88 per bushel a year earlier. Corn reached a peak of $2.40 per bushel in September, almost as high as wheat. In some markets corn sold at times for more than wheat. Cash wheat at Chicago reached a new record high of $3.26 per bushel in October. The reason for the high price of grains was the great demand for European relief and the efforts of the government to save grain for export. Never before had high prices been seen in a year of record crop production in the United States. The slump in tobacco prices was the result of a large crop in 1946 together with the growing difficulty of other countries to get dollars with which to buy.

Livestock, sold for meat, advanced about 60 points during the year and stood at 360% of the base in December which was relatively higher than any other product except tobacco. Dairy products declined until June and then advanced again but not to the level of the first of the year. Poultry and eggs advanced steadily through the year to a new high average for the year.

Prices paid by farmers for all commodities, interest and taxes advanced from an index of 215 to 239, farm wages 399 to 404 with the result that the parity ratio for farmers was almost the same as in 1946, at 120% of the base.

Table IV.—*Farmers' Average Prices, Certain U.S. Crops, on Selected Dates*
(in cents per unit)

	Wheat per bu.	Corn per bu.	Oats per bu.	Barley per bu.	Rye per bu.	Buck-wheat per bu.	Pota-toes per bu.	Eggs per doz.	Cot-ton per lb.
Oct. average, 1909–13	88.1	64.8	38.4	60.5	72.0	71.1	65.0	23.8	12.10
Oct. 15, 1936	106.8	97.9	43.1	84.2	80.4	78.3	97.9	27.6	12.23
Oct. 15, 1937	88.7	58.9	28.8	52.0	63.8	62.4	48.5	25.2	8.10
Oct. 15, 1938	52.2	41.9	22.1	36.1	32.9	54.5	51.0	27.1	8.53
Oct. 15, 1939	70.3	47.6	30.3	42.2	45.1	62.7	66.4	22.9	8.73
Oct. 15, 1940	68.2	59.4	28.3	38.2	40.5	54.4	52.0	23.7	9.35
Oct. 15, 1941	91.0	64.9	38.9	49.1	51.3	64.3	67.2	31.8	16.55
Oct. 15, 1942	103.5	77.5	43.2	57.6	52.9	77.0	102.5	37.4	18.87
Oct. 15, 1943	135.0	107.0	77.4	103.0	101.0	110.0	128.0	45.2	20.28
Oct. 15, 1944	142.0	113.0	65.9	95.4	108.0	102.0	142.0	38.8	21.25
Oct. 15, 1945	151.0	113.0	62.8	101.0	138.0	106.0	126.0	42.6	22.30
Oct. 15, 1946	188.0	171.0	79.9	135.0	199.0	144.0	122.0	51.5	37.69
Oct. 15, 1947	266.0	223.0	109.0	177.0	249.0	197.0	150.0	55.3	30.65

Farm Income.—The grand total farm income of 1947 reached the record amount of $34,600,000,000. This was the gross income, which includes not only cash received from sales but also government payments and the estimated value of products consumed on the farm, and a rental value for farm dwellings. The realized net income was estimated at $18,000,000,000, which was the gross income less expenses, estimated at $16,600,000,000. The quantity of farm products sold times the price received, or the cash receipts for farm marketings, was estimated by the U.S. department of agriculture to be $30,000,000,000 compared with $24,500,000,000 received in 1946 and a new high record for all time. Government payments amounted to $340,000,000, which was less than half the amounts paid in 1946.

Estimates of the expenses of production in 1947 reflected the increases in prices of general commodities purchased by farmers and farm wages, both of which advanced steadily through 1947 at a rate somewhat slower than prices of farm products. Total expenses were estimated at $16,600,000,000 leaving $18,000,000,000 as the realized net income of farm operators. Expenses in 1946 were estimated at $14,044,000,000. This total included $617,000,000 for taxes, $228,000,000 for farm mortgage interest, $2,536,000,000 paid for hired labour, maintenance of machinery and buildings $2,210,000,000 and the value about $8,000,000,000 for feed, fertilizer, livestock and operation expenses.

The effects of the large farm income were shown in the decline of farm debts. After Jan. 1940 the total farm mortgage debt was reduced by 25% to 1945 and 5.1% more in 1946. A slight increase was reported early in 1947 because of increased sales. The total farm mortgage debt in Jan. 1947 was about 27% less than what it was in Jan. 1940. Another large part of the increased income was spent on farm repairs and improvements, replacement of obsolete farm machinery, and modern equipment for the farm plant.

Farm Land Values.—The value of farm real estate continued to rise steadily until the middle of 1947 when the first signs of a decline were noticed in the south Atlantic states. The index of farm land values reached 162 in July 1947, compared with 100 for 1912-14, which was only 8 points less than the high record of 1920. This was a rise of 10% in a year. The index of 162 compared with 84 for the year 1940 indicated that land values had increased 95% from prewar and the large farm income of 1947 was expected to continue the rise because the volume of sales during the 12 months ending in March 1947 was the highest on record, amounting to 57.7 per 1,000 of all farms. Farm buyers paid cash in more than one-half of the sales in 1945-47. The proportion of loans made by commercial banks and private individuals increased steadily from prewar years. The total farm mortgage debt was smaller every year after 1940 until 1946 when there was a small increase.

The first signs of a check in the land boom came in 1947 when the south Atlantic and south central states reported slight declines in values. At the same time increases in other regions more than offset these declines. The advances appeared to be higher in the central states. The total value of agricultural real

estate was estimated to be $58,604,000,000 on Jan. 1, 1947, compared with $33,642,000,000 in 1940.

During World War II the number of farms operated by tenants declined and was down to 32% of all farms by 1945 compared with 39% in 1940. This change was because of tenants' buying land to become owner-operators. Many farms operated by tenants were sold when the young tenants went to war. A large number of returning veterans who were formerly tenants purchased farms upon their return. Many of these were assisted by the government.

Farm Debt.—The total indebtedness of agriculture was steadily reduced by the several successive years of high income. Farm mortgages decreased steadily from 1927 to 1946 but in 1947 a small increase was estimated. Total farm mortgages were estimated at $4,890,000,000 on Jan. 1, 1947, or about $160,000,000 more than a year earlier. The farm mortgage debt of 1946 was less than for any other year after 1914 and less than half the high peak of $10,786,000,000 in 1923. The 1946 increases were in all regions except the corn belt and great plains. From the end of World War II more farmers were buying new equipment rather than reducing debts further. Another factor was the large number of farm sales, many of which created new mortgages.

Loans from commercial banks, various government agencies, etc., not secured by mortgages were estimated at $2,024,000,000 on Jan. 1, 1947, compared with a peak of $2,439,000,000 in 1943 and $1,522,000,000 in 1938. The total of such loans was remarkably uniform from 1940 to 1947. When the total of farmers' bank deposits, estimated at $11,100,000,000, is considered, these non-real-estate loans are relatively small. Total equities of farm owners were estimated at $102,795,000,000 on Jan. 1, 1947, compared with $90,759,000,000 a year earlier and $43,781,000,000 in 1940. The total net income from sales and government payments was estimated at $18,889,000,000. Farm mortgage interest was estimated at $228,000,000 for 1946 but no estimates were available for interest on other types of loans.

Farm taxes increased through 1946 and also in 1947 as the net worth of farm real estate and personal property advanced in value. The estimated tax bill of U.S. farm operators was $617,000,000 in 1946, compared with $554,000,000 in 1945 and the prewar average of $442,000,000, 1935-39. About the same increase occurred in 1947 but exact estimates were not available at the end of the year.

Farm Population.—At the beginning of 1947 there were 27,550,000 people on farms in the U.S. which was an increase of 2,360,000 from the wartime low of Jan. 1, 1945, when the total was 25,190,000 persons. This total was still about 17% less than the prewar total of 30,289,000 in 1940. The recovery in farm population in 1945 and 1946 was chiefly because of the return of 1,250,000 men from the armed forces, out of a total of 2,400,000 men who entered the forces from 1940 to 1946, inclusive. About three of every four men who went to war returned to farms by Jan. 1947. There were also more births than deaths on farms, the birth rate in 1946 being the highest after 1929. This accounted for a gain of 773,000 persons in 1945 and 1946. There was also a larger back-to-the-land movement in 1945 than in previous years, but in 1946 there was a small net movement from farms. The southern states lost the most farm population during the war, 3,287,000 persons between 1940 and 1945. Only about three-fifths of their loss had been regained after 1945. After 1900 when the total U.S. population was 76,000,000, this total had doubled to 143,000,000 in 1947. At the same time rural population increased only from 45,800,000 in 1900 to 58,600,000 in 1947. Of the total rural, 31,000,000 were not on farms but in villages and suburban areas while 27,600,000 were on farms. While in 1900 rural population exceeded that classed as urban, in 1947 rural constituted only 58,600,000 compared with 84,400,000 urban or about 70%.

Farm Labour.—The high production of 1947 was achieved with a larger labour supply than in any other year after 1943. Total farm employment was estimated by the U.S. department of agriculture at 10,157,000 in 1947 compared with 10,010,000 in 1946 and the prewar average of 10,920,000, 1935-39. Of the total for 1947, 7,930,000 were family workers and 2,227,000 hired workers. The labour supply in 1947 was well distributed. The number of family workers in 1947 had almost regained the 1940 level for the country as a whole. The number of hired hands had not recovered so fast.

Special agricultural labourers were brought into the United States from Canada, Mexico, Jamaica, Bahamas, etc., to the number of about 60,000 in 1947. Of these 40,000 came from Mexico, mostly to California and Arizona.

New machinery on farms enabled operators to do more work and take care of larger acreages, but did not materially reduce the number of hired hands needed. Staple crops, except cotton, employed labour-saving machinery; but truck, fruit and other special crops still required a large amount of hand labour.

Wages paid hired labour continued to advance to new high records in 1947. The advance was 8% more than in 1946 and 3 times the 1940 level. Average wages per month with board were $97.80 on Oct. 1, 1947, compared with $91.40 a year earlier and $27.10 in 1935–39. Wages, without board, were $112.00 on Oct. 1, 1947, $104.00 a year before and $34.10 in prewar years. The daily wage without board averaged $5.25 per day in 1947 compared with $1.55 average in 1935-39. The total hired labour bill for U.S. agriculture was estimated at $2,151,000,000 in 1946 compared with $722,000,000 in 1935-39. Benefits other than wages raised the total to $2,536,000,000.

Farm Machinery.—The estimated expenditure of $800,000,000 for new farm machinery in 1946 and a like amount in 1947 indicated the rate at which farm equipment was being replaced after the war. This amount was about twice the average annual expenditure in 1935-39 indicating that machines had been heavily worn during the war years of intensive farm work. The total value of machinery and motor vehicles in 1947 was put at $6,889,000,000 and the increase over the previous year at about 10%. The value of all machinery had more than doubled in value after 1941. Farmers spent about 5% of their net income on new machines and motors in 1946 and would have bought much more had it been available.

Fertilizers.—The use of commercial fertilizers increased again in 1947 as it had during the war years. Even more would have been used had it been available. Total fertilizer consumption was estimated to be about 14,000,000 tons compared with 13,200,000 tons in 1946 and a prewar average of 7,270,000 tons. Prices of fertilizers were relatively low compared with farm prices.

Marketing Research.—An act of congress known as the Research and Marketing Service act of 1946 provided, beginning in 1947, for research, education and service by the U.S. department of agriculture and state agricultural experiment stations in the marketing field. Up to mid-1947 the projects for study were being outlined and it was expected that it would be two or three years before important results would be forthcoming. This was the first time that a comprehensive research program had been authorized by the U.S. congress in the marketing field. The appropriation would be increased as the projects were developed, beginning with $15,000,000.

The national marketing bill increased steadily with the volume of agricultural production to more than $11,000,000,000 compared with about $8,000,000,000 in 1935. The marketing

charges amounted to 48% of the retail cost of foodstuffs in 1946 compared with 60% in 1940. The farmer's share of the consumer's $1 was estimated at 52 cents in July 1947 compared with 56 cents in March.

Soil Conservation.—The soil conservation service, begun in 1933, had organized by June 30, 1947, about 1,865 soil conservation districts and 24 other districts for special purposes. After 1946 all 48 states and Puerto Rico passed laws to permit local farmers and landowners to farm districts for soil conservation. These covered an area of more than 1,000,000,000 ac., including 4,450,000 farms, three-fourths of all farms in the nation. The development of plans for the best use of soils in these districts was completed for about 500,000 farms by federal experts and farmers working together.

Crop Insurance.—In 1947 more than 500,000 producers were protected by crop insurance on wheat, cotton and flax. The total insurance amounted to about $500,000,000 with premiums amounting to $51,000,000. These policies gave protection against loss of yield with an option of coverage of either 50% or 75% of the long-time average yield of the farm. (*See* also AGRICULTURAL RESEARCH ADMINISTRATION; CENSUS DATA, 1947; CHEMURGY; FAMINES; FERTILIZERS; HORTICULTURE; IRRIGATION; LAW; LIVESTOCK; METEOROLOGY; PRICE ADMINISTRATION, OFFICE OF; PRICES; SOIL EROSION AND SOIL CONSERVATION; VEGETABLES, etc.; also under principal crops.)

(J. C. Ms.)

Great Britain.—1947 was a difficult year for British farming. At the start hard weather with snow and then floods caused disastrous losses of sheep on the hill farms and set back spring cultivations all over the country. Parts of the fenland in East Anglia were still flooded at the end of April, and in most districts the ground was not fit to sow the spring corn until mid-April, a month later than usual. Potato planting was carried into June. An exceptionally sunny, hot summer made some amends and the late-sown crops grew well. By the time harvest came the season had caught up with the calendar and in August farmers everywhere had a run of luck with perfect harvest weather; all the cereals were gathered in first-class condition and without excessive labour. Yields were light and cereals fell to less than the ten-year average in weight per acre; this was true also of the potatoes and sugar beets, but with the dry weather continuing, these crops were lifted in excellent condition and the potatoes were expected to keep well. The outcome of the year's trading was meagre for many farmers, especially in the eastern counties of England, where the corn and sugar beet crops normally bulk largely in the farmers' receipts.

Parliament gave much time in the spring and summer to consideration of the Agriculture bill, which received the royal assent in August. This act established the principle of guaranteed markets and prices for a wide range of agricultural products, and for the first time after the ill-starred Corn Production act at the end of World War I the British farmer was promised stability by act of parliament. This measure received the general blessing of all political parties, although there was much detailed criticism of some of the provisions covering the relations between landlord and tenant and the continuance of the supervisory powers of the minister through county agricultural executive committees. All three partners in the industry—landowners, farmers and farm workers—agreed that high standards of management must be maintained and that any landowner or farmer who failed to meet his obligations in this respect should, after due notice and a period of supervision, be required to make way for someone else.

The county committees, who were to act as the minister's agents in maintaining satisfactory standards in farming, were to be selected by the minister from panels of names submitted by the Central Landowners' association, the National Farmers' union and the two trade unions representing agricultural workers. In this way the farming organizations had more direct responsibility for the standard of farming in each area than the committee members in World War II, who were appointed direct by the minister of agriculture without consultation with the farming organizations. It could not at the end of 1947 be said that under the new arrangements the teamwork between the ministry and the county committees was as close and effective as was desirable, or that the new National Agricultural Advisory service established by the minister had yet gained sufficient strength and standing to replace the county advisory staffs with their local farming connections and close contacts with the universities. It was, however, true that, while only perhaps one farmer in ten was making regular use of technical advice before World War II, the help of the scientists in 1947 reached one farm in four.

(A. R. HD.)

Agriculture, U.S. Department of: *see* GOVERNMENT DEPARTMENTS AND BUREAUS.

Air Conditioning.

Shipments of air-conditioning equipment in 1947 exceeded shipments in 1940 and 1946 and reached a new all-time peak in spite of continuing shortages of materials and components.

Statistics for air-conditioning equipment are not easily separable from statistics for refrigerating equipment. The trend can be determined, however, from shipments of specific types of air-conditioning equipment as published by the U.S. bureau of census as follows:

U.S. Domestic and Export Shipments of Specific Types of Air Conditioning Equipment

		Number	Value
Room air conditioners	1940	30,873	$4,584,406
	1946	23,562	4,923,798
	1946–9 mo.	14,052	2,804,183
	1947–9 mo.	37,980	8,566,135
Self-contained air conditioners	1940	5,880	4,466,926
	1946	16,561	12,734,228
	1946–9 mo.	11,706	8,463,047
	1947–9 mo.	21,863	20,323,229
Air conditioning, remote-type unit coolers	1940	5,955	2,269,210
	1946	9,551	3,880,182
	1946–9 mo.	4,891	2,664,443
	1947–9 mo.	13,048	4,734,406

Room air conditioners of the window-sill and floor-mounted type, usually air cooled, are used principally in offices and to some extent also in residences and for other applications. Shipments in the first nine months of 1947 were 23% more in number and 87% more in value than in 1940.

Self-contained air conditioners, usually water cooled, ranging from 3 to more than 20 tons ice-melting effect per 24 hr. are principally used in commercial and industrial applications. Shipments in the first nine months of 1947 were 270% more in number and 350% more in value than in 1940.

Air-conditioning unit coolers are a part only of a system for commercial or industrial applications. Shipments in the first nine months of 1947 were 120% more in number and 107% more in value than in 1940.

Air-conditioning equipment also includes reciprocating and centrifugal condensing units, evaporative condensers, cooling towers, air washers, heat-transfer surface, controls and other equipment.

Product developments during 1947 were in the nature of refinements rather than unusual new designs with the possible exception of packaged "heat pumps." There was a continuing trend toward the use of higher speeds for refrigerating condensing units of the multiple-cylinder design resulting in more compact, lighter-weight units. There was a trend toward greater

use of remote-type room air conditioners in multiroom buildings supplied with refrigeration and heating from a central plant.

Heat pumps of the self-contained type, ranging in size from 3 h.p. to 20 h.p., were sold by several manufacturers in 1947 for commercial and residential application.

The heat pump extracts heat from outside air, well water or other source in a manner similar to a household refrigerator which extracts heat from a cabinet. The heat removed from the household refrigerator is wasted to the kitchen, but in the heat pump it is used for building heating. It had attractive possibilities because it was capable of supplying typically three to four times as much heat as the heat equivalent of the electrical energy input, and it provides complete year-around air conditioning in one self-contained unit. There were, however, many economic and technical problems in the development and application which would require the close co-operation of the manufacturer, contractor and electric utility company for their successful solution. (*See* also METALLURGY; PUBLIC HEALTH ENGINEERING.) (F. H. F.)

Aircraft Carriers: *see* AVIATION, MILITARY; NAVIES OF THE WORLD.

Aircraft Manufacture.

Financial losses and decreasing production, together with plans for correcting these conditions, highlighted the 1947 aircraft manufacturing picture in the U.S. Fifteen major concerns estimated that 1947 net losses, even after tax carry-backs and other credits, would be double the net 1946 loss of $11,684,000. Total aircraft production dropped from 96,318 military planes for the 1944 wartime peak, to 36,204 civil and military planes in 1946, with totals for 1947 estimated at about 17,000. The greatest decrease was in personal plane production which fell to an estimated 15,000 in 1947 from 34,407 in 1946.

Testimony before the president's air policy commission, established to formulate an aviation program, clarified the nature of the problems and the various proposals for meeting the industry's needs. There was agreement that government aid would be necessary to maintain an industry able to supply adequate peacetime military and civil aircraft needs and expand quickly in a national emergency. However, opinions differed on the form aid should take and how it should be administered within a private enterprise economic system.

The contrast of conditions in the aircraft industry with the prosperity existing in the over-all industrial picture in the country lent weight to a popular conclusion that the situation was in part a stage of development in a new field, complicated by wartime expansion and reconversion. In any event, the underlying factors were extremely involved and interwoven. First, there was insufficient demand to support large production facilities and profitable operation. Military purchases, which constitute an estimated 90% of total aircraft sales even in peacetime, were smaller than had been anticipated during the war; and it became evident that under existing conditions steady demand to compensate for reduced military orders could not be expected from either private flying or air transport. Attempts to offset waning markets by turning to nonaviation activities were not entirely successful.

The increasing cost and time involved in developing complex modern planes were other factors contributing to manufacturing difficulties. The fact that the B-29, even under wartime acceleration, entered service five years after specification agreement, and that Douglas, with fewer than 200 orders, did not expect to break even on the DC-6 unless 300 were produced, vividly illustrates these conditions. In addition, higher overhead expenses, inability to plan continuous production with spotty short-term orders, and lack of standardization plagued manufacturers.

Table I.—*Number of Aircraft Produced in the U.S. During the First Nine Months of 1947 and 1946*

	1947	1946
Military	1,323	917
Civil	13,697	25,505
1-engine	13,484	25,109
2- and 4-engine	213	396
Total (all types)	15,020	26,422

Source: U.S. bureau of the census and the Civil Aeronautics administration.

Mass production methods had to be abandoned in many instances and trained personnel dismissed. However, by December it was hoped postwar contraction had ended and that an early increase in military orders plus adoption of a sound government policy would effect improvement.

Lightplane manufacturers encountered greater difficulties than the industry as a whole and several underwent reorganization. Others, fighting reduced demand, pushed the development and integration of sales organizations. To supply business and agricultural markets where demand was greatest, more four-place planes, in relation to two-place planes, were produced.

Britain's problems, similar in certain respects, were complicated by the country's general economic difficulties. Production was disrupted by severe weather and shortages of material, fuel and labour. In the fall, the government's strict economy measures had adverse effects such as cancelled orders, but the industry escaped drastic curtailment. Notwithstanding delayed deliveries, all-important exports were estimated to be greater for 1947 than for 1946.

Table II.—*British Exports of Aircraft and Aircraft Engines in 1947 and 1946*

(11 months ended Nov. 30)

	1947	1946
Complete aircraft	1,641	1,268
Aircraft engines	1,495	738

Source: British board of trade.

Although the Canadian aircraft industry had shrunk from its wartime size, progress was made in several domestic designs, including a jet airframe and engine. Civil plane production equalled one-fortieth of the total number of all types produced annually during the war. In Australia, government plants produced military planes at a reduced rate. De Havilland's plant was building the prototype of the first Australian civilian design, the Drover for "out back" operations.

Civilian Equipment.—Financial difficulties and cancelled orders necessitated abandonment of several models, including the publicized Republic Rainbow, Martin 303 and Cunliffe-Owen Concordia. However, development, production and delivery of other new planes moved forward. In the U.S. transport field, Lockheed delivered improved Constellation models. The Douglas DC-6 went into widespread use, but after accidents was temporarily grounded for modifications. Boeing's 80-place, four-engine Stratocruiser was in production with deliveries scheduled for 1948. The high-speed, short-haul Martin 202 began operating. Deliveries were initiated on the first U.S. pressurized two-engine aircraft, the 40-place, 300 m.p.h. Convairliner with jet exhaust auxiliary propulsion.

In Britain, after disappointing tests, Tudor I's were returned to the manufacturer for changes. Conflicting issues about the plane subsequently developed, resulting in the formation of a government board of inquiry. Work continued on the other seven Tudor Marks, or types, with Mark IV beginning scheduled operation for British South American Airways. Prototypes of the Hermes IV, pressurized, 40-passenger, four-engine landplane and the 28–40 place, 282 m.p.h., two-engine Airspeed Ambassador began flight tests. Flying boats, holding their place in British equipment, were under construction and Short's 24–45 passenger Sandringhams were delivered.

Britain had in production several medium transports or "feeders," notably the Dove, successfully operated domestically and abroad. Although no U.S. feeder planes were produced, the Northrup Pioneer and Beech 34 were ready if orders warranted.

In the U.S. new four-place lightplane models were announced, some by manufacturers formerly producing only two- and three-place planes. Among these were the Piper Cruiser, Cessna 170, Ercoupe Four and Aeronca 15. The Stinson Voyager and Beech Bonanza were popular four-place planes in use. In Britain the three-passenger, steel Auster Autocrat became the standard lightplane. Flying in prototype were the four-place Auster Avis; Elliotts' Newbury Eon, three- or four-place; and the Prestwick Pioneer, four-place, for operation in areas with inadequate airports.

In Canada, DC-4M's, produced in nonpressurized version for the royal Canadian air force and pressurized for Trans-Canada Air Lines, began operation on transatlantic routes. The five-place Beaver for passenger or cargo "bush" operation successfully completed trials and the two-place Chipmunk was well received on delivery.

As European manufacturers recovered from the war, an impressive group of all types of planes emerged. Sweden's two-engine, 24–32 passenger Scandia transport was in production. Particularly interesting was the big, six-engine French Latecoere 631 flying boat placed in operation by Air France.

With the importance of cargo increasing, several cargo versions of passenger transports were flying; but specifically designed cargo planes were rare. New models of the U.S. air force Packet and the British Miles M. 68 had detachable fuselages. Bell's two-place and Sikorsky's four-place helicopters were delivered for civilian use in the U.S., and the two-place Sikorsky S-52 with all metal rotor blades was certificated. Bristol's 171, first British helicopter for commercial use, flew in prototype.

Research and Technical Developments.—A forward step in the free exchange of ideas and information in aviation research was made with the organization of an annual Anglo-American conference by the British Royal Aeronautical society and the U.S. Institute of Aeronautical Sciences. During September the first meeting was held in London. Discussions revealed that much fundamental research continued to focus on problems of high-speed flight in the subsonic, trans-sonic and supersonic ranges. In many cases work consisted of consolidation, adaption and refinement of previous developments of a radical nature.

Prominent among the techniques employed for exploring high-speed flight was the use of controlled model aircraft and pilotless missiles (also being developed as military weapons). The first of a trans-sonic and supersonic British model aircraft series reproduced the basic design of the Miles M. 52, piloted project abandoned in 1946. The U.S. National Advisory Committee for Aeronautics utilized missiles to study stability and control, the aerodynamics of basic shapes, specific aeroplane configurations and power plants. Another technique was the use of piloted experimental planes. The navy-Douglas-NACA D-558-1 joined the army-Bell-NACA XS-1 in flying tests. There were reports that the XS-1 had exceeded the speed of sound but these were not confirmed by authorities. Construction of the D-558-2, another of the planned research craft, was completed. In England data obtained from the De Havilland 108 were to be applied to future military and civil planes.

An increasing number of planes incorporated new designs perfected through years of research in aerodynamics. The more radical were limited to military and experimental aircraft such as the Northrup YB-49, jet-propelled successor to the XB-35 Flying Wing, the Armstrong Whitworth A.W. 52, jet successor to the tailless glider, and the Boeing XB-47, one of the most advanced designs flying.

Although reciprocating engines were used exclusively on civil planes and on many military types and work was done on ram-jet and rocket engines, gas turbines, both turbine jets (turbo-jets) and airscrew turbines (turbo-props), were the centre of attention in the power plant field. Experiments revealed that each of the basic turbine types was capable of many variations and combinations. Research concentrated on taking advantage of their strengths and overcoming their weaknesses. The U.S. added experimental turbo-jet bombers to its list of jet fighters. In Britain four-engined Lincolns and Lancastrians, with two of the reciprocating engines replaced by turbo-jets, were used as "flying test beds." Similar testing was undertaken for turbo-props and plans for their installation in commercial planes came nearer fruition.

Sweptback, thin wings posed problems in undercarriage retraction. One solution was the tandem undercarriage of a Martin bomber. The Civil Aeronautics administration in the U.S. sponsored a program to develop castoring undercarriages. These would permit crosswind landings, making possible single-runway airports, and add greatly to the utility of the personal plane.

The first British propellers for turbine installation were officially approved. Automatically feathering propellers and automatic propeller synchronizers were perfected for U.S. civil transports.

Efforts to adapt major technological advances to personal and training planes covered all categories. Noise reduction was considered vitally important. Interesting experiments were conducted with "roadable" aeroplanes, convertible to automobiles by detaching the wings. (G. M. M.)

Air Forces of the World: *see* AVIATION, MILITARY.
Air Mail: *see* POST OFFICE.

Airports and Flying Fields.

The revised 1947–48 federal-aid program, which merged the funds for the two years, called for the construction or improvement of 908 airports at an estimated cost to the federal government of $66,569,590, with local or state sponsors providing an additional $70,235,095.

The revision in plans, announced Aug. 5, 1947, was made necessary by the reduced 1948 appropriations. The new plan merges the actual appropriation of $32,500,000, made by congress for 1948, with the $45,000,000 appropriation for 1947.

In approving the new program, T. P. Wright, administrator for civil aeronautics, declared that the CAA's primary consideration was aeronautical necessity, and that he had not been able to program all projects for which the CAA had received applications for federal assistance. The CAA had on file, late in 1947, a backlog of approximately $250,000,000 in requests for federal aid.

The program included 896 projects for the continental United States, of which 725 were for the construction or improvement of class 1, 2 and 3 airports and 171 were for class 4 or larger, of which only 3 involved the construction of new class 4 or larger airports. By early December, 12 projects had been programmed in the territories and Puerto Rico.

Of the $66,569,590 of proposed federal expenditures, $35,295,055 was for construction or development of class 3 or smaller airports, and $31,274,535 was for class 4 and larger.

The apportionment of $77,500,000 of federal funds appropriated for the fiscal years 1947 and 1948 consisted of $4,087,500 for administrative purposes, $3,315,500 for projects in the territories, $52,572,750 according to state area and population

and $17,524,250 for a discretionary fund.

The proposed federal expenditures comprised $49,997,985 of the $52,572,750 apportioned among the states as provided in the Federal Airport act, plus $14,818,530 from the discretionary fund and $1,753,075 from funds apportioned to Alaska, Hawaii and Puerto Rico.

Of the total amount of $140,702,885 of federal and sponsor funds for the development and improvement of airports, the percentage of cost as related to land was 10% (the government participates only to the extent of 25% for land acquisition), 8% for buildings and 82% for other items.

A combined total of 4,728 airports in the U.S. was reported as of April 1, 1947, including: 958 subclass 1, 1,745 class 1, 777 class 2, 490 class 3, 758, class 4 and over. This total may also be broken down according to types of operation, as follows: commercial 2,124, municipal 1,484, CAA intermediate 198, military 760, all others 162, total 4,728.

Air Navigation Aids.—The broad picture in air navigation aids during 1947 concerned the changeover from low frequency to very high frequency in all U.S. airways communication and signal services. This change-over was important to every airport user whether the user was operating the biggest of commercial airliners or flying little two-place aeroplanes around an airport. The change-over, of course, was to be gradual. The CAA was scheduling the installation of new facilities as fast as funds and equipment would permit and it was anticipated that perhaps in 1950, possibly 1949, enough of the facilities would be changed over to warrant the gradual discontinuance of the old type of facilities. In the meantime, however, both would be operated.

As of Jan. 1, 1947, there were 43,387 mi. of "implemented" federal civil airways in the U.S. There were 10,600 mi. of "unimplemented" federal civil airways, together with ocean route mileage of 7,442. The total of all airways was 61,429 mi.; 38,610 mi. were under air traffic control and about 8,200 mi. were not controlled.

The U.S. had at hand the means to conquer the problem of bad-weather flying across country. The economic value of the knowledge is apparent in the regularity of air line schedules in spite of weather that used to be unflyable. The U.S. was embarking on an instrument landing aid program that would make landing at the destination possible in substantially any weather. For the future, the U.S. would have the instrument landing system, high intensity approach lights, precision beam radar equipment and possibly an initial service test installation for dispersing fog through heat, the system the British called Fido during World War II.

The instrument landing system (ILS) is in effect a four-element system consisting of a localizer beam for guiding the pilot right and left toward the centre line of the runway, a glide path for bringing him down to a safe lighting angle to the runway surface, radio marker beacons set along his approach path to tell him how close he is to the end of the runway, and high intensity lights along the immediate approach to the end of the runway. To supplement this system there was being used the radar system known as ground controlled approach to monitor ILS approaches, help prevent collisions in the vicinity of the field and for ground-controlled landings in emergencies and on request. (E. M. E.)

Other Countries.—The progress made in regard to airports and flying fields in Great Britain and Europe during 1947 was concerned more with landing aids, flying control and general amelioration rather than with any spectacular addition to the number of civil aerodromes; there was continued improvement of the ground organization of civil aviation. In Great Britain there were, however, 123 aerodromes available for civil aviation during 1947.

Radio aids to flying and the organization necessary for them, at the major aerodromes in Europe, were scheduled by the principal countries, and appropriate instructions were issued internationally. Aerodrome lighting made progress, and work went on in the installation of apparatus. This work was still in its early stages, and many experiments had still to be made in the type, colour, intensity and pattern of lighting. There also remained the general co-ordination internationally of methods and systems; work on this was being concentrated on the major international airports.

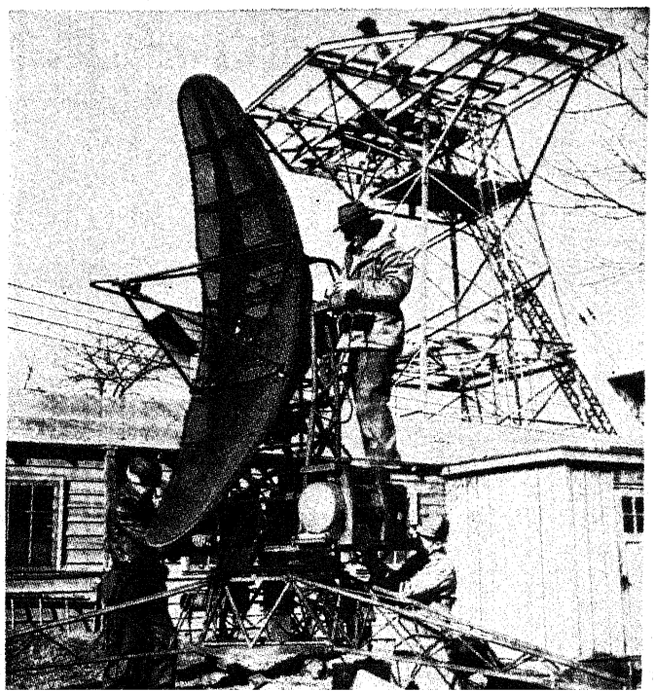
Air traffic control along the air routes and in the vicinity of aerodromes was still being worked out; much would depend on the experience gained in the practical application of this control during the winter months of 1947–48.

The laying down of permanent runways at the main European airports progressed as far as was possible under the difficult economic conditions which prevailed. At Heathrow, the London airport, 270 ac. of concrete runways were laid. Orly, the Paris aerodrome, was also able to report progress in this direction, while at Le Bourget, the other Paris aerodrome, work on the runways went on steadily. At Poland's main aerodrome, Okecie, at Warsaw, work on the terminal building was completed and two concrete runways, 5,904 ft. and 5,580 ft., went into service. Amsterdam adopted plans to extend Schiphol aerodrome by providing a new passenger terminal and administration building, and improved runways at a total estimated cost of $4,000,000. In Norway, Sola was chosen to be the main base for the Scandinavian air lines to North America. Sola was said to rank as one of the best aerodromes in Europe. Basle-Mulhouse, the joint French-Swiss aerodrome near the frontier, came into constant use; work on it went on during 1947 and it would eventually rank with the best aerodromes in Europe. In Ireland, Shannon airport was declared the world's first free airport.

In Italy the aerodromes near the principal cities were once again brought into use for civil aviation and were being used extensively by Italian and international air transport companies.

Much of the work done on European aerodromes was still repair of wartime bomb damage. (*See* also AVIATION, CIVIL; AVIATION, MILITARY.) (H. R. G.)

GROUND CONTROL APPROACH equipment being installed at the National airport, Washington, D.C., in Jan. 1947. G.C.A. sets in planes permit pilots to be "talked down" by ground operators making visual reference to radar scopes





NATIONAL AIR RACE CONTESTANTS, seen from a hangar at Cleveland, O., in Aug. 1947. Paul Mantz, flying a P-51 from Van Nuys, Calif., to Cleveland, won the Bendix trophy race for the second successive year

Air Races and Records. A three-day world air show held in the U.S. during 1947 was a demonstration of the army, navy and marine corps air strength, witnessed by top-ranking armed forces officers. While it was the only listed world event, it produced exhibitions only, rather than any winners.

The two classics still remained the Cleveland air races and the Miami All-American air manoeuvres. Paul Penrose of Venice, Calif., was top money winner at Miami, taking the $10,000 speed race. The Western Airlines pilot flew a converted P-51 Mustang and averaged 307.605 m.p.h. over the 15 mi. course. Charles Walling, Jr., of Houston, Tex., was second in a converted Lockheed F5G, averaging 304.740 m.p.h. Bruce Raymond, Hammond, Ind., placed third in a P-51 at an average of 302.775 m.p.h.

All the aircraft in this—the Miami All-American classic—were purchased by their civilian owners at army surplus sales. All craft had the certification of airworthiness from the Civil Aeronautics administration.

The national air races at Cleveland, O., drew the largest entry in the event's long history. A record total of 92 planes entered competition for $85,000 in prizes. The Thompson trophy race was won by Cook Cleland, averaging 396.1 m.p.h. and winning $19,500 of prize money; Richard Becker was second, 390.1 m.p.h., winning $8,100; J. Demming, 389 m.p.h., $4,600, third; Steve Beville, 360.8 m.p.h., $3,000, fourth; Tony Levier, 357.4 m.p.h., $2,000, fifth.

Paul Mantz won the Bendix trophy race and $10,000 with an average speed of 460.423 m.p.h.

The Goodyear trophy race was won by William Brennard, 22-year-old test pilot of Oshkosh, Wis., who travelled 165.857 m.p.h. to take the $25,000 midget classic. Mrs. Ruth Johnson won the Halle trophy for women pilots over a 75-mi. course. All contestants in this race flew At-6 advanced trainers. Mrs. Johnson made a speed of 223.3 m.p.h. for the 5 laps. Grace Harris of Kansas City was second, with an average of 215 m.p.h. Third was Mrs. Edna Gardner Whyte of Fort Worth, Tex., whose average was 210.7 m.p.h.

In a 200-mi. gliding contest, Dan Pollard of Roanoke, Va., soared from Elmira, N.Y., to Asbury Park, N.J., in a French-built craft called the Air-100.

Steve Beville also won the 105-mi. Kendall trophy, a part of the national air races, and thus added $2,500 to his earnings. His average was 384.6 m.p.h. (T. J. D.)

A.L.A.: *see* AMERICAN LIBRARY ASSOCIATION.

Alabama. Alabama, located in the heart of the "deep south" of the United States, was admitted to the union Dec. 14, 1819, as the 22nd state. It is popularly called the "Cotton State," or the "Yellowhammer State." Area: 51,609 sq.mi. (51,078 sq.mi. of land and 531 sq.mi. of water). In 1940 the total population of the state was 2,832,961. Of this number 1,849,097 were whites, 983,290 were Negroes and 574 were classified otherwise; 2,821,004 were native-born and 11,957 were foreign-born. In 1947 the total population of the state was estimated by the U.S. census bureau at 2,824,000. Montgomery, the capital city, in 1940 had a population of 78,084, Birmingham, the state's largest city, 267,583 and Mobile, the state's only seaport city, 78,720.

History.—The principal elective officials of the state in 1947 were: James E. Folsom, governor; J. C. Inzer, lieutenant governor; Albert A. Carmichael, attorney general; Dan Thomas, state auditor; Haygood Paterson, commissioner of agriculture and industries; Sibyl Pool, secretary of state; John Brandon, state treasurer; Austin R. Meadows, state superintendent of education. During 1947 there were two special sessions of the state legislature in addition to the regular biennial session. Most of the laws enacted were of local interest to the various counties. The principal matter of state-wide interest was the ratification by the voters of a constitutional amendment allowing certain earmarked income tax revenues to be used for educational purposes. It was believed this would be a great factor in helping to raise the state's educational standing.

Education.—During the academic year 1946–47 (ending June 30), the total number of public schools in the state was 3,914. Total enrolment for these schools was 648,894. Of this number 435,818 had primary school standings and 213,076 had secondary school standings. There were 12,432 elementary and 7,447 secondary teaching positions in public schools. There were 8 state institutions of higher learning with a total of 32,659 students enrolled and 1,137 teachers: University of Alabama; Alabama Polytechnic institute, Alabama State College for Women, Florence State Teachers college, Jacksonville State Teachers college, Livingston State Teachers college, Troy State Teachers college and Montgomery State Teachers college.

Social Insurance and Assistance, Public Welfare and Related Programs.—Amounts spent for public assistance categories in Alabama during the fiscal year 1946–47 (ending Sept. 30) and average number of recipients (in parenthesis) during 1946–47 were as follows: old age assistance $10,431,323.24 (48,916); aid to the blind $230,343.84 (968); aid to dependent children $2,916,223.10 (7,833); aid to children in foster care (county) $104,626.00 (538); aid to children in foster care (state) $47,139.14 (118); aid to handicapped $848,989.64 (4,553); temporary assistance $42,893.67 (189). During the fiscal year 1946–47 approximately 87,600 veterans were paid, under the G.I. Bill of Rights, unemployment compensation totalling $34,285,907.61. Approximately 56,700 nonveterans were paid unemployment compensation totalling $8,463,378.21. State correctional institutions are largely self-supporting. On Sept. 30, 1947, there were 25 state prisons with a white male population of 1,456, Negro male population of 2,543, white female population of 48 and Negro female population of 176 (total prison population 4,223). Total prison expenditures for the fiscal year 1946–47 were $3,699,408.74. At the close of the fiscal year (Sept. 30, 1947) there were 3 state reformatories with a population of 221 white males, 313 Negro males, 120 white females, 64 Negro females (total reformatory population 718). Total reformatory expenditures for the fiscal year 1946–47 were $466,196.82.

Communications.—The state highway system consisted of 7,317 mi. of road; the county system had 52,956 mi. of road, and there were approximately 4,000 mi. of municipal streets. For the fiscal year 1946–47 state expenditures for highways by the state highway department were $29,124,630.11. Estimated railroad mileage was 5,342. There were 8 airways with a total airway mileage of 1,233. The number of airports (including those owned by the U.S. war department) was 87. There were 280,000 estimated telephones in the state.

Banking and Finance.—On June 30, 1947, there were in Alabama 153 state banks and 1 branch, which had total deposits of $282,319,164.71 and total resources of $302,056,227.95; 67 national banks and 22 branches which had total deposits of $860,116,835.29 and total resources

of $921,052,772.05. On Jan. 1, 1947, there were 18 federal savings and loan associations with total resources of $28,341,119 and 8 state savings and loan associations with total resources of $5,444,979. According to best available information, total net state government receipts in the fiscal year 1946–47 were $145,017,055.11; total net disbursements during that period were $144,152,964.36; state bonded indebtedness on Sept. 30, 1947, was $33,889,000; and cash and investment balances on the same date were $79,923,708.

Agriculture.—The total value of agricultural production for 1946 amounted to $501,734,000. The total acreage harvested in 1946 amounted to 6,450,000 ac. The cash income from sale of crops was $258,998,000; sale of livestock and livestock products amounted to $1,801,000; income from government payments was $7,509,000. Dry weather during the growing season of 1947 reduced the crop yield in all parts of the state, especially in the northern areas. Continued dry weather during the fall months, however, materially aided in the harvesting of crops.

Table I.—Leading Agricultural Products of Alabama, 1947 and 1946

	1947	1946	Value, 1947
Cotton, bales	935,000	822,000	$147,262,000
Corn, bu.	42,842,000	42,005,000	98,537,000
Cottonseed, tons	355,000	313,000	28,045,000
Peanuts, tons	146,900	130,000	27,911,000
Hay, tons	687,000	780,000	16,488,000
Sweet potatoes, bu.	5,084,000	5,225,000	11,947,000
Oats, bu.	5,083,000	5,537,000	5,845,000
Irish potatoes, bu.	3,330,000	4,646,000	4,862,000
Peaches, bu.	1,525,000	1,250,000	3,660,000
Sugar cane syrup, gal.	2,160,000	2,430,000	3,348,000
Sorghum syrup, gal.	1,680,000	1,827,000	2,520,000

Manufacturing.—The total estimated value of manufactures in Alabama in 1946 was $1,500,000,000. The 3,268 manufacturing establishments in 1946 had an average of 200,780 employees, to whom they paid wages of $371,631,113.

Table II.—Principal Mineral Products of Alabama, 1945 and 1943

Mineral	Value, 1945	Value, 1943
Coal	$76,411,098	$59,203,104
Iron Ore	13,701,737	19,870,480
Stone	3,326,753	3,178,908
Cement	8,146,139	11,265,088

Minerals.—The value of Alabama mineral production in 1944 was $108,460,000; in 1943 the value was $102,013,000. (J. E. Fm.)

Alaska. Alaska, northernmost territory of the United States, is located between the meridians of 130° W. and 173° E. longitude and between the parallels of 51° and 72° N. latitude. It has an area of 586,400 sq.mi. and an estimated population (1945) of 134,000, made up of about 60% whites and 40% Eskimos, Aleuts and Indians. Juneau (1940 est. pop. 5,748) is the capital and other principal cities are Ketchikan (4,601), Wrangell (1,142), Petersburg (1,288), Sitka (1,945), Seward (1939 census, 949), Anchorage (3,488), Fairbanks (3,304) and Nome (1,550).

History.—The legislature met in its regular biennial session in 1947. It revised its law code and enacted a law providing that the names of all candidates appear on the same ballot with designation as to the political party with which they are affiliated. It made appropriations of approximately $11,000,000. Revenues are raised from taxes on fisheries, mining, businesses, gasoline and a per capita on men of $5 per year from ages 21 to 55 and women in the same age bracket who are gainfully employed.

Under the veterans' bonus measure enacted by the legislature in 1946, Alaska veterans of World War II may obtain loans up to $10,000 at 4% interest to establish businesses, buy homes, farms, fishing boats, etc., or may elect to take a cash bonus of $10 per month for every month of service. Bonuses can be repaid and loans obtained, and when loans are paid new loans may be secured.

Principal officers of the territory are governor and secretary of Alaska, both appointed by the president; treasurer, auditor, attorney general, highway engineer and commissioner of labour, all elected; commissioner of health, commissioner of taxation, commissioner of agriculture, commissioner of mines and commissioner of education, all appointed. The governor in 1947 was Ernest Gruening.

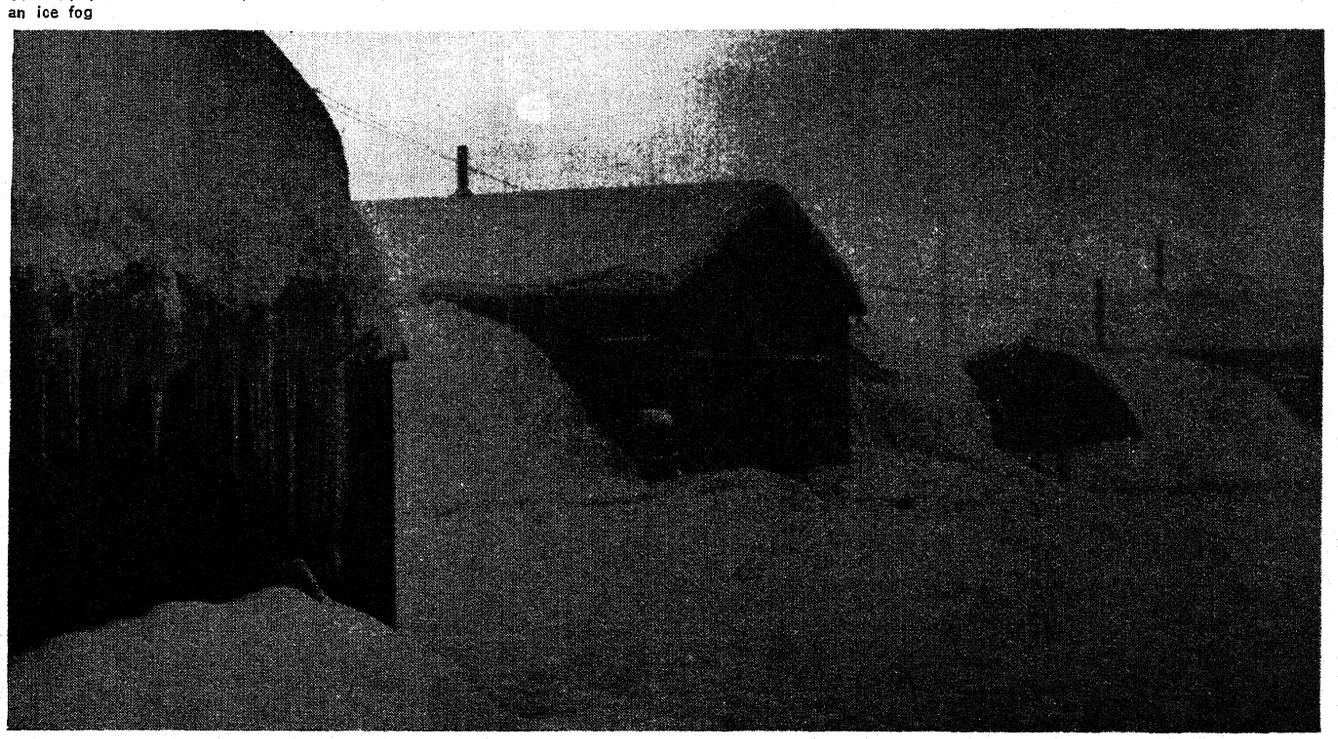
Education.—There were 70 elementary schools in Alaska with an enrolment of 7,297 in the 1947 school year. The 24 high schools had an enrolment of 1,451; 96 day schools, an enrolment of 3,636, and 3 boarding schools maintained by the Alaska Native Service for Indian, Eskimo and Aleut children, an enrolment of 870. The University of Alaska, only institution of higher learning in the territory, is located at Fairbanks. It offers courses in agriculture, arts and letters, business administration, chemistry, engineering, education, general science, home economics, mining and premedicine. It had an enrolment in the fall of 1947 of 334.

Social Insurance and Assistance, Public Welfare and Related Programs.—Alaska has a liberal public welfare program. This includes old-age assistance, aid to dependent children and relief of destitution. In addition it has a Pioneers' home, located at Sitka, where aged persons may reside. Maximum assistance to the aged is $60 per month. The 1947 legislature appropriated $1,230,000 to carry on the welfare program for two years. Of this amount $750,000 was matched by federal funds under a cooperative agreement with the federal government.

Finance.—The territory had no bonded indebtedness. Its cash balance at the end of 1947 was $2,500,000. Its 14 territorial and federal banks had deposits of $60,000,000.

Production.—Alaska produced 4,142,199 cases of salmon in 1947 with

TASK FORCE "FRIGID," conducted by the U.S. army at Fairbanks, Alaska, early in 1947, proved that personnel was more adaptable to arctic warfare than equipment. Ladd field, near Fairbanks, is shown at high noon under an ice fog



a value of $80,000,000. This was about 2,000,000 cases under normal production, but prices were high. Other fisheries such as halibut, cod, shrimp and crab had an estimated yield of $20,000,000. Annual return from fur is approximately $2,000,000. Mineral production was down in 1947, because of high costs and the inability of some properties to operate at profit. Gold production was around $7,000,000. There was some production of coal and platinum. (L. M. W.)

Alaska Highway: *see* ROADS AND HIGHWAYS.

Albania. A republic in the western part of the Balkan peninsula, along the Adriatic shore. Area: 10,629 sq.mi.; pop. (1946 est.): 1,120,500. Chief towns (pop. 1930 census): Tirana (cap., 30,806); Scutari or Shkodër (29,209); Koritsa or Korçe (22,787); Elbasan (13,796). Language: besides the literary Albanian, there are two dialects spoken, the Gheg north of the river Shkumbi and the Tosk in the south. Religions (1930 census): Moslem 688,280; Greek Orthodox 210,313; Roman Catholic 104,184. President of the republic and prime minister: Colonel General Enver Hoxha.

History.—The Communist-controlled government enjoyed its third year of office. During political trials, early in 1947, nine Albanians were sentenced to death for allegedly plotting to assassinate government officials, with the help of members of the British military mission. On May 15, parliamentary immunity was withdrawn from ten deputies of the peoples' assembly. On Sept. 27 nine of the deputies together with seven other accused were condemned to death for organizing acts of sabotage and terrorism against the state. The U.S. state department denied allegations that U.S. citizens were implicated in the affair. Dissension within the government itself was shown by the arrest and imprisonment of Sejfulla Maleshova, founder-member of the Albanian Communist party and later minister of information, together with the postwar Albanian representative in Italy, Colonel Kadri Hoxha. No reasons were given for these actions. On Oct. 4 Great Britain refused to hand over the Albanian subjects in Italy claimed as war criminals by the Albanian government. With considerable help from 156,000 tons of U.N.R.R.A. supplies valued at $27,450,000, the government was able to complete major tasks in its reconstruction program. All roads and bridges destroyed by the Germans were repaired, and work on the construction of a railway line was restarted. Demobilization of the 75,000 men in the Albanian national army was not begun and a law making military service obligatory was passed.

On March 26, following British protests to Albania over the mining of two destroyers in the Corfu channel, the soviet delegate at the Security council of U.N. vetoed a majority finding that an unnotified minefield in the Corfu channel could not have been laid without the knowledge of the Albanian government. Britain afterward referred the dispute to the International Court of Justice. (*See* also INTERNATIONAL COURT OF JUSTICE.)

During the year, the Albanian government continued its hostile attitude toward Britain and the U.S. On July 13 Premier Enver Hoxha stated that the British themselves might have laid the mines which damaged their destroyers in the Corfu channel. In denouncing the Marshall proposal, the deputy foreign minister stated: "This plan aims at dividing Europe in order to fulfil the Churchill plan of a western bloc." The Albanian government's attitude to the western democracies was summed up in the final words of a speech given by Premier Enver Hoxha on Oct. 7, "Be on your guard against the agents of imperialism. Our country is advancing and will always advance because it borders on Marshal Tito's Yugoslavia, who helps us to restore our economy and protects us, with U.S.S.R. help, against Anglo-U.S. intrigues." In July the premier paid an official visit to Moscow. As the outcome of this visit the Soviet Union granted Albania a credit with which to purchase industrial and agricultural equipment.

The Greek government's protests against Albanian violation of its northern frontiers, coupled with Greece's claim to part of south Albania, known as Northern Epirus, was the cause of bitter attacks by Albanian press and radio. (S. E. Ws.)

Finance and Trade.—On Dec. 11, 1946, the country formed a customs union with Yugoslavia; the Albanian lek is equal to the Yugoslav dinar.

Communications.—Work on railroads was begun in 1947, one line to link the port of Valona (Vlonë) with the Yugoslav system, and another planned to run from Tirana to the port of Durazzo. Telephone subscribers (1942) 1,119.

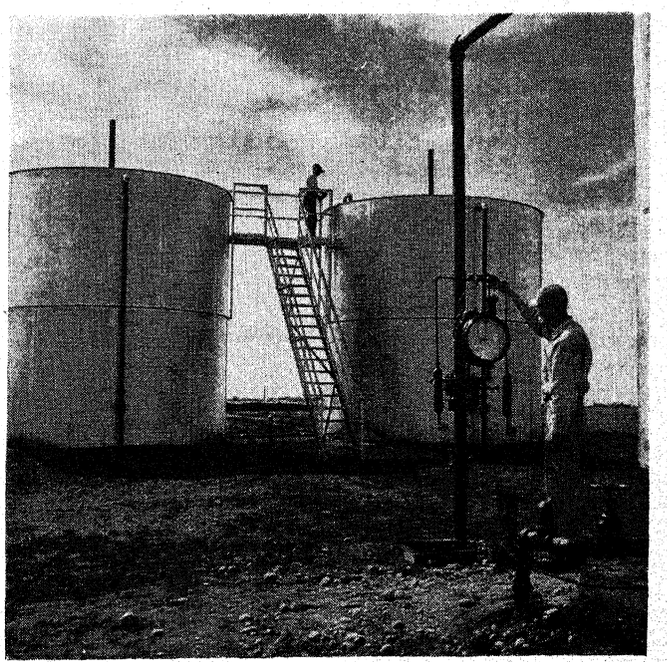
Alberta. Most westerly of the three prairie provinces of Canada, Alberta was created by parliament in 1905. The area is 255,285 sq.mi., of which 6,485 sq.mi. are water; pop. (1941) 796,169, (1947 est.) 822,000. Largest city is Edmonton, provincial capital, (1943) 131,050. Administered by a lieutenant governor, an executive council and a 63-member legislative assembly, Alberta is federally represented by 17 members of parliament and 6 senators.

History.—The Social Credit government announced in 1947 a surplus of $6,028,281, which resulted mainly from provincial liquor profits of $9,718,034, the highest in history. The gasoline tax was boosted from seven to nine cents a gallon. New minimum wage rates of $25 a week for men and $18 a week for women were established. Compulsory automobile accident insurance was introduced. Hutterite colonies were limited by legislation to 6,400 ac., with no colony nearer than 40 mi. to another. The government opened Alberta House in London, England, to facilitate migration of Britons and British industry to Alberta. The "Alberta Bill of Rights," invalidated in 1946 in part by the Alberta supreme court, was invalidated completely on an appeal to the privy council.

The discovery and successful development of the Leduc oil field, 18 mi. from Edmonton, was the biggest single provincial economic event of 1947. The first well blew in Feb. 13.

Agriculture.—In 1946 the gross value of grain crops was $243,000,000; dairy products were valued at $36,700,000; poultry production at $21,000,000. During 1947 Alberta farmers retired $39,734,000 of farm mortgage obligations. In 1946, 14,532,200 ac. were under field crops, the largest in provincial history. Total number of livestock (horses, cattle, sheep, swine) in 1946 was 4,270,000, while the 1944 high had been 5,648,000.

Minerals.—Coal production for 1946 was 8,734,696 short tons; for the first eight months of 1947 it was 797,204 tons below the similar period



OIL STORAGE TANKS at Leduc in Alberta, Canada, where ten firms were prospecting on farmlands believed to be rich in oil

for 1946. Restrictions on coal-mining leases were lifted, reversing an 11-year policy, thus opening the province's estimated 61,000,000,000 tons of coal reserve to individual or company exploitation.

Industry.—The gross value of 1945 production was $599,366,498. Net value was $359,235,626, which was 5.9% of Canada's total. Per capita production was $434.91.

Education.—Enrolment in educational institutions for the 1944–45 school year totalled 172,567. Acute teacher shortages were relieved by a three-way government program: 200 annual scholarships of $200 each to encourage students to enter the profession; a 14% increase in teachers' pensions; increased school grants in Calgary and Edmonton. (C. Cy.)

Alcohol, Industrial. U.S. production of industrial alcohol —700,000,000 gal.—was higher in 1947 than in 1946 but did not reach the 1944-45 high total of 1,101,000,000 gal. The 1946 output was 403,700,000 gal. Tax-paid output was reported as 329,000,000 gal. to July 1, 1946, and 520,000,000 gal. for the following year. The amounts of grain used in alcohol making declined sharply in 1946-47 after prohibition of the use of any wheat and restrictions on other grains. Total grain used in 1946-47 was estimated at 162,000,000 bu. compared with 173,522,000 bu. in 1946 and 289,541,000 bu. in 1944-45. Only 227,000 bu. of wheat were used in 1946, left over from previous purchases; 66,700,000 bu. corn, 4,235,000 bu. rye, 86,900,000 bu. barley, 10,000,000 bu. potatoes and 3,820,000 bu. sorghum seed were also used.

Limitation of the manufacture of alcoholic beverages in late 1947 to save bread grains did not reduce the output of denatured alcohol. The demand for alcohol in the manufacture of artificial rubber continued. (J. C. Ms.)

Alcoholic Intoxication: *see* INTOXICATION, ALCOHOLIC.

Alcoholic Liquor: *see* BREWING AND BEER; LIQUORS, ALCOHOLIC; WINES.

Alemán, Miguel (1902–), Mexican statesman, was born in Sayula, Veracruz state, the son of a shopkeeper who became a revolutionary general. Graduated in 1928 from the law school of the National University of Mexico, he was admitted to the bar in the same year. After a successful legal career, Alemán entered politics, becoming a member of the senate and governor of Veracruz state. In 1940 he managed Gen. Manuel Avila Camacho's presidential campaign; in 1946 he ran for president himself and was elected by an overwhelming majority. Inaugurated on Dec. 1, 1946, Alemán affirmed his faith in hemispheric unity, and on the domestic plane, he assured Mexican workers continued state protection.

On March 3, 1947, United States President Harry S. Truman made a state visit to President Alemán in Mexico City; on that occasion, Alemán extolled the U.S. president and said that foreign capital "with a proper respect for our laws" would be welcome. Returning the state visit (April 29–May 7), Alemán addressed a joint session of congress in Washington, D.C., on May 1 and warned that "democracy, if not backed by force, whets the appetites of dictators."

Foreign policy, however, was a subsidiary issue in his annual report to the Mexican congress (Sept. 1) in which the hoof-and-mouth disease was regarded as the government's gravest problem.

Alexander of Tunis, Harold Rupert Leofric George Alexander, 1ST VISCOUNT, OF ERRIGAL (1891–), British field marshal and governor-general of Canada, was born on Dec. 10, the third son of the fourth earl of Caledon. He was educated at Harrow and Sandhurst, and was commissioned in the Irish guards in 1911. He served on the western front during World War I; was twice wounded, five times mentioned in dispatches and received the distinguished service order and military cross.

At the beginning of World War II he led the 1st division in France, and was responsible for the successful evacuation of the British expeditionary force at Dunkirk. He was then appointed general officer commanding, southern command. In March 1942 he evacuated the British troops from Burma after the capture of Singapore. In Aug. 1942 he became commander in chief, middle east, and in Feb. 1943 deputy commander in chief, North Africa, to General Dwight D. Eisenhower. In Nov. 1944, in succession to General Sir Henry Maitland Wilson, he was appointed supreme Allied commander in the Mediterranean, where he led the Allied attack on Italy that resulted in the German surrender in May 1945. He was promoted field marshal as from June 4, 1944, the date of the fall of Rome, and in Jan. 1947 was created a viscount.

He took office as governor-general of Canada in April 1946. In June 1947 President and Mrs. Truman visited Ottawa as his guests, the first state visit ever made to Canada by a president of the United States.

Alfalfa. The United States alfalfa crop in 1947 was estimated at 33,475,000 tons of hay, slightly more than the 31,741,000 tons harvested in 1946 and above the average of 30,840,000 tons in the decade 1936-45. The second and third cuttings were good in the great plains region, but late cuttings were hurt by dry weather in the central states. The crops of the west were generally excellent, especially in California. Acreage harvested, estimated at 14,908,000, was practically the same as for 1946 and the 10-year average. Average yield was 2.25 tons per acre in 1947.

U.S. Production of Alfalfa Hay in Leading States 1947, 1946 and 10-year Average, 1936–45

(In thousands of tons)

State	1947	1946	10-yr. average	State	1947	1946	10-yr. average
California	4,623	4,623	3,650	Colorado	1,333	1,255	1,291
Wisconsin	2,263	1,517	2,280	Montana	1,264	1,237	1,062
Nebraska	2,058	1,735	1,308	Utah	931	893	972
Idaho	2,007	2,010	1,950	Ohio	803	840	892
Kansas	1,981	1,569	1,209	Oklahoma	800	607	515
Minnesota	1,685	1,917	2,400	Washington	740	809	728
Michigan	1,693	1,404	1,918	Missouri	736	792	644
owa	1,585	1,615	2,032	Indiana	722	690	799

The price of alfalfa hay advanced to an average of $21.90 per ton in Jan. 1947, then declined to about $18.00 per ton in August as the prospects for a large new crop appeared. By December the price was $20.40 reflecting the effort to reduce grain in livestock feeding.

The 1947 alfalfa seed crop was the second largest on record, estimated at 1,699,400 bu. compared with the all-time record of 1,822,400 bu. harvested in 1946. Acreage harvested was smaller than in 1946, but the average yield was 1.66 bu. per acre compared with 1.55 bu. in 1946. Alfalfa seed prices averaged $14.50 per bushel in the fall with a wide range between sections, from $22.30 per bushel in the east north central states to $11.30 in the south central. (*See* also HAY.) (J. C. Ms.)

Algeria: *see* FRENCH OVERSEAS TERRITORIES.

Alien Property Custodian, Office of: *see* FOREIGN INVESTMENTS IN THE UNITED STATES.

Aliens. **Alien Registration.**—The initial registration for aliens began on Aug. 27, 1940, and continued through Dec. 26, 1940. During this period 4,889,770 aliens registered as residents of continental United States. Factors determining the alien population are net immigration, naturalization and mortality. By using the true figures for immigration and naturalizations, and estimating the alien mortality for the period, it is possible to arrive at the approximate alien population. On

such a basis it was estimated that there were approximately 3,000,000 resident aliens in continental United States on June 30, 1946. That estimate did not take into account those in the country temporarily; that is, nonimmigrants, border crossers and imported labourers.

Naturalization.—The number of aliens naturalized in the fiscal year 1947, 93,904, was the lowest since the period of World War I. Of the number naturalized, 16,462 were military and 77,442 civilian naturalizations. In the preceding year 150,062 persons were naturalized.

For the fiscal year 1947, 11,092 members or former members of the military and naval forces residing in the United States, Alaska, Hawaii, Puerto Rico and the Virgin Islands were naturalized on the basis of petitions filed with naturalization courts. In addition, a total of 5,370 persons serving abroad with the armed forces of the United States were admitted to citizenship by designated representatives of the immigration and naturalization service under the administrative process. Naturalizations were granted in the following areas: Germany 33; England 94; Italy 26; China 29; Mexico 64; American Samoa 140; Guam 248; Philippine Islands 4,652; all other countries 84. The number of aliens naturalized during the year ended June 30, 1947, is shown in the table.

Aliens Naturalized During Year Ended June 30, 1947, by Countries or Regions of Former Allegiance

Country or Region of Former Allegiance	Total Naturalized	Civilian	Military	
			In U.S. Under Sec. 701	Abroad Under Sec. 702
All countries	93,904	77,442	11,092	5,370
Austria	1,930	1,882	43	5
British Empire	20,328	16,956	3,278	94
China	831	479	323	29
Czechoslovakia	2,239	2,110	121	8
Germany	10,703	10,313	357	33
Greece	1,847	1,729	117	1
Hungary	1,595	1,556	34	5
Italy	11,516	10,680	810	26
Mexico	3,336	1,636	1,636	64
Philippines, Republic of the	10,764	3,510	2,602	4,652
Poland	6,495	6,223	269	3
Union of Soviet Socialist Republics	3,562	3,407	154	1
Yugoslavia	1,258	1,176	79	3
Other countries	17,500	15,785	1,269	446

Throughout the year 3,953 petitions for naturalization were denied, as compared with 6,575 petitions denied during the previous year. There were 94 judgments of naturalization revoked and certificates of naturalization cancelled during the year, a reduction of 92 as compared with the preceding fiscal year. In 78 cases the foreign service of the department of state initiated the action because the naturalized citizens of the United States became permanent residents of foreign countries within five years after naturalization. In 16 cases the immigration and naturalization service initiated action because naturalization was otherwise fraudulently or illegally procured.

Nationality may be lost involuntarily through conviction of treason against the United States, conviction by court-martial of desertion from the armed forces of the United States in time of war and as the result of such conviction the person is dismissed or dishonourably discharged from such forces; departing or remaining away from the United States in time of war to avoid training and service in the land or naval forces, and by protracted residence abroad of naturalized citizens. It may be lost voluntarily by naturalization in a foreign state, or the performance of certain other acts identified with citizenship of a foreign state. During the fiscal year 6,758 persons thus lost United States nationality. In addition, there were approximately 4,500 American-born Japanese who had been naturalized in Japan. There was, also, an unknown number of persons who lost United States citizenship by reason of their failure to make a timely return to the United States.

Petitions for naturalization were filed by 88,802 persons, a decrease of 28% from the 1946 fiscal year, when 123,864 petitions were filed. Declarations of intention filed increased to 37,771. There were 28,787 declarations filed in the fiscal year 1946; 31,195 in 1945; 42,368 in 1944; and 115,664 in 1943.

Alien Enemies.—Alien enemies include natives, citizens, denizens, and subjects of countries with which the United States was at war—Japan, Germany, Italy, Hungary, Rumania and Bulgaria.

The beginning of the fiscal year 1947 found 1,539 alien enemies in the custody of the service, of whom 1,165 were in custody under alien enemy proceedings and 374, in whose cases alien enemy proceedings had been terminated, were in custody under immigration proceedings. During the year 180 additional persons were received (including five born at the internment camps), while 758 departed from detention facilities—34 under presidential removal orders; 29 as repatriates (including 14 Germans, 14 Japanese and one other); 215 preremoval parolees; 477 releases; and 3 deaths, leaving 587 under alien enemy proceedings at the close of the fiscal year, of whom 307 were in custody at the expense of the service and 280 on work projects. This figure was made up of 203 Germans and 384 Japanese. During the year ended June 30, 1947, 280 Japanese internees were placed with the Deerfield Packing corporation, Seabrook Farms, N.J., as voluntary workers for current wages under a form of relaxed internment, while 171 were paroled to the same employer. The only remaining internment camp was that located at Crystal City, Tex., which had a population at the close of the year of two German adults, 105 Japanese adults and 71 Japanese juveniles.

Litigation testing the legality of the Alien Enemy act of 1798 (50 U.S.C. 21–23) and the presidential proclamation issued thereunder had prevented removals of alien enemies from actually being effected in all but relatively few cases. Litigation had prevented removal in the cases of 460 Japanese who renounced their United States citizenship pursuant to section 401(i) of the Nationality act of 1940, as amended, and of 159 alien Japanese who were residents of the United States at the outbreak of World War II.

New Legislation.—The act of Aug. 9, 1946 (public law 707) provided for the continuance of the farm labour program through June 30, 1947.

The act of April 28, 1947 (public law 40) extended the farm labour program to Dec. 31, 1947. Under this act alien labourers were allowed to be imported, and those already in the U.S. were allowed to remain until Dec. 31, 1947, under certain conditions.

The act of May 16, 1947 (public law 66) amended section 327(h) of the Nationality act of 1940 so as to permit photographic services on government property for the benefit of persons seeking to comply with requirements under the immigration and nationality laws.

The act of May 31, 1947 (public law 81), amended the Nationality act of 1940 so as to permit naturalization proceedings for sick or physically disabled persons to be held at places other than the office of the clerk of court or in open court.

The act of June 28, 1947 (public law 126), extended from June 30, 1947, to Dec. 31, 1947, the act facilitating the admission of alien fiancées or fiancés of citizen members of the armed forces of the United States.

The act of July 1, 1947 (public law 155), corrected an error in section 342(b)(8) of the Nationality act of 1940 by making 50 cents the minimum rather than the maximum fee for information from copies of the service records.

The act of July 22, 1947 (public law 213), amended the "War Brides" act of Dec. 28, 1945, by extending the benefits to spouses of racially ineligible races if they were married to United States citizens before or within 30 days after the passage of the act.

The act of July 23, 1947 (public law 221), provided for the issuance of certificates of citizenship to certain Metlakahtlan Indians of Alaska who acquired United States citizenship under the act of May 7, 1934.

The act of July 30, 1947 (public law 274), amended section 12 of the Immigration act of 1917. This amendment gives the attorney general and the commissioner authority to prescribe the contents of manifests. This means that the manifest, formerly required by law to delineate 35 different items about each alien arriving at a port of the United States by ship, could be reduced to contain only identifying information since the other necessary data are in the documents of admission. In co-operation with the state department, the code of federal regulations was amended to provide for the use of the duplicate and triplicate copy of the visa application as a document used for certifying to the admission and departure of aliens. (*See* also LAW.) (W. B. MI.)

Great Britain.—The number of aliens registered with the police at the latest date in 1947 for which figures were available was 313,254 (males, 181,360; females, 131,894). (The figure at Nov. 1, 1946, was 257,742.) The principal nationalities represented were: American, 14,743; Austrian, 13,294; Belgian, 9,362; Chinese, 9,482; Czechoslovak, 8,199; Dutch, 10,521; French, 13,498; German, 27,893; Italian, 17,245; Latvian, 9,303; Norwegian, 6,387; Polish, 76,535; Russian, 37,486; and Swiss, 11,862. Members of the diplomatic and consular services of foreign governments, members of the British and Allied forces on leave for less than 16 days, British protected persons, short-term visitors and women who had lost their British nationality by reason of marriage were all exempt from registration and are not included in these figures.

The following is a comparative table of foreign traffic at United Kingdom ports:

	July 1945	July 1946	July 1947
Aliens Entering	8,880	37,096	85,278
Aliens Leaving	13,697	29,208	60,277

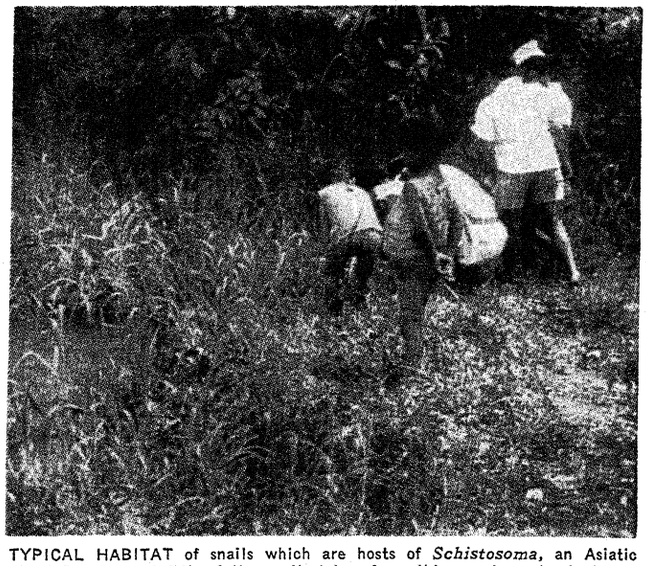
The settlement of Poles for whom the British government assumed responsibility proceeded throughout the year. Approximately 200,000 Polish servicemen had been brought to the United Kingdom and, of these, 102,000 had either volunteered to return to Poland or were actually repatriated. In addition, about 13,500 dependents arrived in Great Britain and more than 18,000 were still to come.

Between Jan. 1 and Nov. 30, 1947, 13,634 applications for naturalization were lodged; this compares with a yearly average of 1,708 before World War II. The number of certificates granted during the same period was 16,838. The rate of naturalization was officially stated to be 18,000 a year. Up to Oct. 31, 1947, 162 persons had been deported under deportation orders made during the year. (P. T. H.)

Alimentary System, Disorders of.

The Oesophagus.—Difficulty in swallowing may be due to a variety of causes, some of them familiar, others obscure or infrequent, like bulbar and pseudobulbar paralysis, involving the upper part of the spinal cord, and myasthenia gravis, a general weakening of the muscles, and severe vitamin deficiency states. In the last-named group, one may properly include a disturbance termed the Plummer-Vinson syndrome, reports concerning which figured prominently in U.S. and Scandinavian medical literature during 1947. M. Savilahti stated that the features common to the disease are difficulty in swallowing and anaemia and that the majority of the patients are middle-aged or elderly women.

There was a paucity of reports bearing on the pathologic changes in the Plummer-Vinson syndrome, so that the contribution of Savilahti was welcome. Former reports noted that enlargement of the spleen was present in as high as 18% of cases of thickening of the wall of the oesophagus. Small degenerated areas, chronic oesophagitis and small areas of ulceration in all parts of the organ were also observed. Several investigators demonstrated mucosal webs and strictures. Scandinavian observers confirmed the presence of strictures when the syndrome is advanced, along with dilatation of the oesophagus. An apparent decrease in the frequency of occurrence of this disease in the United States was noted and was attributed to the generally improved nutritional state of the populace brought about by more favourable economic conditions.



TYPICAL HABITAT of snails which are hosts of *Schistosoma*, an Asiatic blood fluke; about 5% of the snails taken from this marsh on Leyte Island were infected with blood flukes. The boy in the foreground has the protruding abdomen typical of persons with schistosomiasis

Stomach and Duodenum.—The mechanism of pain in ulcer of the stomach and duodenum had been a subject of extensive research and controversy, and in the opinion of many the problem still awaited solution. G. L. W. Bonney and G. W. Pickering, confirming and amplifying the results of Walter L. Palmer, presented evidence that the pain is due to the action of a sufficient concentration of hydrogen ions for a sufficient time on a defective gastric or duodenal wall through chemical stimulation of pain nerve endings exposed in the crater of the ulcer.

Are gastric ulcer and duodenal ulcer different diseases? Franklin Hollander noted factors which distinguish patients with gastric ulcer from those with duodenal ulcers; namely, the latter have a greater secretory volume, greater concentration of acid and pepsin in the gastric juice, greater neuromuscular activity and greater intensity of pain. He also commented on differences in ages according to sex of the patient at the time of the onset of symptoms and on the relative sizes of gastric ulcer and duodenal ulcer, gastric ulcer being considerably larger. Hollander concluded that there is no fundamental difference in these two types of ulcer and that the different clinical manifestations must be considered to be the results of the location of the lesions.

Because subtotal or partial gastrectomy is considered to be the method of choice for the surgical treatment of peptic ulcer, unfavourable results are of great concern to physician and patient alike. Such results occur roughly in 15% of patients, and the resulting disturbances may be immediate or later after meals. When the disturbances are characterized by pain or haemorrhage or both, investigation usually discloses the presence of an ulcer at the place where the surgical joining of the tissues is done or around this site or diffuse inflammation of the

stomach. In a second group, the disturbances in all probability are the direct result of rapid emptying of the stomach, giving rise, after meals, to early and late manifestations of a local as well as a systemic nature. Late manifestations are attributed to a reaction to insufficient sugar in the blood; early ones, to various causes. The conception of shock caused by too much sugar, by R. M. Zollinger and his associates, as the explanation for the immediate symptoms was challenged in some quarters, since there is no other condition known in which excess sugar would lead to similar symptoms of shock.

Liver.—Medical literature continued to be replete with reports of acute infectious hepatitis and similar conditions such as hepatitis resulting from serum transfusion and inoculation hepatitis. It had been freely predicted that an increasing number of the latter two types of hepatitis would occur in civilian life during the postwar period; consequently, it was urged that extra precautions be taken in the choice of blood donors and blood products, especially pooled ones, and in the sterilization of syringes and needles. The observations of I. H. Scheinberg and his associates, as well as those of L. T. Rosenthal, justified such predictions and the necessity for proper precautions.

Numerous articles on diseases of the liver dealt with infection by the Asiatic blood fluke, *Schistosoma japonicum,* because U.S. armed forces had been greatly exposed to this parasite during the campaign in Leyte. As high as 80% of U.S. army engineers engaged in the building and repairing of bridges were infected with the fluke. The liver, spleen, intestines and even the brain may become involved. Although this type of infection had not occurred on the North American continent, since the mollusc carrier of the flukes was absent, the disease might arise in the United States if the patient were to arrive by rapid air travel from endemic areas, or if the disease had been asymptomatic, undiagnosed or not completely cured by treatment. Earl Carroll Faust stated that the condition of more than 1,000 patients had been studied at army general hospitals in the United States a year after the first exposure, and this authority surmised that in a considerably larger group of patients the condition thus far had escaped diagnosis.

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Allergy. The interest of investigators in the effectiveness of the antihistamine drugs was maintained in 1947. J. M. Rose, A. R. Feinberg, S. Friedlaender and S. M. Feinberg concluded from comparison of four different antihistaminic drugs that there was a similarity in their capacity to protect guinea pigs against a fatal dose of histamine and against a severe allergic reaction (anaphylaxis). As the dose of each drug was decreased, the protection of the animal was proportionately reduced.

The efficacy of benadryl for protecting human beings against hives produced experimentally by the injection of histamine into the skin was demonstrated by M. B. Cohen and his coworkers. When benadryl was injected before the histamine was given, the occurrence of a local wheal was prevented unless a high dose of histamine was used. This observation was partly confirmed in patients with spontaneous (nonexperimental) hives by F. W. Lynch, who used benadryl in patients with itching skin lesions of various types. Four of 10 patients with acute hives were relieved in 24 hr., while 21 of 23 patients with chronic hives had varying degrees of relief through use of benadryl. Itching from insect bites and severe itching of undetermined causes of the genitalia in the female was relieved in 60% of the cases. Patients with severe itching caused by such conditions as contact dermatitis and neurodermatitis were not relieved. These observations indicated that the effect of the antihistamine drugs is to relieve, not cure, symptoms of mild to moderate severity.

Hives caused by sensitivity to sunlight had heretofore been resistant to all measures except avoidance of exposure. L. Rubin, P. L. Beal and S. Rothman reported a sixfold increase in tolerance to sunlight in patients who received one of the antihistamine drugs (pyribenzamine) before exposure to the sun.

The antihistamine drugs were again found ineffective for the relief of asthma. In a study of 16 such patients L. Levy II and J. H. Seabury found these drugs less effective than such older remedies as aminophyllin and epinephrine.

In France, where the antihistamine drugs were first synthesized and tried, B. N. Halpern, one of the original investigators of these drugs, described a new group of compounds with similar properties. These were the thiodiphenylamine derivatives. They appeared to be more effective in guinea pigs than previous preparations. One of these was 400 times more potent than antergan, one of the older drugs, in its ability to protect the animals against histamine, and 5 times as potent in its protection of guinea pigs against anaphylaxis. It should be emphasized that these compounds were not tried on humans and that the response of allergy in humans is not necessarily in proportion to the response of animals to these drugs.

Unpleasant and occasionally dangerous effects may be produced by the antihistamine drugs. B. B. Wyndham and M. E. B. Owen, Jr., reported a serious reduction in white blood cells (agranulocytosis) associated with high fever in one patient who was given pyribenzamine. Recovery resulted after the withdrawal of the drug and the use of penicillin. J. Geiger, S. J. Rosenfeld and D. L. Hartman reported severe symptoms of palpitation, dimness of vision, malaise, drowsiness and finally unconsciousness with symptoms resembling shock in a patient who had received only 6 capsules (300 milligrams) of benadryl. Seven days after recovery the symptoms were reproduced when the drug was given again for relief of an itching skin.

Severe allergic reactions were again reported following the use of virus vaccines. The common method for preparing such vaccines is to grow them in the chicken egg embryo. The resulting product contains, as a contaminant, a variable amount of egg protein. Patients who are egg sensitive may have serious reactions following the injection of the vaccine. S. F. Hampton described two instances of severe, almost fatal, reactions following injections of typhus and cholera vaccines. Both patients gave a history of egg sensitivity and had positive skin reactions when tested with egg white. The danger from virus vaccines prepared in this manner was further emphasized by L. L. Engel and R. J. Randall. These workers found a high percentage of egg white proteins in various equine encephalomyelitis vaccines. Purified vaccines contained considerably less of these undesirable contaminants.

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Allied Council for Japan: *see* JAPAN.

Allied Military Government: *see* OCCUPIED AREAS, ADMINISTRATION OF.

Allocations and Allotments: *see* PRIORITIES AND ALLOCATIONS.

Alloys: *see* BERYLLIUM; MAGNESIUM; METALLURGY; MOLYBDENUM; MONAZITE; NICKEL; TITANIUM; VANADIUM.

Almonds: *see* NUTS.

Aluminum.

World production of aluminum reached the peak of war demand in 1943 and subsequently dropped to about the 1940 level. During the war years there were several additions to the list of minor producers, including China, India, Rumania, and Brazil, where operations were later discontinued, and a new reduction planned for Tasmania.

Table I.—*World Production of Aluminum*

(Thousands of short tons)

	1940	1941	1942	1943	1944	1945	1946
Austria	7.3	24.7	41.5	50.7	57.5	5.8	1.1
Canada	109.1	213.9	340.6	495.8	462.1	215.7	193.4
France	68.1	70.5	49.9	51.2	28.8	41.0	52.4
Germany	225.7	234.0	250.4	223.8	210.2	22?	...
Great Britain	21.3	25.2	52.3	62.3	39.7	35.7	35.3
Italy	42.8	53.1	50.0	38?	50?	2.8	11.7
Japan	34.8	61.8	93.9	125.7	97.3	6.0	...
Norway	30.6	19.3	22.6	25.9	22.1	7.7	18.3
Switzerland	30.9	26.7	26.5	22.0	37.4	?	?
U.S.S.R.	66.1	55.1	60.6	68.7	78.3	95.1	?
United States	206.3	309.1	521.1	920.2	776.4	495.1	409.6
Others	24.5	35.3	38.7	60.8	54.9	?	?
Total	867.5	1,128.7	1,548.1	2,145.1	1,914.7	977.8	827.

United States.—Following the sale or lease of the various government-owned war facilities, there were in 1947 three producers, with production capacities divided as follows: Alcoa 51%, Reynolds 29% and Kaiser 20%, with a total of 649,000 short tons. In addition to the privately owned plants, the government still retained an unleased capacity of 234,000 tons.

Table II.—*Data of Aluminum Industry in U.S., 1940-45*

(Thousands of short tons)

	1940	1941	1942	1943	1944	1945
Production, primary	206.3	309.1	521.1	920.2	776.4	496.5
Imports	17.4	13.4	112.1	135.6	100.9	334.1
Exports	26.9	7.4	38.7	117.6	188.1	5.7
Producers' stocks	−30.2	+12.2	+5.5	+60.8	−55.3	+28.8
Available new supply	227.0	302.8	589.0	877.4	744.6	796.1
Secondary recovery	80.4	106.9	196.5	314.0	325.6	298.4
Total supply	307.4	409.7	785.5	1,191.4	1,070.1	1,094.5

Following the close of the war, production dropped to a low point in the last quarter of 1945 and the first quarter of 1946, when production was only about 150,000 tons in the six months. During the last half of 1946 the production rate was stepped up to more than 500,000 tons a year, and in the first half of 1947 to more than 600,000 tons. There was some decline in output in the third quarter, and the total for the first three quarters of 1947 was 436,741 short tons, against 409,630 tons in the full year 1946. (*See* also METALLURGY.) (G. A. Ro.)

Ambassadors and Envoys.

The following is a list of ambassadors and envoys to and from the United States and to and from Great Britain Jan. 1, 1948.

To and From the United States

To the United States	Country	From the United States
Aziz, Abdol Hosayn	Afghanistan	Palmer, Ely E.
*Ivanissevich, Dr. Oscar	Argentina	*Bruce, James M.
*Makin, Norman J. O.	Australia	*Butler, Robert
Kleinwaechter, Dr. Ludwig	Austria	Erhardt, John G.
*Silvercruys, Baron	Belgium	*Kirk, Adm. Alan G.
*Martinez Vargas, Don Ricardo	Bolivia	*Flack, Joseph
*Martins, Carlos	Brazil	*Pawley, William D.
Mevorah, Dr. Nissim Judasy	Bulgaria	Heath, Donald R.
*So Nyun, U	Burma	*Huddle, J. Klahr
*Wrong, Hume	Canada	*Atherton, Ray
*Nieto del Rio, Felix	Chile	*Bowers, Claude G.
*Koo, Dr. V. K. Wellington	China	*Stuart, J. Leighton
*Restrepo-Jaramillo, Dr. Don Gonzalo	Colombia	*Beaulac, Willard L.
*Gutiérrez, Don Francisco de P.	Costa Rica	*Davis, Nathaniel P.
*Belt, Guillermo	Cuba	*Norweb, R. Henry
*Slávik, Dr. Juraj	Czechoslovakia	*Steinhardt, Laurence A.
*Kauffmann, Henrik de	Denmark	*Marvel, Josiah, Jr.
*Thomen, Dr. Luis Francisco	Dominican Rep.	*Butler, George H.
*Dillon, Augusto	Ecuador	*Simmons, John F.
*Hassan, Mahmoud	Egypt	*Tuck, S. Pinkney
Nunan, Sean	Eire	Garrett, George A.
Kaiv, Johannes[1]	Estonia	(Legation at Tallinn closed)
Imru, Ras H. S.	Ethiopia	Merrell, George R.
Jutila, Dr. Kalle T.	Finland	Warren, Avra M.
*Bonnet, Henri	France	*Caffery, Jefferson
	Germany	Murphy, Robert D.[2]
*Lord Inverchapel	Great Britain	*Douglas, Lewis W.
*Dendramis, Vassili C.	Greece	*MacVeagh, Lincoln
†Linares Aranda, Don Francisco	Guatemala	*Kyle, Edwin Jackson
*Charles, Joseph D.	Haiti	*Tittmann, Harold H., Jr.
*Cáceres, Dr. Don Julián R.	Honduras	*Bursley, Herbert S.
Vámbéry, Rustem	Hungary	Chapin, Selden
Thors, Thor	Iceland	Trimble, William C.[3]
*Asaf Ali, M.	India	*Grady, Henry F.
*Ala, Hussein	Iran	*Allen, George V.
*Jawdat, Ali	Iraq	*Wadsworth, George
*Tarchiani, Alberto	Italy	*Dunn, James Clement
	Japan	Sebald, William J.[4]
	Korea	Jacobs, Joseph E.[5]
Bilmanis, Dr. Alfred	Latvia	(Legation at Riga closed)
Malik, Dr. Charles	Lebanon	Pinkerton, Lowell C.
King, Charles D. B.	Liberia	Lanier, Raphael O'Hara
Žadeikis, Povilas	Lithuania	(Legation at Kaunas closed)
Le Gallais, Hugues	Luxembourg	Kirk, Adm. Alan G.
*Espinosa de los Monteros, Dr. Don Antonio	Mexico	*Thurston, Walter
	Morocco	Plitt, Edwin A.[6]
*Kleffens, E. N. van	Netherlands	*Baruch, Herman B.
Berendsen, Sir Carl	New Zealand	Scotten, Robert M.
*Sevilla Sacasa, Dr. Don Guillermo[7]	Nicaragua	Rose, Halleck L.[8]
*Munthe de Morgenstierne, Wilhelm	Norway	[8]Bay, Charles U.
*Ispahani, M. A. H.	Pakistan	*Alling, Paul H.
†Chevalier, Don Eugenio J.	Panamá	*Hines, Brig. Gen. Frank T.
*Enciso, Dr. Don Guillermo	Paraguay	*Warren, Fletcher
Fernández-Dávila, Dr. Don Humberto	Peru	*Cooper, Prentice
*Elizalde, Joaquin M.	Philippines, Republic of the	*O'Neal, Emmet
*Winiewicz, Jozef	Poland	*Griffis, Stanton
*Theotónio Pereira, Pedro	Portugal	*Wiley, John C.
Ralea, Mihai	Rumania	Schoenfeld, Rudolf E.
*Castro, Dr. Don Héctor David	Salvador, El	*Nufer, Albert F.
Al-Faqih, Sheikh Asad	Saudi Arabia	Childs, J. Rives
*Waithayakon, H.R.H. Prince Wan[7]	Siam	*Stanton, Edwin F.
Andrews, H. T.	South Africa, Union of	Holcomb, Gen. Thomas
Baraibar, Don Germán	Spain	Culbertson, Paul T.[9]
*Eriksson, Herman	Sweden	*Matthews, H. Freeman
Bruggmann, Charles	Switzerland	Vincent, John Carter
El-Khouri, Faiz	Syria	Keeley, James Hugh, Jr.
*Baydur, Hüseyin Ragip	Turkey	*Wilson, Edwin C.
*Panyushkin, Alexander Semenovich	U.S.S.R.	*Smith, Lt. Gen. Walter Bedell
*Bianco, Dr. Juan Carlos	Uruguay	*Briggs, Ellis O.
*Carnevali, Dr. Gonzalo	Venezuela	*Donnelly, Walter J.
	Yemen	Childs, J. Rives
*Kosanovic, Sava N.	Yugoslavia	*Cannon, Cavendish W.

*Ambassador.
†Chargé d'affaires *ad interim*.
[1]Acting consul general.
[2]U.S. political adviser; with the personal rank of ambassador.
[3]First secretary; consul.
[4]Counsellor of mission.
[5]U.S. political adviser.
[6]Diplomatic agent; consul general; with the personal rank of minister.
[7]No recognized government as of Nov. 30, 1947.
[8]Second secretary; consul.
[9]First secretary.

To and From Great Britain

To Great Britain	Country	From Great Britain
Sardar Mohammad Naim	Afghanistan	Squire, Sir Giles F.
*Labouglé, Dr. Ricardo de	Argentina	*Leeper, Sir Reginald, W. A.
Schmid, Heinrich	Austria	Mack, Sir Henry
*de Thieusies, Vicomte Alain O.	Belgium	*Rendel, Sir George
*Solares, Napoleon	Bolivia	*Rees, Thomas Ifor
*Aragão, J. J. Moniz de	Brazil	*Butler, Sir Neville
Dolatchev, Nicholas	Bulgaria	Sterndale-Bennett, John Cecil
*Bianchi, Manuel	Chile	*Leche, John H.
*Tien-hsi, Dr. Cheng	China	*Stevenson, Sir Ralph C. S.
*Echandía, Dr. Darío	Colombia	*MacKereth, Gilbert
Castro, Don Guillermo	Costa Rica	Sullivan, Bernard Ponsonby
Riva y Abreu, Miguel	Cuba	Dodds, James L.
*Kratochvil, Dr. Bohuslav	Czechoslovakia	*Dixon, Pierson John
*Reventlow, Count Eduard	Denmark	*Randall, Alec W. G.
Pastoriza, Andrés	Dominican Rep.	Macrae, Russell D.
Lafronte, Homero V.	Ecuador	Carvell, John Eric Maclean
*Amr Pasha, Abdel Fattah	Egypt	*Campbell, Sir Ronald I.
Medhen, Blatta Ephrem T.	Ethiopia	Farquhar, Harold L.
	Faeroe Islands	†Flaymaker, Harold Ernest
Wuori, Eero A.	Finland	Scott, Oswald Arthur
*Massigli, René	France	*Harvey, Sir Oliver Charles
*Léon V. Melas	Greece	*Norton, Sir Clifford
Ydigoras Fuentes, Gen. Miguel	Guatemala	Gallienne, Wilfred H.
Alexis, Stephen	Haiti	Routh, Augustus C.
	Honduras	Fowler, Rees J.
Bede, István	Hungary	Helm, Alexander K.
Thorvardsson, Stefán	Iceland	Baxter, Charles William
*Mohsen Räis	Iran	*Le Rougetel, Sir John H.
*Al-Emir Zeid Ibn Al-Hussein	Iraq	*Stonehewer Bird, Sir Hugh
Gallarati-Scotti, Duke Tommaso	Italy	*Mallet, Sir Victor
	Japan	‡Gascoigne, Alvary D. F.
Khoury, Dr. Victor	Lebanon	Houstoun-Boswall, William E.
de Lynden, Baron Robert A.	Liberia	Bowering, J.
	Liechtenstein	§Cable, Eric Grant
Clasen, André	Luxembourg	*Rendel, Sir George
*O'Farrill, Federico Jiminez	Mexico	*Rapp, Thomas Cecil

To and From the United States—Continued

To the United States	Country	From the United States
*Restrepo-Jaramillo, Dr. Don Gonzalo	Colombia	*Beaulac, Willard L.
*Gutiérrez, Don Francisco de P.	Costa Rica	*Davis, Nathaniel P.
*Belt, Guillermo	Cuba	*Norweb, R. Henry
*Slávik, Dr. Juraj	Czechoslovakia	*Steinhardt, Laurence A.
*Kauffmann, Henrik de	Denmark	*Marvel, Josiah, Jr.
*Thomen, Dr. Luis Francisco	Dominican Rep.	*Butler, George H.
*Dillon, Augusto	Ecuador	*Simmons, John F.
*Hassan, Mahmoud	Egypt	*Tuck, S. Pinkney
Nunan, Sean	Eire	Garrett, George A.
Kaiv, Johannes[1]	Estonia	(Legation at Tallinn closed)
Imru, Ras H. S.	Ethiopia	Merrell, George R.
Jutila, Dr. Kalle T.	Finland	Warren, Avra M.
*Bonnet, Henri	France	*Caffery, Jefferson
	Germany	Murphy, Robert D.[2]
*Lord Inverchapel	Great Britain	*Douglas, Lewis W.
*Dendramis, Vassili C.	Greece	*MacVeagh, Lincoln
†Linares Aranda, Don Francisco	Guatemala	*Kyle, Edwin Jackson
*Charles, Joseph D.	Haiti	*Tittmann, Harold H., Jr.
*Cáceres, Dr. Don Julián R.	Honduras	*Bursley, Herbert S.
Vámbéry, Rustem	Hungary	Chapin, Selden
Thors, Thor	Iceland	Trimble, William C.[3]
*Asaf Ali, M.	India	*Grady, Henry F.
*Ala, Hussein	Iran	*Allen, George V.
*Jawdat, Ali	Iraq	*Wadsworth, George
*Tarchiani, Alberto	Italy	*Dunn, James Clement
	Japan	Sebald, William J.[4]
	Korea	Jacobs, Joseph E.[5]
Bilmanis, Dr. Alfred	Latvia	(Legation at Riga closed)
Malik, Dr. Charles	Lebanon	Pinkerton, Lowell C.
King, Charles D. B.	Liberia	Lanier, Raphael O'Hara
Žadeikis, Povilas	Lithuania	(Legation at Kaunas closed)
Le Gallais, Hugues	Luxembourg	Kirk, Adm. Alan G.
*Espinosa de los Monteros, Dr. Don Antonio	Mexico	*Thurston, Walter
	Morocco	Plitt, Edwin A.[6]
*Kleffens, E. N. van	Netherlands	*Baruch, Herman B.
Berendsen, Sir Carl	New Zealand	Scotten, Robert M.
*Sevilla Sacasa, Dr. Don Guillermo[7]	Nicaragua	Rose, Halleck L.[8]
*Munthe de Morgenstierne, Wilhelm	Norway	[8]Bay, Charles U.
*Ispahani, M. A. H.	Pakistan	*Alling, Paul H.
†Chevalier, Don Eugenio J.	Panamá	*Hines, Brig. Gen. Frank T.
*Enciso, Dr. Don Guillermo	Paraguay	*Warren, Fletcher
Fernández-Dávila, Dr. Don Humberto	Peru	*Cooper, Prentice
*Elizalde, Joaquin M.	Philippines, Republic of the	*O'Neal, Emmet
*Winiewicz, Jozef	Poland	*Griffis, Stanton
*Theotónio Pereira, Pedro	Portugal	*Wiley, John C.
Ralea, Mihai	Rumania	Schoenfeld, Rudolf E.
*Castro, Dr. Don Héctor David	Salvador, El	*Nufer, Albert F.
Al-Faqih, Sheikh Asad	Saudi Arabia	Childs, J. Rives
*Waithayakon, H.R.H. Prince Wan[7]	Siam	*Stanton, Edwin F.
Andrews, H. T.	South Africa, Union of	Holcomb, Gen. Thomas
Baraibar, Don Germán	Spain	Culbertson, Paul T.[9]
*Eriksson, Herman	Sweden	*Matthews, H. Freeman
Bruggmann, Charles	Switzerland	Vincent, John Carter
El-Khouri, Faiz	Syria	Keeley, James Hugh, Jr.
*Baydur, Hüseyin Ragip	Turkey	*Wilson, Edwin C.
*Panyushkin, Alexander Semenovich	U.S.S.R.	*Smith, Lt. Gen. Walter Bedell
*Bianco, Dr. Juan Carlos	Uruguay	*Briggs, Ellis O.
*Carnevali, Dr. Gonzalo	Venezuela	*Donnelly, Walter J.
	Yemen	Childs, J. Rives
*Kosanovic, Sava N.	Yugoslavia	*Cannon, Cavendish W.

*Ambassador.
†Chargé d'affaires *ad interim*.
[1]Acting consul general.
[2]U.S. political adviser; with the personal rank of ambassador.
[3]First secretary; consul.
[4]Counsellor of mission.
[5]U.S. political adviser.
[6]Diplomatic agent; consul general; with the personal rank of minister.
[7]No recognized government as of Nov. 30, 1947.
[8]Second secretary; consul.
[9]First secretary.

To and From Great Britain—Continued

To Great Britain	Country	From Great Britain
§Le Mesurier, R.	Monaco	
	Morocco	§Mallet, William Ivo
*Gen. Shingha Shumshere Jung Bahadur Rana	Nepal	*Falconer, George A.
*van Verduynen, Jonkheer E. Michiels Herdocia, Dr. Don Constantino	Netherlands Nicaragua	*Nichols, Sir Philip Robertson, A. W.
*Prebensen, Per Preben	Norway	*Collier, Sir Lawrence
Porras, Dr. Demetrio A.	Panamá	Greenway, John Dee
Aguilera, Andrés	Paraguay	Fell, J. R. M.
*Berckemeyer, Fernando.	Peru	*Roberts, Walter St. C. H.
	Philippines, Republic of the	Foulds, Linton
*Michalowski, Jerzy.	Poland	*Gainer, Sir Donald St. C.
*Duke of Palmella	Portugal	*Ronald, Sir Nigel
	Rumania	Holman, Adrian
Dawson, Samuel Jorge	Salvador, El	Mayers, N.
‖Jamieson, Melvill A.	San Marino	
Sheikh Hafiz Wahba.	Saudi Arabia	Trott, Alan Charles
*Nai Direck Jayanama	Siam	*Thompson, Geoffrey H.
*Bárcenas y Lopez, Domingo de Las	Spain	¶Howard, Douglas Frederick
*Boheman, Erick	Sweden	*Jerram, Sir Bertrand
Ruegger, Paul	Switzerland	Snow, Thomas M.
al Armanazi, Dr. Najeeb	Syria	Broadmead, Philip M.
	Trans-Jordan	Kirkbride, Sir Alec S.
	Tunisia	‖Gibbs, Frank Stannard
*Acikalin, Cevat	Turkey	*Kelly, Sir David
*Zarubin, Georgi.	U.S.S.R.	*Peterson, Sir Maurice
*Douglas, Lewis W.	U.S.A.	*Lord Inverchapel
*MacEachen, Dr. Roberto E.	Uruguay	*Vereker, George G. M.
	Vatican	*Perowne, J. V. T. W. T.
*Oropesa, Dr. Don Juan	Venezuela	*Ogilvie-Forbes, Sir G. A. D.
*Leontic, Ljubo.	Yugoslavia	*Peake, Charles B. P.

*Ambassador.
Unstarred—Minister.
†Consul.
‡Political representative.
§Chargé d'affaires.
‖Consul general.
¶Ambassador withdrawn in accordance with United Nations resolution, 1946; embassy at present headed by a counsellor.

Persons no longer in the list but still accepted by the British government as personally possessing diplomatic privileges:

Torma, August	Estonia
Zarine, Charles	Latvia
Balutis, Bronius	Lithuania

American Academy of Arts and Letters: *see* SOCIETIES AND ASSOCIATIONS.

American Academy of Political and Social Science: *see* SOCIETIES AND ASSOCIATIONS.

American Association for the Advancement of Science: *see* SOCIETIES AND ASSOCIATIONS.

American Association of Law Libraries: *see* SOCIETIES AND ASSOCIATIONS.

American Bankers Association: *see* SOCIETIES AND ASSOCIATIONS.

American Bar Association: *see* SOCIETIES AND ASSOCIATIONS.

American Bible Society: *see* SOCIETIES AND ASSOCIATIONS.

American Chemical Society: *see* SOCIETIES AND ASSOCIATIONS.

American Citizens Abroad.

During the year 1947, the number of U.S. citizens residing abroad more or less for extended periods of time in the interests of American affairs or for family or other reasons amounted to about 325,000 people, exclusive of the civilian employees of the military forces. This was an increase of about 52,000 people over 1946. The number of passports issued during the fiscal year ended June 30, 1947, exceeded by more than 7,000 the largest number of passports ever issued in the U.S. during any fiscal year. There were shortages in transportation and also in food and general comforts for those persons permanently residing abroad as well as those travelling temporarily for pleasure or for business. Notwithstanding this, the records show that 65,000 temporary visitors from America went to the British Isles during 1947. From this number of Americans travelling temporarily, it was stated by one of the head officials of the British Travel agency that $85,000,000 was brought into the British economy. This figure undoubtedly covered a large sum spent on transatlantic travel, for the British shipping carried a high percentage of the travel to Europe and the continent and to the U.S. The American visitors were taken care of with a minimum of discomforts considering the privations and rationing of the previous several years and made, through their travel and expenditures, an important contribution in the betterment of economic conditions in Britain.

In the spring of 1947, tourist and pleasure travel to the continent of Europe as well as the British Isles, which had been barred insofar as U.S. citizens were concerned since the outbreak of World War II in 1939, was again permitted by the government. The department of state considered that benefits to Europe from dollar expenditures and the normal friendly intercourse afforded by pleasure travel would far outweigh the discomforts of limited menus, less pretentious hotel accommodations and general absence of luxuries for the travelling public. The Boy Scouts of America attended the Scout Jamboree in France and were welcomed in the adjacent countries for short friendly visits. The American Legion commander, accompanied by a token group of 500 veterans of World War I, made the third pilgrimage to France, the British Isles and Belgium. It is estimated that 10,000 students made low-cost travel trips to the continent and for the three vacation months of summer fraternized with students of the old world in study, reconstruction work and travel. More than 3,000 youths remained in Europe as students, some 2,000 of them being veterans studying under the G.I. Bill of Rights, undertaking serious courses of study in the universities abroad.

The peace treaties with Hungary, Bulgaria and Rumania became effective in Sept. 1947, and envoys, received by the U.S. in due course, exercised among other functions that of granting visas for travel to their respective countries, thus removing these three countries from the category of travel controlled by the Allied Control council. In July 1947, travel of Americans to Germany for compassionate reasons was inaugurated by the U.S. and British military authorities. Those persons who wished to visit ill relatives under 70 years of age, residing in the U.S. zone of Germany, were required to submit medical certificates from German doctors recertified by a local liaison and security officer in Germany. If the relatives were over 70 years of age and resided in the U.S. zone, no medical certificates were required. If the relatives resided in the British zone of Germany, medical certificates from German doctors which did not need to be recertified were required irrespective of the ages of the relatives. The French military attaché at Washington, D. C., handled directly many compassionate cases in the French zone. There was no travel for compassionate or other reasons authorized by the soviet authorities for the soviet zone. The Austrian authorities made arrangements for summer tourist travel to Austria, making special provision for adequate meals and accommodations at designated hotels. This enabled U.S. citizens ong desirous of hearing the Austrian musical festivities to enjoy again some pleasant weeks in western Austria.

The headquarters of General MacArthur promoted the resumption of business relations between the Japanese and U.S. businessmen. A monthly quota of generous size was allocated to the bureau of international trade of the department of commerce to further essential and important commercial activities. Round the world cruises once more became possible and were being carried on in increasing numbers as shipping became available.

The visa and passport requirements of many foreign countries were simplified in an effort to induce travel and visits of Americans. Visas for U.S. citizens were abolished by Sweden, Norway, Denmark, Switzerland, Luxembourg and the Netherlands. Americans were welcomed and were required to have only a passport as evidence of U.S. citizenship. Members of the occupation forces were accorded entry into Switzerland without passports upon presentation of a simple card freely issued by the Swiss authorities.

The abolishment by the department of state on Aug. 28, 1945, of the requirement for citizens to bear passports to leave the U.S. for the western hemisphere and to return therefrom resulted during the year 1947 in the establishment of much more favourable travel requirements by the countries themselves, which in many cases abolished altogether the need for passports and in other cases simplified the requirements and accorded gratis visas. Those countries in the western hemisphere not requiring either passports or visas of U.S. citizens are as follows: Bahamas, Barbados, Bermuda, British West Indies, British Guiana, Canada, Canal Zone, Costa Rica, Cuba, El Salvador, Guatemala, Haiti, Honduras, Mexico, Newfoundland, Panamá and Venezuela.

The full figures covering U.S. citizens semipermanently residing abroad were not available, but the following general summation is given:

South America	26,638
Mexico and Central America	33,471
Europe	78,657
Asia	34,975
Africa	6,099
Australia and New Zealand	2,713
West Indies and Bermuda	16,361
Canada and Newfoundland	125,859
Fiji Islands	46

(R. B. S.)

American College of Dentists: *see* SOCIETIES AND ASSOCIATIONS.

American College of Life Underwriters: *see* SOCIETIES AND ASSOCIATIONS.

American College of Surgeons: *see* SOCIETIES AND ASSOCIATIONS.

American Dental Association.

In 1947 membership in the American Dental association reached an all-time high of 70,443, a gain of more than 4,000 from 1946. Membership in the association and its 445 affiliated state and local societies represented approximately seven-eighths of the practising dentists in the United States.

The association held a full scientific meeting at Boston, Aug. 4 to 8, marking resumption of annual sessions halted during World War II. At Boston, the association joined with the *Fédération Dentaire Internationale* in sponsoring the Tenth International Dental congress. Approximately 12,000 dentists from 42 nations attended. The 1948 annual meeting of the association was to be held in Chicago, Sept. 13 to 17.

During 1947, the association established a new division of dental health education as part of a long-range program to curb the prevalence of dental disease, particularly among children. It recommended to all dentists that topical (local) application of a solution of sodium fluoride be applied to the teeth of child patients during the course of routine dental treatments as a means of reducing dental caries. The association increased its support of dental research and renewed its sponsorship of a bill in congress for the establishment of a national dental research institute at Bethesda, Md. (The bill was passed by the senate but was not brought to a vote in the house of representatives.)

It sought reorganization of the army dental corps and requested revision in the dental service program of the Veterans' administration.

The association published the first complete directory of dentists in the United States to be issued in 19 years. It launched a nation-wide program of manual and aptitude testing of freshmen dental students at all 40 of the nation's dental schools. It approved standards for the establishment of examining boards in the dental specialties (oral surgery, orthodontics, prosthodontia, pedodontia, and periodontia) and for the accrediting of courses for training of dental hygienists and dental laboratory technicians. It continued publication of *The Journal of the American Dental Association* (semimonthly) and the *Journal of Oral Surgery* (quarterly).

Officers in 1947–48 were: president, Dr. H. B. Washburn; president-elect, Dr. Clyde E. Minges; vice-presidents, Dr. Philip E. Adams, Dr. Fred A. Richmond and Dr. A. M. Smith, Jr.; secretary, Dr. Harold Hillenbrand; treasurer, Dr. R. H. Volland.

(H. B. BN.)

American Economic Association: *see* SOCIETIES AND ASSOCIATIONS.

American Federation of Labor.

The American Federation of Labor reached an all-time high in membership in 1947 with 7,577,716 paid-up members on Aug. 31, the close of the federation's fiscal year—a gain of almost 500,000 members. During that fiscal year charters were issued to 258 new affiliates, including 2 new international unions.

In 1947 the federation continued its activities for the advancement of the rights of the wage earners despite concerted legislative attacks on both a national and state level which threatened seriously to impair the effectiveness of the U.S. trade-union movement in the field of collective bargaining. In addition to legislative attacks, various administrative orders were effected which greatly hampered the work of the organized labour movement. One of the first steps which the American Federation of Labor insisted had to be taken to retrieve labour's losses in the administrative as well as in the legislative field was the rehabilitation of the federal department of labour. Labour felt it should have government recognition in keeping with the importance of the services it renders, and to enable workers to have services that would protect them and permit them to keep step with economic and social progress.

In its annual report, the executive council of the A.F. of L. placed strong emphasis on the critical international situation and the relationship between national and foreign policies. The federation continued activity in the international field through its official work with the I.L.O., the U.S. military governments in occupied countries and by official contacts with European and Latin-American trade-union movements.

The federation continued to press for revision of the Fair Labor Standards act in the light of postwar needs. Enforcement of this law, as well as of the Public Contracts act, was severely restricted during World War II but it had been expected that the year 1947 would witness a resumption of the enforcement standards which prevailed prior to the war. This, however, did not prove to be the case. The A.F. of L. planned, therefore, to direct renewed efforts toward greater enforcement of federal wage and hour laws.

The federation and its affiliates also planned to direct a concerted attack on the Taft-Hartley law in an effort to secure complete repeal of the measure. This activity was to be extended to the coming political campaigns in an effort to secure the election of members to national and state legislatures and to other national offices, who would be opposed to this and other similar labour laws.

Veterans' problems and welfare of particular concern to the organized labour movement were given continuing consideration by the federation. The A.F. of L. Veterans' committee was extending its work through state and local committees to cooperate with the various veterans' organizations. The federation also continued its efforts to secure needed revisions of the social insurance system.

Keen interest continued in the broad field of education: in proposals for a program for federal aid; in international educa-



LABOUR DAY RALLY in 1947 at Soldier field, Chicago, Ill., where showers failed to discourage a huge audience listening to an address by William Green, president of the A.F. of L.

tional problems; through representation on U.N.E.S.C.O.; in workers' service and education problems and through the Workers Education bureau.

The federation planned to continue, during the coming year, its activities in the interest of and for the advancement of free labour both in the U.S. and abroad, and to protect those gains which had been made in the past.

(*See* also CONGRESS OF INDUSTRIAL ORGANIZATIONS; LABOUR UNIONS; STRIKES AND LOCK-OUTS; UNITED STATES.)

(W. G.)

American Geographical Society: *see* SOCIETIES AND ASSOCIATIONS.

American Historical Association: *see* SOCIETIES AND ASSOCIATIONS.

American Indians: *see* INDIANS, AMERICAN.

American Institute for Property and Liability Underwriters, Inc.: *see* SOCIETIES AND ASSOCIATIONS.

American Institute of Accountants: *see* SOCIETIES AND ASSOCIATIONS.

American Institute of Chemical Engineers: *see* SOCIETIES AND ASSOCIATIONS.

American Institute of Electrical Engineers: *see* SOCIETIES AND ASSOCIATIONS.

American Institute of Mining and Metallurgical Engineers: *see* SOCIETIES AND ASSOCIATIONS.

American Iron and Steel Institute: *see* SOCIETIES AND ASSOCIATIONS.

American Law Institute: *see* SOCIETIES AND ASSOCIATIONS.

American Legion. Chief legislative accomplishment of the American Legion during 1947 was the securing of enactment by congress of a bill providing for immediate cashing of the terminal leave pay bonds of enlisted veterans of World War II. With the adjournment of the first session of the 80th congress, the American Legion had established a record of successfully sponsoring 188 federal laws after 1943 exclusively in the interests of World War II veterans. Under these laws World War II veterans had received financial benefits totalling $30,066,426,139.

Other accomplishments of 1947 included the development and presentation to congress of its Veterans' Homestead Act of 1948 designed to effect up to 20% savings for World War II veterans in the building of ownership and rental housing in co-operative projects financed with government-guaranteed bonds; re-organization of the internal structure of the American Legion into a framework of 11 new national basic commissions; and expansion of the world-wide network of Legion posts to a new high of 16,802 posts, a gain for the year of 995 new posts. Final 1947 membership reached 3,271,986, of whom approximately 70% were veterans of World War II.

The Legion held its 29th national convention in New York city, Aug. 28 to 31. Delegates adopted a 1948 program aimed at the paramount objectives of assuring the internal and external security of the United States. It called for the eradication of communistic influences and outlawing of the Communist party in the United States, and all-out effort to secure enactment by congress of universal military training legislation. In its foreign relations policy the Legion branded the U.S.S.R. as an aggressor nation, gave all-out backing to the Marshall Plan for the rehabilitation of western Europe and sponsored its own plan



WEST POINT CONTINGENT of the American Legion parade marching up Fifth avenue during the legion's 1947 convention which opened in New York city on Aug. 28

for the strengthening of the United Nations organization by abolishing the veto in all matters dealing with aggression and by creation of a strong world police force. The legion also relaxed its opposition to the admission within certain limitations of displaced persons into the United States.

The New York city convention elected James F. O'Neil, police chief of Manchester, N.H., as national commander for 1947–48. The 30th national convention was scheduled to be held Oct. 18 to 21, 1948, in Miami, Fla. (*See* also HOUSING; VETERANS' ORGANIZATIONS.) (J. F. O'N.)

American Library Association.

The oldest professional association in the world of librarians and others interested in the educational, social and cultural responsibilities of libraries, the American Library association (A.L.A.) is the official organization of librarians in the United States and Canada. Established on Oct. 6, 1876, in Philadelphia, the A.L.A. had a membership in 1947 of 16,000 in the United States and possessions, Canada and 50 foreign countries. It is affiliated with more than 60 other library associations throughout the world and works closely with organizations and government agencies concerned with education, recreation, research and public service. In 1947 its activities were carried on by a headquarters staff of 105, assisted by 600 volunteer persons on approximately 100 committees and boards.

Carl H. Milam was executive secretary with headquarters at 50 E. Huron street, Chicago 11, Ill. An International Relations office, financed by a Rockefeller grant, was located in the Library of Congress annex, Washington, D.C., with Frederick Cromwell, director. A National Relations office, operated by the A.L.A. and financed by funds contributed by librarians and friends of libraries, was operated at 1709 M street, N.W., Washington 6, D.C., with Paul Howard, director.

The 66th annual conference in San Francisco, Calif., in June 1947 was attended by 2,600 persons from the U.S., its possessions and 24 other countries. At San Francisco the following officers for 1947–48 were inaugurated: president, Paul North Rice, New York Public library; first vice-president and president elect, E. W. McDiarmid, University of Minnesota, Minneapolis; second vice-president, Elizabeth D. Briggs, Cleveland Public library, Cleveland, O., and treasurer, Harold F. Brigham, state library, Indianapolis, Ind.

At that time the annual A.L.A. citations for distinguished service as library trustees were awarded to Mary E. Frayser, Rockhill, S.C., chairman of the South Carolina State Library board, and Thomas H. McKaig, Hamburg, N.Y., president of the board of trustees of Erie County Library association. The A.L.A. awarded the 26th Newbery medal to Carolyn Sherwin Bailey for *Miss Hickory,* judged to be the outstanding contribution to children's literature during the preceding year. The 11th annual Caldecott medal for the most distinguished picture book was conferred upon Leonard Weisgard for his illustrations of *The Little Island* by Golden MacDonald. Frederic G. Melcher, publisher of the *Library Journal* and *Publishers' Weekly,* annually provides both medals.

The first *Letter* award ($100) for an outstanding example of progressive library service was presented to the Enoch Pratt Free library, Baltimore, Md., for its program of adult education in atomic energy. The *Letter* award ($100) to a librarian "for the humanizing of knowledge" was conferred on Natalie Mayo, head of the children's department, San Francisco Public library. Both awards were given by Mrs. Ada McCormick, editor and publisher of *Letter* magazine, Tucson, Ariz.

The 11th Oberly Memorial award (1945–46), presented every two years to that American citizen who compiles the best bibliography in the field of agriculture or the related sciences, went to Burch Hart Schneider for *Feeds of the World; Their Digestibility and Composition.*

Sponsored by the *Wilson Library Bulletin* and the A.L.A. Public Relations committee, the John Cotton Dana publicity awards were given to eight libraries for effective public relations programs.

The 1948 conference was scheduled for June 13–19 at Atlantic City, N.J. The annual midwinter conference was held at Chicago.

In 1946–47 the association's income was about $682,000. Approximately $103,000 came from membership dues, $140,600 from sales of books and periodical subscriptions and $73,500 from income on endowment funds. Receipts from group retirement annuity premiums amounted to $164,600; and $173,300 came from outside sources in the form of grants or payments for specific purposes. The A.L.A. endowment was approximately $2,100,000.

During the year, in addition to its regular periodicals, *A.L.A. Bulletin, Booklist, Subscription Books Bulletin, College and Research Libraries* and *Hospital Book Guide,* the association issued 29 new or reprinted publications from a total of more than 200 projects being considered.

Following years of study and work the "National Plan for Public Library Service," a 200-page report, was completed by the A.L.A. Postwar Planning committee and published. It emphasizes the fact that most public libraries in the U.S. are inadequate, understaffed, housed in out-moded buildings, lack sufficient books and in general do not meet the needs of their communities. The plan proposes that there should be 20 multistate reference centres, 48 effective state library agencies and a national bibliographic and library centre, in addition to about 1,200 large local library systems. All would be interlocking to form a federal system. Similar plans were made for various other library groups.

A two-year study of the American free public library was begun by the Social Science Research council through a Carnegie

corporation grant of $175,000. Proposed by the A.L.A., this study, "the American Public Library Inquiry," was to include a comprehensive survey of the adequacy of the public library as a source of citizen information, and an analysis of its actual and potential contribution to American society.

Organized by A.L.A. and financed by a Carnegie corporation grant, a conference on International Cultural, Educational and Scientific Exchanges was held in Princeton, N.J., Nov. 1946. Plans and recommendations in this field were published by A.L.A. During 1947–48, plans of the A.L.A. Board of Education for Librarianship emphasized not only recruiting for the profession (it was estimated that 64,000 librarians would be needed from 1947–60) but also strengthening of accrediting procedures and a study of education and training needs for various levels of work.

With the appointment during the year of an executive secretary, with offices at A.L.A. headquarters, the Association of College and Reference Libraries (a division of A.L.A.) was able to accomplish more planning in that field.

Several A.L.A. contracts regarding international relations projects with the U.S. government and Rockefeller foundation terminated during the year. From its establishment in 1942, the A.L.A. International Relations office had expended grants totalling more than $1,800,000 to promote library interests throughout the world. Other international activities included: participation in the work of the United Nations Educational, Scientific and Cultural organization (U.N.E.S.C.O.) and attendance at its conferences; representation at meetings of the committee of the International Federation of Library Associations and of conferences of the International Federation of Documentation; participation in the Assembly of Librarians of the Americas at the Library of Congress and visits of United States librarians as consultants to Japan, Korea and Germany at the request of the U.S. government. At the invitation of American librarians, the International Federation of Library Associations scheduled its next international conference in the United States.

Through the A.L.A. National Relations office, library relations with congress were concerned during the year with the Library Demonstration bill (S. 48–H.R. 2,465); revision of the postal rates; federal aid to education; extension of social security and appropriations for the Library of Congress, army libraries, Library Service division of the office of education and for cultural relations with other countries.

The A.L.A. in conjunction with other groups organized a project late in 1947 to encourage reading on and discussion of the European Recovery program. This was an attempt to arouse the awareness of the people to the Marshall plan and its importance and was the beginning of a program to urge all libraries to emphasize the great issues of our times. (M. O. P.)

American Literature. If the year 1947 in American literature were judged by publishers' promotions, bookstore displays and quantity sales, it would seem to have been a year of interest in American history, American life and the place of the United States in world affairs. Starting Jan. 2 with Kenneth Roberts' historical novel of early 19th century America, *Lydia Bailey,* on which the publishers spent $30,000 in promotion between January and July, it produced record sales for John Gunther's *Inside U.S.A.* by September, and it published Roger Butterfield's *The American Past,* a $10.00 illustrated panorama of events from Concord to Hiroshima. Although book prices had taken their long expected inflationary jump, there seemed only a slight falling off of reader interest. Americans were trying to learn about themselves.

Second in interest were books which dealt with the meaning of life itself. With the atom bomb hovering overhead and with Europe, and U.S. relations with it, in a state of unrest to say the least, it seemed rather like the kind of clear day that farmers call a "weather breeder." Before the year was over, publishers were disinclined to publish G.I. books on World War II, and turned to the philosophers, historians, and serious romancers. *Peace of Mind* (1946) by Joshua L. Liebman, a skillful blending of religion with psychiatry for self-administered therapy, continued to hold the best-seller list for most of the year; the Englishman Arnold J. Toynbee's cyclical *Study of History* and the Frenchman Pierre Lecomte du Noüy's scientific theory of *Human Destiny* crowded less thoughtful books by American authors from the front tables of the book stores.

To call this interest in history, ideas and fantasy "escapism" is to give only a small part of its significance. Book readers will listen only momentarily to such Cassandras as Norman Cousins and Lewis Mumford who shouted in 1946 that man must act quickly for his time is running short. They prefer at such moments of crisis to lapse into introspection, memory and intellectual speculation. Such periods have, in the past, produced great literature, as they did in the United States in the 1850s and the 1920s, but we are too close to these current books to know how great or how ephemeral they are.

The War and the World.—When the year opened there was still much writing about the war at first hand in such personal records as James A. Michener's *Tales of the South Pacific,* Agnes N. Keith's *Three Came Home,* an account of life in a Japanese prison camp, and the fictional form of a successful play *Command Decision* by William Wister Haines. But action faded to memory in Lewis Mumford's biography of his soldier son *Green Memories* and in probably the last collection of Ernie Pyle, *Home Country;* while William Shirer wrote postscript to foreign war correspondence in *End of a Berlin Diary* and Robert Capa collected his *Life* photographs in *Slightly Out of Focus.*

As the flood of first hand narrative dwindled, more substantial and inventory-taking accounts took their place. Chief among these were the first of many volumes-to-be describing the actions of the navy, *History of United States Naval Operations in World War II,* edited by Samuel E. Morison, and of the army, edited by Kent Roberts Greenfield. These records were planned far in advance by official Washington and were executed by top-flight historians in the field and at base. These were followed by reports of official evaluating committees on the freedom of the press, on civil rights and on higher education. This is one way democracy has of issuing its encyclicals, and it sets the tone of the literature of the year down to studies of jazz music and cartoons.

Another aspect of this trend is revealed in the autobiographies and biographies of leading figures of the period of two wars. Arthur S. Link's *Wilson: The Road to the White House* was one. There were studies of Franklin Delano Roosevelt: James F. Byrnes's *Speaking Frankly,* Edward J. Flynn's *You're the Boss,* Roosevelt's boyhood letters and *The Roosevelt Era,* edited by Milton Crane. Among others who were memorialized were William Allen White, Benjamin Cardozo, Admiral Halsey and Generals Patton and Marshall. George Creel offered his *Rebel at Large* and John G. Winant *Letter from Grosvenor Square.*

There were of course books on the atom bomb and its consequences and on Palestine, Russia, China, India and Japan, but there was not as much interest in current developments in Europe as one might expect. The Nuernberg trials produced Victor H. Bernstein's reportorial *Final Judgment* and Lionel Shapiro's novel *The Sealed Verdict* and other reconstruction problems found expression in John H. Burns's bold tale *The Gallery* and Paul Murray's *Once There Was a Waltz.* Chiang Kai-shek's suppressed *China's Destiny* was finally published, and Pearl Buck added to her list of Chinese stories the col-

lection *Far and Near*. Upton Sinclair carried his Lanny Budd series to one more volume in *Presidential Mission,* and Edmund Wilson reported a meditative tour in *Europe Without Baedecker.* Maurice Hindus studied the readjustment of Czechoslovakia in *The Bright Passage* and William L. Langer appraised *Our Vichy Gamble,* while among the many books on Russia were Joshua Kunitz' anthology of its literature and *Russia: The Giant that Came Last,* an appraisal of its culture.

These United States.—With an imaginary visit by Jefferson and Hamilton to the sessions of the United Nations in *Two Came to Town,* Simeon Strunsky brought the American tradition to bear on the present. While the vast projects of re-editing the Jefferson and the Lincoln papers progressed and the journals of Francis Parkman were finally published, historians like Thomas J. Wertenbacker restudied *The Puritan Oligarchy,* and other historians the opening of the northwest, the Indian, the Negro and the culture of the south. The more general historians like Henry S. Commager, Ray Allen Billington, Otto Eisenschiml, and Allan Nevins issued documents and histories at an alarming rate. Meanwhile popular treatments of the American tradition, initiated several years ago in the "Rivers of America" series, were augmented by more substantial books like Townsend Scudder's *Concord: American Town,* and by a series on other U.S. towns, U.S. folkways, U.S. railroads, trails, colleges, national parks, U.S. maritime history, non-English racial groups in America, and American society—in such books as Cleveland Amory's *The Proper Bostonians.* The past was recorded pictorially in biographies of the sculptor Daniel Chester French, the painter Russell Cheyney and the two picture makers of the old west W. H. Jackson and Frederick Remington, as well as in Bernard de Voto's *Across the Wide Missouri* and James T. Flexner's history of colonial art, *American Art: First Flowers of Our Wilderness;* while the present continued to be illustrated in the "Look at America" series which during the year spread to the south, the northwest, and New England.

The mixture of nostalgia and re-evaluation of these subjects comes out more explicitly in Van Wyck Brooks's continuation of his history of the literary life in America, now in its fourth volume *The Times of Melville and Whitman.* Henry Seidel Canby collected his literary reminiscences in *American Memoir,* H. L. Mencken his in *Days of H. L. Mencken,* and Burton Rascoe carried his to New York with *We Were Interrupted;* from the literary Chicago memorialized in the life of Harriet Moody *A House in Chicago,* by Olivia H. Dunbar. Elliot Paul turned from Paris to the rural America of his childhood in *Linden on the Saugus Branch* while his beloved left bank was remembered in Samuel Putnam's *Paris Was Our Mistress* and Al Laney's *Paris Herald.* The days of the U.S. past came in for harsher reappraisal in Leo Gurko's *The Angry Decade* (the '30s), Lloyd Morris' *Postscript to Yesterday, America: the Last Fifty Years, I Remember Distinctly,* another "yesterday" book by Agnes Rogers and Frederick Lewis Allen, and the second volume of Maxwell D. Geismar's critique of the 20th century American novel *The Last of the Provincials* (the '20s). Individual writers were treated in the "Makers of Modern Literature" series while a new "American Men of Letters" series was being planned, in Percy Lubbock's *Portrait of Edith Wharton,* in F. O. Matthiessen's *The James Family,* accompanied by the publication of *The Notebooks of Henry James,* in Eleanor M. Tilton's biography of the elder Oliver Wendell Holmes, and in Harold D. Cater's collection of the more personal letters of Henry Adams. There were also biographies of Abigail Adams and of Carey Thomas of Bryn Mawr and studies of the criminal lawyers Howe and Hummel, of McGuffey's readers, of American etiquette books and of the explorers Lewis and Clark. Curiosity about the U.S. cultural past seemed virtually insatiable.

With *Grass Roots History* by Theodore C. Blegen this interest reached down to the folk levels of culture where collectors and anthologists like B. L. Botkin added to the "treasuries" one on New England folklore, and John A. Lomax told of *The Adventures of a Ballad Hunter.* The folk spirit also found expression in books on the cartoons of Bill Mauldin and Francis W. Dahl and in a collection of *The Best Cartoons of the Year 1947* by Lawrence Lariar; while Eddie Condon celebrated a generation of jazz in *We Call It Music.* The humourists S. J. Perelman in *Acres and Pains,* and Samuel Hoffenstein in *Pencil in the Air* maintained their eminence, while satire was provided by Ludwig Bemelmans in *Dirty Eddie* (motion pictures), Herman Wouk in *Aurora Dawn* (advertising) and Frederick Wakeman in *The Saxon Charm* (Broadway theatre).

U.S. in Story.—Fiction thus was keeping pace with nonfiction in the U.S. effort to know itself. The regional tale, the novel of social criticism, and the historical novel of the American past have existed for many years, but the year 1947 seemed to strike a new high in these forms. Roaring romances of other times and places headed the best-seller lists, but in *Proud Destiny* Lion Feuchtwanger pictured Ben Franklin in France and Frank Yerby placed his scene for *The Vixens* in the American Civil War while other somewhat less gaudy romances like *The Big Tide* by Rubylea Hall, *The Big Sky,* by A. B. Guthrie, Jr., and *Colorado* by Louis Bromfield covered the country from New Bedford to Florida to California. Quieter in tone was Walter D. Edmonds' tale of the Erie canal *The Wedding Journey,* Katherine Newlin Burt's story of early Williamstown *Close Pursuit* and H. L. Davis' western *Harp of a Thousand Strings.* The midwest is the scene of Herbert Krause's *The Thresher* and Feike Feikema's *This Is the Year;* New England that of Ann Petry's *Country Place,* Louise Field Cooper's *Summer Stranger* and Howard Breslin's fine study of the decline of a Vermont mountain town *Tamarack Tree.* Marcia Davenport's portrait of contemporary New York city *East Side, West Side* should probably not be taken too seriously, but many of these novels add at least a touch of social criticism to their pictures of American life, especially those of the south like Ben Ames Williams' massive family chronicle *House Divided.* Lillian Smith treated the south again in her second novel *Julia,* but now avoided the race problem, leaving it to Sinclair Lewis in *Kingsblood Royal.* The related theme of social anti-Semitism provided the theme for Laura Hobson's *Gentleman's Agreement;* the disillusionment of a labour leader that of David Davidson's swift-paced *The Steeper Cliff,* a promising first novel; life in an industrial town that of Howard Fast's *Clarkton;* and the lot of Norwegian immigrants that of *Big Ember* by Edward Havill.

The World Within.—There is an instinctive turning, after any great war, to religion, philosophy, psychology and art in a search for values and for answers to the eternal questions, but the current manifestations of this instinct seem to be a part of a 20th century movement rather than merely a reaction from war. The final adoption into U.S. literature of the British Alfred North Whitehead, signalized by the appearance of his *Essays in Science and Philosophy,* of the German Thomas Mann, with his *Essays of Three Decades,* and of the French Jacques Maritain with *The Person and the Common Good* seems to mark the reversal of a persistent tendency on the part of profound thinkers to flee America and its so-called materialism. The successful absorption of the 20th century intellectual immigration from Europe, particularly of the *émigrés* of World War II, is perhaps the most promising factor in the contemporary cultural pattern. America traded these men, together with the poets W. H. Auden and Christopher Isherwood, for Henry James

and T. S. Eliot—so far something like an even exchange, but fraught with meaning for the future. Through them America was absorbing the best in European religion, philosophy and art; and had at the same time adopted the influences of André Gide with the translation of the first volume of his *Journals* by Justin O'Brien, of Søren Aabye Kierkegaard, of the existentialist Jean Paul Sartre with the translation by Eric Sutton of two of his novels *The Age of Reason* and *The Reprieve,* of Franz Kafka with a biography by Max Brod, a critical analysis *Kafka's Prayer* by Paul Goodman, and the continuation of a collected edition of his works in English, of Paul Valéry with a translation of his allegorical novel *Monsieur Teste* by Jackson Mathews and of James Joyce with a critical analysis *Fabulous Voyager: James Joyce's Ulysses* by Richard M. Kain. One might even add the migration of Henry Miller and his little band of nihilists to the mountain valleys of California as a final and extreme manifestation of this cultural movement, the return of an American who probably invented more things to say against American civilization than any man living or dead. Whether the answers be "no" as in Miller's cosmological distempers, or "yes" as in the religious impulse signalized by the republication of the prayers of Samuel Johnson and the essays of Jakob Boehme and Fénelon, the ultimate questions were being asked on American soil.

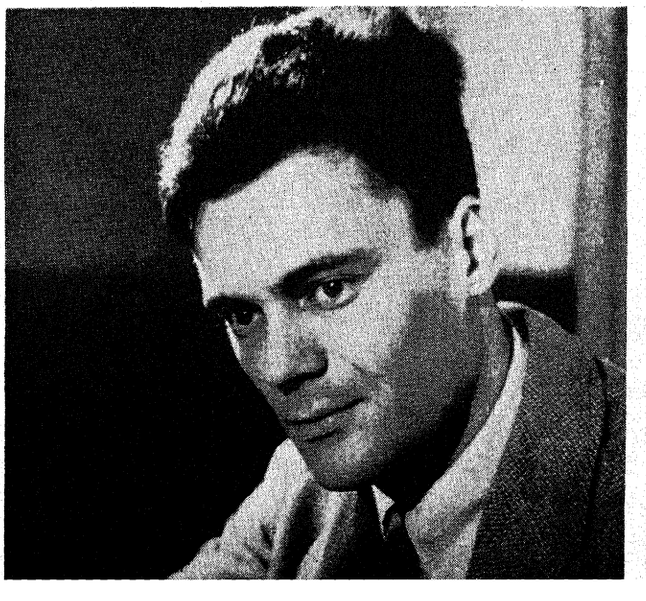
On the more popular level this impulse was evident in such books as Erwin Edman's *Philosopher's Quest,* a more serious discussion than was his *Philosopher's Holiday* of several years back, *Man Against Myth* by Barrows Dunham, *On Understanding Science* by James B. Conant, a facetious *Essay on Morals* by Philip Wylie and a more impressive *Rediscovery of Morals* by Henry C. Link, and the collected essays by various hands *Freedom and Experience* presented as a testimonial to Horace M. Kallen. Although the extraordinary Kinsey report *Sexual Behavior in the Human Male* was held over for 1948, Ferdinand Lundberg and Marynia F. Farnham published *Modern Woman: The Lost Sex.* To the many works on religion, of which Raymond Calkins' *The Modern Message of the Minor Prophets* and Robert M. McIver's collection of essays *Unity and Difference in American Life* are representative, should be added Batsell B. Baxter's selection *The Heart of the Yale Lectures,* Herschel Clay Baker's history of thought *The Dignity of Man,* and Louis K. Anspacher's investigation of the validity of psychic evidence *Challenge of the Unknown: Exploring the Psychic World.* The normal and the abnormal processes of the mind in its creative expressions were investigated in *The Works of the Mind,* edited by Robert B. Heywood and *The World Within* by Mary L. Aswell. Sidney Finkelstein attempted an application of the Marxist aesthetic in *Art and Society* while less doctrinaire criticism of literature and art appeared in Cleanth Brooks' *Well Wrought Urn,* James T. Farrell's *Literature and Morality,* Yvor Winters' *In Defense of Reason* and Leo Stein's *Appreciation: Painting, Poetry and Prose.*

In the fiction of the year, one reflection of this tendency was the return by established writers to earlier manners and away from contemporary problems. The work of the mystic and primitive Sherwood Anderson was collected in a *Reader* by Paul Rosenfeld; the third volume of Theodore Dreiser's Cowperwood trilogy *The Stoic* was finally published although still unfinished at its author's death; the short stories of Thomas Beer, Edna Ferber, James T. Farrell, John O'Hara and Bret Harte were collected; John Steinbeck offered a tale of primitive impulses in *The Wayward Bus* and, in more gentle mood, retold a moving Mexican folk tale in *The Pearl;* Thornton Wilder edited Gertrude Stein's posthumous tribute to great men *Four in America;* Robert Nathan did a further fantasy in *Mr. Whittle and the Morning Star;* Henry Morton Robinson analyzed the therapy of disaster in *The Great Snow;* Bernard de Voto contrasted the therapeutic effects of civilization and the still primitive west in *Mountain Time;* and Erskine Caldwell was back with his southern primitives in *The Sure Hand of God.* Such younger writers, however, as Alfred Hayes in *Shadow of Heaven,* Jean Stafford in a sensitive story of childish tensions *The Mountain Lion* and Richard Angell in *The Long Swim* made impressive efforts to come to grips with the mental and moral problems of modern man. Lionel Trilling's *The Middle of the Journey* was a more mature but less facile first novel of personal adjustment to a nonpersonal world by one of the most thoughtful literary critics; and the more violent ills of civilization were discussed by Calder Willingham in his angry study of evil *End as a Man,* by Willard Motley in his analysis of criminal degeneration *Knock on Any Door* and by Nathalie Anderson Scott in her study of alcoholism *The Story of Mrs. Murphy.* The same tendency was carried further into the problems of neuroses and beyond in the cartoon collections of Charles Addams and Abner Dean, in *Alexandra* by Gladys Schmitt, the short stories of Mark Schorer in *The State of Mind* and in *Spearhead,* an anthology of experimental writing, edited by James Laughlin. But the year produced no new voice as commanding as that of the Canadian Malcolm Lowry in *Under the Volcano* to presage a major movement among younger writers of fiction.

Poetry.—The dismay of modern man and his yearning for faith and security were even more eloquently stated in the poetry of the year than in the fiction. *The Age of Anxiety* by

ELEANOR CLARK, novelist, and Robert Lowell, poet, each of whom was awarded a Guggenheim fellowship in literature in 1947, as well as a $1,000 grant from the American Academy and National Institute of Arts and Letters





W. H. Auden, *The Trial of a Poet* by Karl Shapiro, *Hymn to Wreckage* by Robert McKinney, the second and less effective of Robert Frost's essays on the dealings of God and man *The Masque of Mercy* and Dunstan Thompson's *Lament for the Sleepwalker* variously treat aspects of this theme. In productivity as well as power Kenneth Patchen probably led the poets of the year with three volumes of verse and a critical essay on him by Henry Miller. Ezra Pound added ten more to his *Cantos,* Selden Rodman did a postwar diary in verse *The Amazing Year* and Conrad Aiken a narrative of early Boston *The Kid.* New volumes were offered by such well established poets as Mark Van Doren, William Rose Benét and Witter Bynner. Robert Hillyer, Raymond Holden and Oscar Williams made collections or selections of their earlier poems, Allen Tate edited *A Southern Vanguard* in memory of John Peale Bishop, and the poems of Joan Murray, Samuel Greenberg and Damon Runyon were collected by hands other than their authors'. Among the newer voices might be counted Martha Keller in *Brady's Bend and Other Ballads.* John Frederick Nims in *The Iron Pastoral,* Martha Bacon in *Things Visible and Invisible* and Louis O. Coxe in *The Sea Faring;* while older poets were revived in a collection of Herman Melville, a selection from Sidney Lanier, a translation of fifty poems of Hafiz by Arthur J. Arberry, and critical or biographical books on Robert Frost, E. A. Robinson and Emily Dickinson.

Summary.—Taken as a whole, therefore, the literature of the year 1947 seems escapist only at first glance; on closer examination it reveals an increasing seriousness of purpose, an eagerness to explore ideas and techniques and an interest in the meaning of America and of life itself. It might be noted that December closed with the announcement of a massive novel of one man's life in 19th century America, *Raintree County* by Ross Lockridge, Jr., which was greeted by the critics as containing all of these qualities. (*See* also ENGLISH LITERATURE.)

(R E. SR.)

American Mathematical Society: *see* SOCIETIES AND ASSOCIATIONS.

American Medical Association.

The American Medical association in 1947 included 135,700 physician members of 2,024 component medical societies, grouped in 53 state and territorial medical associations. The policies of the association are established by its house of delegates, a representative body chosen by the houses of delegates of the individual states. The association is administered by a board of trustees with nine members. Its activities are conducted by its headquarters office through the general manager, the editor and the secretaries, directors and personnel of councils, bureaus and committees.

Gross income of the association exceeded $2,000,000; property and equipment was valued at about $1,500,000, and securities at approximately $6,000,000.

The publications of the American Medical association in 1947 included the *Journal of the American Medical Association* with a circulation of more than 130,000 weekly; *Hygeia,* a health magazine for the public, with a circulation of approximately 250,000 monthly; nine medical journals for various medical specialties; a complete directory of the medical profession, medical schools, libraries and hospitals, and the *Quarterly Cumulative Index Medicus,* indexing regularly the contents of more than 1,500 medical periodicals. The association also continued to prepare and publish the *Standard Nomenclature of Disease and Standard Nomenclature of Operations.*

Through its bureaus of health education, information and investigation, the association continued to circulate millions of pamphlets and answer hundreds of thousands of questions, with the objectives of educating the public in health, preventing quackery and extending medical care. During 1947 the association had three programs on national broadcasting chains and circulated thousands of radio transcriptions to local radio stations. The library of the American Medical association maintained its services of supplying books and periodicals for references, developing bibliographies and indexes, and conducting a package library service for physicians on subjects of interest. The subjects most frequently requested during 1947 related to anaesthesia, undulant fever, arthritis, neostigmine therapy, infantile paralysis, penicillin and high blood pressure.

The Council on Medical Education and Hospitals continued to establish minimum standards for education in medical schools, hospitals, occupational therapy, physical therapy, record libraries and similar medical technologies; the Council on Pharmacy and Chemistry to investigate new remedies and control their advertising claims; the Council on Industrial Health to promote the care of workers in industry; the Council on Medical Service to investigate plans for medical care and encourage the growth of voluntary sickness insurance plans; the Bureau of Medical Economics to study problems related to the costs of medical care; the Bureau of Exhibits to prepare exhibit material for the profession and the public; the Council on Foods and Nutrition to investigate problems in this field and approve specialized preparations; and the Council on Physical Medicine to study physical devices used in the treatment of disease.

The association's printing establishment at its headquarters offices (535 N. Dearborn St., Chicago 10, Ill.) employed more than 700 people in 1947.

The American Medical association consistently opposed plans for compulsory sickness insurance such as those proposed by Senators Robert F. Wagner and James E. Murray and Representative John D. Dingell. It favoured, however, proposals for the extension and construction of hospitals and health centres throughout the U.S., the extension of preventive medicine through the Social Security act, the establishment of a national science foundation to encourage co-ordinated and intensified research, the widest possible development of public health facilities and encouragement to the individual states for the prepayment plans to provide medical care to the indigent and the medically indigent and for insurance against loss of wages caused by illness and against the costs of medical care.

The principal officers of the association in 1947 were: president, Edward L. Bortz, Philadelphia, Pa.; president-elect, R. L. Sensenich, South Bend, Ind.; secretary and general manager, George F. Lull, Chicago; treasurer, J. J. Moore, Chicago; editor of publications, Morris Fishbein, Chicago; business manager, Thomas R. Gardiner, Chicago.

The board of trustees included: William F. Braasch, Rochester, Minn.; Ernest E. Irons, Chicago; W. M. Johnson, Winston-Salem, N.C.; Louis H. Bauer, Hempstead, N.Y.; E. L. Henderson, Louisville, Ky.; John H. Fitzgibbon, Portland, Ore.; James R. Miller, Hartford, Conn.; Dwight H. Murray, Napa, Calif.; E. J. McCormick, Toledo, O.

(M. FI.)

American National Red Cross: *see* RED CROSS.

American Samoa: *see* SAMOA, AMERICAN.

American Society of Civil Engineers: *see* SOCIETIES AND ASSOCIATIONS.

American Society of Composers, Authors and Publishers: *see* SOCIETIES AND ASSOCIATIONS.

American Society of Mechanical Engineers: *see* SOCIETIES AND ASSOCIATIONS.

American Society of Tool Engineers: *see* SOCIETIES AND ASSOCIATIONS.

American Veterans Committee.

The American Veterans Committee (A.V.C.), an organization exclusively for veterans of World War II, achieved national stature in 1947 with recognition by the Veterans' administration as a major veterans' organization and expansion of its membership to all 48 states.

Founded late in 1944 by Charles G. Bolte and Gilbert Harrison as a veterans' organization devoted to the principle of "citizens first, veterans second," the A.V.C. claimed in 1947 a membership of 115,000. At its second annual convention held in Milwaukee, Wis., in June 1947, the A.V.C. reaffirmed its liberal program in the domestic, international and veterans' fields. Major planks in the platform included advocacy of the Taft-Ellender-Wagner bill as the long-range solution to the housing problem; support of the Marshall plan but opposition to the Truman doctrine; opposition to the Taft-Hartley bill but with recommendations that "union leadership recognize its obligation to foster standards of maximum efficiency"; opposition to a veterans' bonus; endorsement of the Fair Employment Practice committee, anti-lynching and anti-poll tax legislation; advocacy of increases in subsistence allowances for student veterans and in ceilings on on-the-job trainee payments; endorsement of General Omar N. Bradley's program in the Veterans' administration; support of a free enterprise system based on "intelligent planning"; opposition to totalitarianism of both the left and the right; and support of the Baruch plan for international control of atomic energy.

A.V.C. elected Chat Paterson of Ottumwa, Ia., as national chairman and Richard Bolling of Kansas City, Mo., as national vice-chairman, in June 1947. Among A.V.C.'s major campaigns during the year were drives for enactment of "comprehensive housing legislation," and for action by congress "to halt skyrocketing prices." The organization also conducted community programs urging veterans to reinstate their National Service Life Insurance. Although nonpartisan, and forbidden by its constitution from endorsing or rejecting candidates, the A.V.C. announced as a major objective, as 1947 ended, an effort "to get out the veteran vote in the 1948 elections." (A. L. N.)

American Veterans of World War II (Amvets).

Amvets traces its history back to the autumn of 1943, when a veteran-student, Elmo Keel, formed a veterans' club. Within a few months, this group combined with another (National Veterans of World War II) organized by Andrew Kenny, a U.S. government employee. The merger was named American Veterans of World War II. In Sept. 1944, nine different vet groups from as many states met in Kansas City, Mo., to lay the groundwork for a unified national organization. They voted to call the new outfit American Veterans of World War II; the short designation, Amvets, was coined by a reporter.

Delegates elected Keel as acting commander. In Nov. 1945, the first full convention, representing 132 posts, elected as first regular commander, Jack Hardy, a Los Angeles attorney. Ray Sawyer of Arlington, Va., was the second national commander (elected at St. Louis, Nov. 24, 1946). In Oct. 1947, the third national convention of Amvets, representing 1,385 posts, elected as national commander Edgar C. Corry, Jr., of Des Moines, Ia.

Fundamentally, Amvets was conceived by men who said, "We Served Together, Now Let's Build Together."

At the first national convention, delegates decreed that this should specifically be accomplished through 11 basic principles, adopted as "the aims and purposes" of Amvets and written into article II of the national constitution.

Amvets functions on a nationwide scale. It is organized with a national headquarters, located at 724 Ninth St., N.W., Washington, D.C., and departments in the various states, the territories and the District of Columbia.

Local posts are formed within these departments. Intermediate administrative groups, operated by the National Executive committee, national vice-commanders or the department executive committees, or both, function within their respective regions and jurisdictions.

Amvets, as an organization, has three major purposes: (1) to promote world peace; (2) to preserve the American way of life; (3) to help veterans help themselves.

Amvets supported the United Nations, military appropriations, strong air defense and universal military training, coupled with a revision of the military justice system.

In 1947 Amvets was sponsoring a "G.I." (Government Interest) program to educate teachers, school boards and others in the great need for teaching U.S. government and history in a manner to stimulate the interest of schoolchildren in government. On the theory that the best way to clear up juvenile delinquency is to provide juvenile opportunity, Amvets inaugurated in March 1947 an annual national teen-age basketball tournament.

In the field of veterans' legislation, Amvets pushed for low-rent housing, an increase in the subsistence allowances for students in school and on-the-job training, cash payment of terminal leave bonds and equitable treatment of the disabled; but avoided pressing for other so-called "hand-out" types of veterans' benefits. (*See* also VETERANS' ORGANIZATIONS.)

(E. C. C.)

Amvets: *see* AMERICAN VETERANS OF WORLD WAR II.

Anaemia.

Extensive tests of folic acid on patients with pernicious and macrocytic anaemias were reported from the United States, England, India, France and other parts of the world during 1947. Adequate increases in the number of red blood cells followed the use of the medicine, but neurologic complications were not stopped or prevented in pernicious anaemia. In fact one observer argued that folic acid produced neurologic disturbances. A haematologic improvement was noted only in those patients with a megaloblastic marrow. Cases of macrocytic anaemia refractory to liver therapy, but responding well to folic acid, were reported.

Patients with pernicious or macrocytic anaemia following gastrectomy exhibited little or no erythrocyte regeneration when given hexaglutamyl congugate in a yeast concentrate containing strong conjugase-inhibiting activity, but a significant response was obtained when they were given synthetic pteroylglutamic acid.

Pernicious anaemia and tumours of the stomach developed in the same individuals more often than in the general population as a whole.

Duodenal fluid of swine produced a powerful reticulocyte response and a conversion of a megaloblastic to a normoblastic bone marrow in a patient with pernicious anaemia.

Thiamin produced aggravation of the symptoms of diarrhoea and pellagrous dermatitis in inadequately nourished patients with pernicious anaemia and transient increase in the changes in peripheral nerves.

A hypochromic macrocytic nonhaemolytic anaemia with increased haemolysis appeared in patients with hunger oedema. There was a rapid therapeutic response to liver extract and autolyzed yeast.

Methionine produced a haematopoietic remission in a patient with macrocytic anaemia which had been resistant to large doses of liver.

In dogs with anaemia of haemorrhage and protein depletion,

food proteins in adequate amounts produced a positive nitrogen balance, a maintenance of body weight, considerable amounts of new haemoglobin and plasma protein. A diet of pure amino acids essential for growth produced haemoglobin and plasma proteins but did not maintain body weight. Body or tissue protein was utilized when there was a deficiency to produce new haemoglobin and plasma protein.

Considerably more iron, injected intravenously, was required to maintain a normal plasma iron level in the presence of anaemia of chronic infection than in patients with iron deficiency anaemia. Intensive prolonged therapy with iron did not relieve the anaemia of chronic infection, and the anaemia was not the result of lack of iron but rather a defective capacity of the marrow cells to utilize the iron.

In children, 49% of the cases of anaemia were secondary to infection, 13% to deficient diet, 2% to immaturity, 28% to combinations of these factors and 8% to other causes.

Congenital haemolytic anaemia appeared to be a mild manifestation of erythroblastosis and occurred when the maternal antibody titer was low in cases both with univalent and with bivalent antibodies.

Congestive heart failure, secondary to anaemia, was more common in Africans than in the nonindigenous white population.

Hyperchromic macrocytic anaemia in two-year-old children was cured by fresh vegetables and fruits.

The leukopenia, granulocytopenia and anaemia of sulfanilamide, sulfathiazole and sulfadiazine poisoning were prevented or curtailed by feeding folic acid, liver extract or dried yeast extract.

Choline possessed no direct erythropoietic activity, but under certain circumstances it potentiated the effect of liver extracts in megaloblastic anaemias.

The anaemia produced in rats by the injection of turpentine was prevented by the simultaneous administration of cobalt salts.

In the treatment of anaemia, a definite species difference in the effect of food elements, vitamins and minerals was found.

Cases of hookworm disease sometimes failed to show anaemia, but others showed reversible microcytic hypochromic anaemia or an irreversible aplastic form.

The effective renal blood flow was reduced 31.8% to 46% in patients with chronic anaemia.

Rats fed a purified diet low in pantothenic acid or deficient in riboflavin developed anaemia.

Chronic thrombosis of the portal vein of exogenous origin was found in splenic anaemia and not related to a toxin liberated by the spleen.

Death from erythroblastosis foetalis was prevented by the replacement of about 63% to 75% of the infant's blood with a transfusion of compatible Rh negative blood after or during withdrawal of the patient's blood.

A new type of hereditary haemolytic jaundice with splenomegaly, macrocytic anaemia, reticulocytosis, normal cell fragility, but without spherocytosis, was described.

In the population exposed to atomic bomb explosions, in severe radiation injury, anaemia appeared in 7 to 28 days, while in the moderately severe cases, anaemia was noted in from 10 to 35 days.

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Anaesthesiology. Progress in anaesthesiology during 1947 generally followed careful investigation of existing agents. Much effort was expended in investigating chloroform, and for the most part previous opinions regarding this anaesthetic agent were verified; the answer to chloroform had not yet been finally settled. Because of the large number of anaesthetics which are satisfactory when used alone or when supplemented with other agents or with curare, the older anaesthetic agents and methods had become less important than they were when fewer agents were available.

Myanesin was suggested as a substitute for curare, but did not appear likely to supplant the latter, especially in the form of d-tubocurarine. Investigation into the application of physics to the study of anaesthetics and in the control of their administration advanced considerably.

Electronic devices for measuring the oxygen content of various mixtures of gases (the oximeter) became available and furnished useful information regarding the important question of providing enough oxygen for the patient without wasting it. Another type of oximeter attached to the ear provided valuable information concerning the oxygen content of arterial blood. An electronic device was developed to indicate the ether content of an anaesthetic atmosphere quickly and continuously—information never readily available previously. Devices for recording pulse rate proved unsatisfactory for anaesthesiologists. Similar automatic devices for determining the blood pressure had not been perfected.

The study of pathology from the standpoint of the anaesthesiologist was begun. Anaesthesia records for the collection of important data for statistical study were still further developed.

The year 1947 saw the most advanced development of organizational effort by both the medical and nonmedical anaesthetist in efforts to increase the skill and knowledge of the anaesthetist through educational programs and standards for instruction. In the field of control of pain, a new agent, methadon (4,4-diphenyl-6-dimethylamino-hepanone-3-hydrochloride) was given a rather extensive trial and proved to be a valuable agent in the relief of pain.

During 1947 missions were conducted by several countries into the war-torn areas. The representatives included anaesthesiologists as well as members of the other specialties of medicine and surgery. These missions accomplished much in the spread of late developments in all fields of medicine. (*See* also SURGERY.)

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Anderson, Clinton Presba (1895–), U.S. government official, was born on Oct. 23 in Centerville, S.D. Ill health forced him to give up his studies at the University of Michigan in 1916, and he went to New Mexico where he worked as a newspaperman and insurance salesman. In 1940 he was elected on the Democratic ticket to the federal house of representatives and was twice re-elected. A conservative, Anderson supported President Franklin D. Roosevelt's foreign policy but frequently voted against the president's domestic reforms.

On May 23, 1945, about six weeks after Harry S. Truman became the country's chief executive, he named Anderson secretary of agriculture.

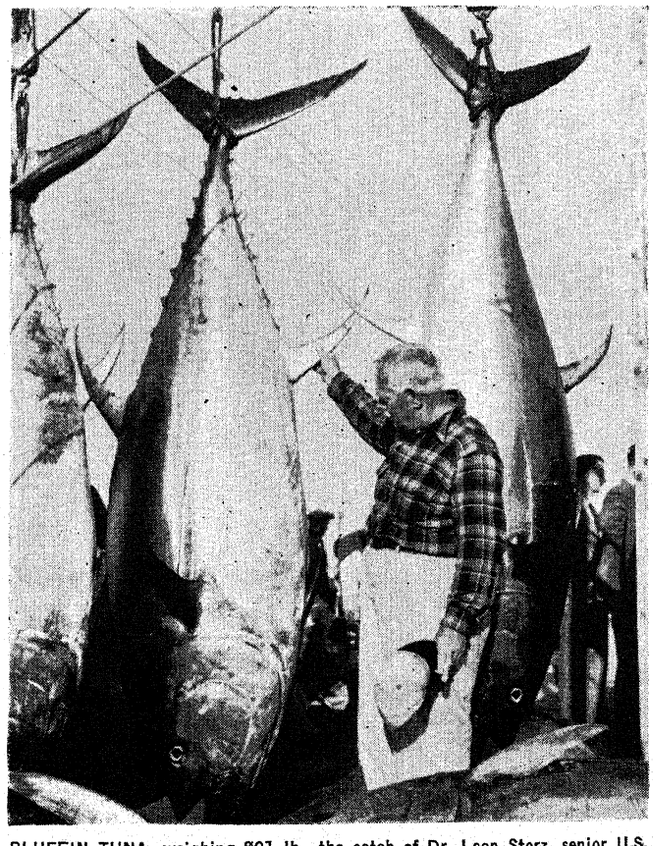
In 1946 Anderson went on record as opposing reimposition of

food rationing in the U.S.; he also campaigned within the cabinet for lifting of price controls. In 1947 he advocated a national farm policy of "sustained abundance," and he submitted a proposal to congress to this effect on Oct. 6. However, the department of agriculture's determination to implement this program by maintaining high farm prices was at variance with the president's avowed policy of fighting inflation.

Toward the end of the year, disclosure that Edwin W. Pauley, special assistant to Secretary of Army Kenneth C. Royall, was a heavy trader in commodities brought a demand from Republican legislators that Anderson list all government officials engaged in commodities speculation. Anderson refused, asserting that a 1936 law specified that names of traders be kept confidential. However his suggestion that the law be rescinded in part to permit disclosure was acted upon by congress, which passed a resolution to that effect. The measure was signed by President Truman on Dec. 19, and three days later the agriculture department began publishing the names of all traders.

Angling. Returns for 1947 fishing licence sales were not available at the end of the year, but the 1946 tabulation placed a total figure at 11,068,717 licences sold in the United States at a total fee of $15,877,361. These figures cover the period from July 1, 1945, to June 30, 1946. The largest revenue was collected by the state of California, with $1,545,026, at a total licence sale of 764,557. The greatest licence sale was in the state of Michigan, with a total of 904,557. Officials estimated the increase for the year July 1, 1946, to June 30, 1947, at from 10% to 15%.

The 39th annual casting tournament was held at Long Beach, Calif., conducted by the National Association of Angling and Casting Clubs. Three new world records were set: Jimmie Green, of San Francisco, Calif., set a record with a 206-ft. cast in the distance salmon fly event for an average of 198⅔ ft.; Dick Miller, of Huntington Beach, Calif., set a new world record in the ½-oz. distance plug event with a long cast of 451 ft.; Cliff Wyatt, of Long Beach, Calif., set a record in the Skish fly accuracy event with a score of 95.



BLUEFIN TUNA, weighing 801 lb., the catch of Dr. Leon Storz, senior U.S. contestant in the international tuna matches held at Wedgeport, Nova Scotia, in Sept. 1947

Manufacture of fishing tackle was accelerated in the United States, and production on a small scale was resumed in England. Many new developments took place; the use of new metals such as beryllium, copper, magnesium and aluminum alloys, and glass fibre were used in making fishing rods. Top-quality rods were still scarce, as were silk fly lines, and reels were available in limited quantities.

"Spinning" or "thread-line fishing" made a national debut in the United States. This is a form of angling which employs the use of a stationary-spool reel. It originated in Europe.

Four world-record fish were caught by rod and reel during 1947. A 64-lb. 8-oz. muskellunge (length 58 in.; girth 24 in.) was caught in Favil lake, Wis., on May 17, by Alois Hanser. A 37-lb. rainbow trout (length 40½ in.; girth 18 in.) was caught in Lake Pend Oreille, Ida., on Nov. 25, by Wes Hamlet. A 29-lb. 4-oz. Dolly Varden trout (length 36¼ in.; girth 24¾ in.), also from Lake Pend Oreille, was taken by R. C. Worst. A 4-lb. 4-oz. white perch (length 18¼ in.; girth 6½ in.) was taken at Havana, Ill., on May 30, by George H. Brader.

A new caught-by-any-method record was officially accepted in the form of a 102-lb. muskellunge, taken in Minocqua lake, Wis. (A. J. ME.)

Anglo-Egyptian Sudan. A territory in northeast Africa under the joint sovereignty of Great Britain and Egypt. Area: 967,500 sq.mi.; pop. (est. 1942): 6,591,000. Chief towns: Khartoum (46,311); Omdurman (117,041); Wad Medani (5,429); El Obeid (33,328); Kassala (30,026); Berber (20,000); Port Sudan (26,255); Atbara (19,757). Languages: English, Arabic and various Nilotic and Negro tribal dialects in the south. Religion: Mohammedan; south Sudan 20% Christian. Governor-general in 1947: Sir Robert George Howe.

History.—Comparatively quiet progress was made in the Sudan in 1947 toward the declared end of independence and self-government. Anglo-Egyptian negotiations for the revision of the existing treaty had just broken down over the issue of the future of the Sudan when the year began. Egypt claimed that the Sudan was an essential part of the dominion of the Egyptian crown, both historically and on grounds of common religion and culture and, particularly, because of the importance of the Sudan in respect to the Nile, upon which Egypt's economy and life depended. The Egyptian demands for the total evacuation of British troops and the unification of the Nile valley were met by the refusal of the British government as expressed in the terms of its declaration transmitted to Egypt through the British embassy in Cairo on Jan. 25: that it could not "sign away a people's right to self-determination in a treaty with a third party." The Sudanese, declared the British government, might "at the proper moment of political maturity choose full independence from Egypt." This attitude was unacceptable to Egypt which claimed full and perpetual sovereignty over the Sudan, and the next day the Egyptian premier informed the press that his government was about to submit the whole question to the United Nations. When in August the question came before the Security council, only the Arab states, represented by the Syrian delegate, fully supported the Egyptian claims, although even he coupled his support with a plea for a gesture by the United Kingdom. The council, with some abstentions, recommended the resumption of direct negotiations between Britain and Egypt. There for the time the matter rested. (*See* EGYPT.)

Meanwhile, inside the Sudan there was progress toward the government's declared object of independence within 20 years. The Gordon Memorial college was being made ready to receive the university in which the future rulers of the Sudan were to be trained and, on July 29, it was announced that the government had approved the recommendations of a report which sought to increase the Sudanese share in the central government. This report provided for a central legislative body representative of the whole Sudan, the majority of whose members were to be elected. An executive council was to be set up composed of 12 members of this legislative assembly. In March Sir Hubert Huddleston, governor-general of the Sudan, resigned and was succeeded by Sir Robert Howe. (H. S. D.)

Education.—Elementary schools (1945) 117 (19,400 boy pupils); girls' schools 62 (6,700); technical schools 2 (221 boys); private schools 52 (6,900 boys and 3,300 girls); subgrade and Koran schools 345 (23,000). Gordon Memorial college, students 134, excluding Kitchener school of medicine.

Finance.—Revenue (est. 1947) £E9,208,000; expenditure £E9,148,341; public debt (liability at Dec. 31, 1946) £E13,433,126. Currency: Egyptian pound (£E) =413.33 U.S. cents.

Trade and Communication.—Foreign trade (1946): imports £E11,467,962; exports £E9,267,831. The principal government imports were 22,635 short tons of sugar valued at £E572,587 and 49,160 short tons of coal and coke valued at £E186,120. Great Britain contributed 23.9% of the imports and received 36.6% of the exports. India came next with 22% and 25.6% respectively, followed by Egypt with 19.1% imports and 18.4% exports. Communications: (1947) roads for motor traffic *c.* 1,000 mi.; railways 2,056 mi.; steamer services 2,325 mi.; motor vehicles licensed (1944) 3,399 cars, commercial vehicles and cycles; telephone subscribers (1945) 3,546; exchanges (1946) 46. Telephone communication with Great Britain was re-established at the end of 1945.

Agricultural and Mineral Production.—Exported production (1946), in short tons: raw Egyptian cotton 56,339; cotton seed (Egyptian) 80,562; gum arabic 34,082. Cattle and sheep, numbering 30,314 and 62,744 respectively, were also exported.

Angola: *see* PORTUGUESE COLONIAL EMPIRE.
Animal Fats: *see* VEGETABLE OILS AND ANIMAL FATS.
Animal Industry, Bureau of: *see* AGRICULTURAL RESEARCH ADMINISTRATION.
Annam: *see* FRENCH OVERSEAS TERRITORIES.
Anniversaries and Centennials: *see* CALENDAR, 1948, page xxii.
Antarctica: *see* EXPLORATION AND DISCOVERY.

Anthropology.

One of the most significant developments in anthropology in 1947 was the marked expansion of activities of an international character. This tendency was illustrated by the establishment or reorganization of international anthropological congresses and societies, of large scale co-operative research projects and in the United States, by the increasing emphasis on foreign area programs in the universities.

The 28th International Congress of Americanists met in Paris Aug. 24–31, attended by approximately 200 persons from 22 countries. Under sponsorship of the International African institute the Conference on African Anthropological and Linguistic Research was held in London in July. Problems of anthropological research and the progress of colonial government in Africa were discussed by British scholars and colonial officials and by anthropologists from France, Belgium, the Netherlands, Italy, Sweden and Portugal. The first session of the Pan-African Congress on Prehistory, organized by L. S. B. Leakey, met at Nairobi, Kenya, British East Africa, from Jan. 14 to 23, with Abbé H. Breuil as president and R. Broom, vice-president. The congress was successful in bringing together more than 60 archaeologists, palaeontologists and geologists from Africa and Europe for discussion of fundamental problems of human evolution and the development of early cultures arising from recent discoveries in Africa. Plans were made for co-ordinated research in the future, and a permanent organization was set up to arrange for regular sessions every four years.

The International Hylean Amazon institute, with headquarters at Belém, Brazil, was established by U.N.E.S.C.O. (United Nations Educational, Scientific and Cultural Organization) for biological, geological and anthropological exploration and study of the Amazon basin. In the social sciences the project would include a study of the anthropological background and studies of housing and town planning for an equatorial region. This part of the project was being organized by Alfred Metraux, senior social officer in the department of social affairs, United Nations.

In order to encourage full participation of American scientists in the affairs of U.N.E.S.C.O. the National Research council established a special committee on U.N.E.S.C.O., on which Gene Weltfish represented anthropology. The new committee was to act as a clearing house for suggestions and inquiries concerning U.N.E.S.C.O. and would work to promote the exchange of scientists under auspices of U.N.E.S.C.O. The National Research council also set up a new committee on Asiatic anthropology, under the chairmanship of Lauriston Sharp. The council's committee on international co-operation in anthropology (M. J. Herskovits, chairman) completed plans for issuing a new edition of the *International Directory of Anthropologists.*

An important trend at U.S. universities was the development of area programs, in which anthropology joined with other disciplines in the integrated study of particular areas. The largest of such programs were those established at Cornell university, Ithaca, N.Y., Harvard university, the University of Pennsylvania, Philadelphia, Pa., and Yale university, each supported by substantial grants from the Carnegie corporation. The Harvard Russian Research centre was to be directed by Clyde Kluckhohn, with a staff of historians, political scientists, psychologists and anthropologists. The Yale Southeast Asia program was headed by Raymond Kennedy, who was to be joined by Karl Pelzer, geographer, John F. Embree and other anthropologists. At the University of Pennsylvania, W. Norman Brown was to direct a teaching and research program devoted to the study of India, Pakistan and adjacent countries. The place of area studies in the colleges and universities and the rôle of anthropology and the other social sciences in such studies were discussed in four reports which appeared during the year: *The Ethnogeographic Board,* by W. C. Bennett; *Area Studies in American Universities,* by William N. Fenton (presenting results of the Ethnogeographic board's survey of army area and language-training courses); *Language and Area Studies in the Armed Services: Their Future Significance;* by R. J. Matthew; and *Area Studies: With Special Reference to their Implications for Research in the Social Sciences,* by R. B. Hall.

Indicative of postwar growth of anthropology in England was the formation of an Association of Social Anthropologists (A. R. Radcliffe-Brown, president, E. E. Evans-Pritchard, hon. secretary), for the purpose of promoting the study and teaching of social anthropology. In Oslo, Norway, two new organizations were formed, the Norwegian Ethnological society, with Nils Lid as chairman, and the Norwegian Ethnological institute, under direction of Mrs. Marta Hoffman, and later, Hilmar Stigum.

The Institut International d'Archéocivilization was estab-

lished at the Centre International de Synthèse, Paris, by delegates from eight European and American countries. André Varagnac was permanent secretary of the new society, which has as its purpose the development and improvement of techniques for comparative research in the fields of archaeology, folklore and the history of religion. Another new French society (Société d'Ethnographie Française) was established at the Musée National des Arts et Traditions Populaires, Paris. First president of the society was Michel de Bouard.

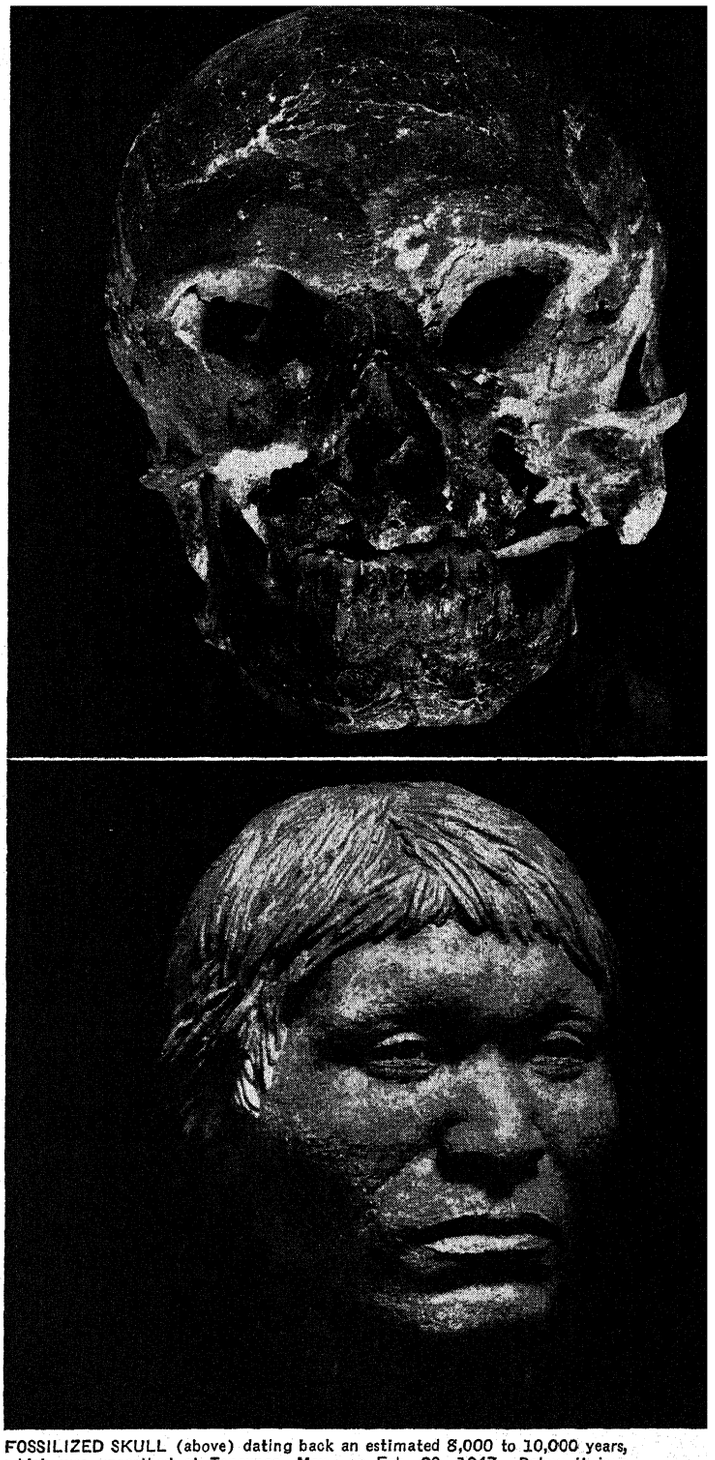
Also of anthropological interest was the inauguration of a new quarterly journal, *Human Relations,* devoted to integration of the social sciences and published jointly by the Tavistock Institute of Human Relations, London, and the Research Center for Group Dynamics, Massachusetts Institute of Technology, Cambridge, Mass.

In Norway Dr. Gutorm Gjessing was appointed professor of ethnography and director of the Ethnographical museum, University of Oslo. C. F. Voegelin assumed chairmanship of the newly created department of anthropology at Indiana university, Bloomington, Ind. A school of naval administration to train naval officer personnel for administering civilian populations in the U.S.-held Pacific islands was organized at Stanford university, Stanford University, Calif., by Felix Keesing. At Santa Fe, N.M., the Laboratory of Anthropology, the Museum of New Mexico and the school of American research were consolidated, with S. G. Morley as director. F. G. Rainey was named director of the University museum, Philadelphia, and the department of anthropology at the University of Pennsylvania was enlarged by the appointment of A. I. Hallowell, L. C. Eiseley, and W. M. Krogman. Alexander Lesser became executive director of the Association on American Indian Affairs, New York, N.Y. Clyde Kluckhohn was elected president of the American Anthropological association and E. A. Hoebel was made president of the American Ethnological society.

In the first year of operation since its reorganization, the American Anthropological association instituted a number of new procedures aimed at making it an effective force in stimulating and synthesizing activities in the various fields of anthropology. A full-time secretariat was established to carry out the policies and directives of the council and the executive board. Erminie W. Voegelin was appointed to this post, with the title of executive secretary.

The largest anthropological research program of 1947 or of any recent year was the series of co-ordinated investigations in Micronesia under the auspices of the Pacific Science board of the National Research council. Forty-four anthropologists, linguists and geographers, representing 22 institutions, joined in the project, which was supported by the Pacific Science board, the office of naval research and the participating organizations. The object of the work was to provide basic scientific information on the Marshall, Caroline and Marianas Islands, which had been closed to western scientists since their occupation by the Japanese. Particular attention was given to problems of rehabilitation, health and welfare of the inhabitants. Harold J. Coolidge was executive secretary of the board and G. P. Murdock co-ordinator of the anthropological program. Anthropologists working on the project include H. G. Barnett, Sir Peter Buck, E. G. Burrows, Isadore Dyen, Kenneth P. Emory, W. W. Gruelich, W. A. Lessa, G. P. Murdock, Alexander Spoehr, John Useem and J. E. Weckler.

In South Africa the excavations of R. Broom and J. T. Robinson resulted in discoveries that might have a crucial bearing on the question of the origin of man. At Sterkfontein, embedded in breccia of Pliocene age, they found the bones of a number of individuals of the South African ape-man, *Plesianthropus transvaalensis.* Among the finds were a complete skull,



FOSSILIZED SKULL (above) dating back an estimated 8,000 to 10,000 years, which was unearthed at Tepexpan, Mex., on Feb. 22, 1947. Below it is a reconstructed head of Tepexpan man modelled by Leo Steppat over a cast of the skull

a well preserved lower jaw, various limb bones and teeth and a perfect pelvis. Though possessing some hominid features, the skull and jaw were essentially apelike. The limb bones and teeth were more like those of man, and the pelvis was remarkably human in appearance, being scarcely distinguishable from that of a Bushman. These latest finds reinforced Dr. Broom's view, shared by Le Gros Clark, that *Plesianthropus* and the other *Australopithecinae* were a group of higher primates closely related to man, and the group from which man may have evolved. A geological and palaeontological expedition sent out by the University of California, organized by Wendell Phillips, also began to search for the early forerunners of man in South Africa. In connection with this expedition E. M. Loeb made

ethnological studies among the Bushmen and Ovambo, while Henry Field went to northeastern Egypt for archaeological and anthropometric studies.

A skeleton discovered by Helmut de Terra in an Upper Pleistocene formation at Tepexpan, Mexico, provided the first apparently indubitable evidence of human remains of Quarternary age in North America. The skull was mesocranic and high-vaulted, resembling late prehistoric Indian types from the eastern United States and Mexico. Other American field research included T. D. Stewart's anthropometric and physiological studies of the Cakchiqul, or "Highland Maya," of Guatemala, and Isabel Kelly's ethnographic work among the lowland Totonac of Veracruz. John C. Ewers worked among the Blackfeet in Montana and Alberta, and Richard Slobodin, with a grant from the Arctic Institute of North America, made acculturation studies in the Mackenzie valley.

Robert H. Lowie received the Viking fund gold medal and $1,000 prize in 1947 for his outstanding contributions to ethnology. The $10,000 prize offered by McGraw-Hill for the best book on a scientific subject written for laymen was awarded to Clyde Kluckhohn for his manuscript, *Anthropology and the World Today*. Harold S. Gladwin's *Men Out of Asia* won a $1,000 prize in the same contest.

The final volume of Kristian E. Schreiner's monumental work, *Crania Norwegica,* was published by the Institute for Comparative Research in Human Culture, Oslo. In an article in *Fornvännen,* Elias Dahr described skulls from a Neolithic site at Visby, on the Island of Gotland, as representing probably the purest prototype of the Nordic race. Publications in anthropometry included the first two reports of the quartermaster corps research project, *Survey of Body Size of Army Personnel, Male and Female,* by Francis E. Randell. The reports described techniques and procedures used in measuring 113,921 service men and women. Franz Weidenreich's paper, "Facts and Speculations Concerning the Origin of *Homo Sapiens,*" postulated ten evolutionary phases through which the hominids passed. In a paper in the *American Journal of Physical Anthropology,* A. H. Schultz contested M. F. A. Montagu's claim that man is the most variable of all primates. Other important works in physical anthropology were *Anthropologica Helvetica,* by O. Schlaginhaufen, and *Indian Skeletal Material from the Central Coast of Peru,* by M. T. Newman.

The American Museum of Natural History issued W. D. Wallis' monograph on the Canadian Dakota and the third volume of Margaret Mead's ethnological studies of the Mountain Arapesh of New Guinea. In *Trinidad Village,* M. J. and Frances S. Herskovits continued their investigations of cultural adaptations of transplanted Negro groups in the new world. The *Journal of the Washington Academy of Sciences,* the *American Anthropologist* and the *Southwestern Journal of Anthropology* carried articles by Leslie White defending the concept of cultural evolution and opposing the present tendency to emphasize the role of the individual in society and to regard culture as essentially a psychological phenomenon. Opposing viewpoints were presented by David Bidney, R. H. Lowie, and A. R. Radcliffe-Brown. Other significant ethnological publications of 1947 included *Guam and its People,* by Laura Thompson; *The Navaho* and *Children of the People,* by Clyde Kluckhohn and Dorothea Leighton; *A Navaho Autobiography,* by Walter Dyk; *Chippewa Village,* by W. Vernon Kinietz; *Moche, a Peruvian Coastal Community,* by John Gillin; *San Blas Acculturation,* by D. B. Stout; *Tuamotuan Religious Structures and Ceremonies,* by Kenneth P. Emory. (H. B. Cs.)

Anti-Aircraft Guns: *see* MUNITIONS OF WAR.

Antigua: *see* LEEWARD ISLANDS.

Antilles, Greater and Lesser: *see* WEST INDIES.

Antimony.

The recoverable metal content of antimony ores mined in the major producing countries during late years was as follows:

Table I.—*World Production of Antimony*

(Short tons)

	1937	1939	1941	1943	1945	1946
Algeria	858	247	438	994	95	—
Australia	444	461	460	586	190	?
Bolivia	7,238	10,202	15,080	18,228	5,614	7,063
Canada	20	600	1,465	513	767	315
China	16,206	13,246	8,806	472	—	?
Czechoslovakia	1,099	1,116	1,813	?	?	?
Italy	456	743	903	?	298	?
Mexico	10,789	7,984	11,289	13,873	8,877	6,665
Peru	1,429	854	1,587	2,725	2,250	1,068
South Africa	—	7	491	1,720	2,480	2,368
Turkey	591	507	6	9	—	?
United States	1,266	361	1,117	5,113	1,776	2,305
Yugoslavia	1,595	3,678	?	?	?	?
Total	42,550	41,000	52,100	55,000	29,200	27,400

Production dropped so much at the close of World War II that the postwar supply situation was almost as stringent as at any time during the war.

United States.—The trend of the antimony industry in the United States is as follows:

Table II.—*Data of Antimony Industry in the U.S., 1941-46*

(Short tons)

	1941	1942	1943	1944	1945	1946
Production						
In ore	1,214	2,944	5,556	4,735	1,930	2,505
In alloys*	2,958	3,267	2,085	2,857	1,992	1,457
Imports	27,504	21,474	29,969	17,761	24,649	8,742
In ore	19,386	20,946	28,755	17,080	22,643	5,903
Metal	7,469	127	932	293	627	2,593
Other forms†	649	401	282	388	1,379	246
Consumption, primary	29,994	23,852	19,508	23,756	25,761	17,515
Secondary recovery	21,629	18,200	15,483	15,886	17,148	19,115
Smelter output	?	?	20,624	20,000	21,000	12,457

*Antimony content of antimonial lead produced from foreign and domestic ores.
†Estimated antimony content of alloys, oxide and liquated sulphide.

Domestic mine production increased somewhat above the low level of 1945, but with the 1946 imports at the lowest level after 1935, the supply was short. Antimony used as metal dropped from 12,606 short tons in 1945 to 11,662 tons in 1946, but consumption in compound form dropped from 13,155 tons to 5,853 tons.

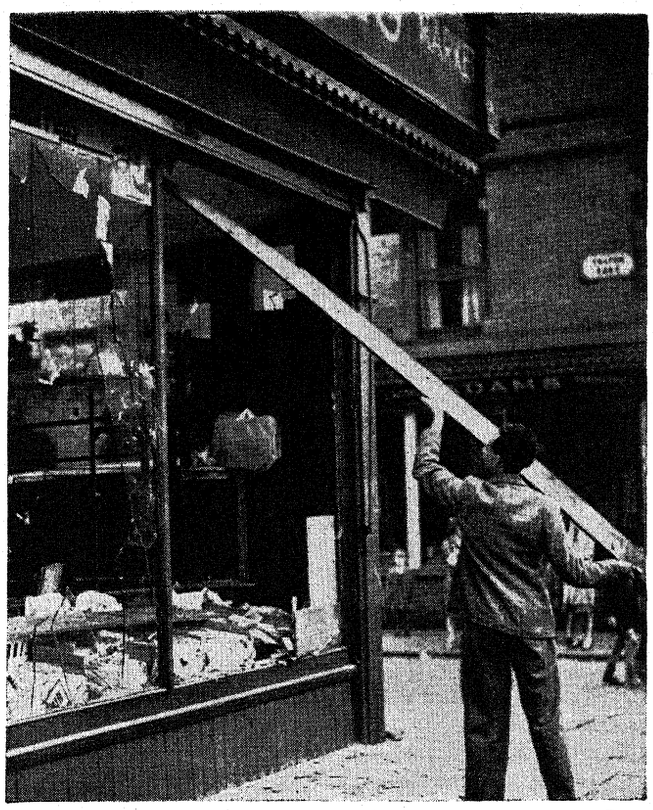
After price control was abandoned in Nov. 1946 antimony increased in price from 15.84 cents per pound to 24.875 cents to 29.625 cents in December, 31.19 cents on Feb. 1, 1947, 35.94 cents on March 15, and 36.03 cents on Oct. 14. (G. A. Ro.)

Anti-Saloon League of America: *see* SOCIETIES AND ASSOCIATIONS.

Anti-Semitism.

Whether anti-Semitism increased or decreased in 1947 is difficult to ascertain. For the most part, men everywhere were preoccupied with the still uncompleted task of meeting the more general and fundamental problems of reconstruction and peace. Although the difficulties encountered were discouraging, there were no serious incidents of disabilities against, or persecution of, Jews. This fact, in itself, warranted cautious hope. That a year of such general unrest and confusion was not replete with anti-Semitic movements and demonstrations might have indicated some progress over the comparable period at the end of World War I. Since organized anti-Semitism is always a symptom of widespread frustration and disillusionment, the guess might be ventured that, despite the difficulties encountered in finding a formula for the peace in 1947, men had not despaired of success.

Objective observers were practically unanimous in reporting that in a hungry and anaemic Europe, people of Jewish faith were rebuilding their lives, on a basis of equality with their fellow citizens, in the traditionally liberal countries of the west-



ANTI-SEMITIC RIOTING broke out in Liverpool, Manchester and other English cities on Aug. 1, 1947, after the slaying of two British sergeants in Palestine. A workman is shown clearing broken glass from a vandalized shop window in Liverpool

ern part of the continent. This same condition prevailed in the Scandinavian nations. Norway went to the displacement centres of the continent to offer new homes to displaced persons of Jewish faith, in a number equal to those who had been lost during the German occupation and the war. In France, Léon Blum again emerged as an important political figure.

Naziism seemed to have left a more enduring mark upon the country of its origin. Most responsible observers felt that, in 1947, Germany was still an unhealthful place for people of Jewish faith.

The eastern and central parts of the continent were closed in by the "iron curtain." It was almost impossible, therefore, to learn the true condition of people of Jewish faith in those areas. But unless there had been a radical and unannounced change of soviet policy, these people were unquestionably better off than they had been either during the war or in the years immediately preceding it. Officially, anti-Semitism was a crime against the state in soviet Russia. The one exception seemed to be Poland. There neither the "iron-curtain" nor a soviet-dominated government seemed successful either in ending anti-Semitism or preventing the world from knowing it. The Polish government seemed to be making extraordinary and successful efforts to eradicate official anti-Semitism, but it was compelled to admit that, in 1947, it had not successfully eliminated it from the masses of a people so long indoctrinated with prejudice.

In the United States, one new phenomenon was apparent. Anti-Semitism was no longer discussed only by people of Jewish faith, the clergy and sociological academicians. Two motion pictures and one best-seller novel indicated that there was at least a superficial interest in the problem among large numbers of people. Authorities in the fields of activities to counteract anti-Semitism were divided in their opinions as to the benefits of this new phenomenon. Some felt that it was healthy to have the whole subject fully aired; others held that such popularization would serve only to bring the problem to the attention of millions who had never been conscious of its existence. The success of these popularizations seemed to indicate that the first school of thought would prevail. At least the United States would meet the problem, in whatever dimensions it might exist, aware of its many-headed character.

One new element was injected into the entire problem, on a world basis. In November the United Nations voted to partition Palestine into Jewish and Arab states. This plan represented a yielding to Zionist political pressures. As a political movement, it was inevitable that Zionism should divide the world, as it had divided Jews, into "pros" and "antis." Anti-Zionism had appeared in vigorous fashion in England in 1946 and continued through 1947. The United Nations' decision solidified anti-Zionist opinion in the Arab states. Jews appeared in grave jeopardy throughout the Arab world and Zionists and Arabs were fighting each other in Palestine.

This United Nations proposal made an evaluation of anti-Semitism difficult, unless one now made the necessary and legitimate distinction between Jew and Zionist. Discrimination against human beings of Jewish faith was one thing—and indefensible; opposition to a political theory (Zionism) was another —and legitimate. Not all Jews are Zionists. Unless the world learned and remembered that, the divisiveness of pro- and anti-"Jewish" feeling, which would really be pro- and anti-Zionist, might wreak havoc wherever Jews lived, for themselves and the countries of which they were integral citizens. This distinction held the answer to anti-Semitism in the foreseeable future. (*See* also FASCISM: JEWISH RELIGIOUS LIFE; REFUGEES.)

(EL. BR.)

Antitrust Law: *see* LAW.

Apples: *see* FRUIT.

Appleton, Sir Edward Victor (1892–), British physicist, was born on Sept. 6 and was educated at St. John's college, Cambridge. He started his academic career as an assistant demonstrator in experimental physics. Later, he was physics professor at the University of London (1924–36) and professor of natural philosophy at Cambridge (1936–39). Appleton became secretary of Britain's department of scientific and industrial research in 1939.

He began the study of radio fading while serving with the British army during World War I as a signal officer. These studies led to his research in the ionosphere and experimentation with reflected radio waves to measure the distance of unseen objects. His discoveries in this field were important in the development of radar during World War II.

He was awarded the Nobel prize in physics on Nov. 13, 1947, for his contributions to ionospheric research. Upon being notified of the honour, Sir Edward said that much of the credit for his discoveries belonged to J. H. Dellinger, a U.S. scientist with whom he collaborated in studying the radar problem and to the research students who had worked with him.

Appropriations and Expenditures: *see* BUDGET, NATIONAL.

Apricots: *see* FRUIT.

Aquariums. The movement to re-establish public aquariums, closed during World War II, continued during 1947; those in Paris, Naples and Copenhagen were reopened.

Plans to build new institutions exhibiting aquatic life—as commercial, self-sufficient businesses, as public exhibitions sup-

ported wholly or in part by public funds, or as adjuncts to institutions of learning—were underway in several parts of the world, including Suez, Buenos Aires, Acapulco, Quebec, New York city, Jerusalem, Bombay and La Jolla and Hermosa Beach, Calif. At the latter four cities new buildings were actually under construction, or structures originally built for other purposes were being remodelled.

The collections of the great majority of aquariums were still below prewar levels because the necessary collecting stations and shipping lines had yet to be re-established.

Fishes for home aquaria were receiving attention from the commercial interests involved, and collecting stations for freshwater tropical species were reopened in several far eastern areas and in West Africa. (C. W. C.)

Aqueducts. Up to 1947, the bureau of reclamation in the U.S. department of the interior had developed, designed and constructed many projects to conserve and utilize the rivers and water resources in the 17 western states. It had built many thousands of miles of canals, tunnels, siphons and pipelines to make possible the irrigation of more than 5,000,000 ac. of arid or semiarid farm lands.

The 71-mi. San Diego aqueduct, branching from the Colorado River aqueduct near San Jacinto, Calif., was to carry about 50,000,000 gal. of water daily to the San Diego area. Designed by the bureau of reclamation, it was built under the supervision of the bureau of yards and docks of the U.S. department of the navy. Construction was essentially completed in 1947.

The 41-mi. Salt Lake aqueduct under construction by the bureau of reclamation on the Provo River project in Utah, was about two-thirds complete at the end of 1947. It was built to transport nearly 100,000,000 gal. of water daily from Deer Creek reservoir, located northeast of Provo, to the vicinity of Salt Lake City, for industrial, domestic and irrigation purposes.

Aqueduct construction during 1947 on the bureau's Colorado-Big Thompson project included the completion and start of emergency operation of the 13-mi. Alva B. Adams tunnel; completion of the Rams Horn tunnel; and the placement of concrete lining in the Prospect Mountain tunnel and the 10¾-ft.-diameter Aspen Creek siphon. These structures were built to convey Colorado river water from the western slope of the Rocky mountains under the continental divide to the Big Thompson canyon on the eastern slope for power production and the supplemental irrigation of 615,000 ac. of fertile farm land in northeastern Colorado.

The first 107 mi. of the 125-mi. Coachella canal in southern California was complete, while another 8-mi. section was under construction. This canal, branching from the All-American canal west of Yuma, Ariz., was to extend northwest as far as Indio, Calif., and water some of the most fertile land in the southwest.

On the 2,000,000-ac. Central Valley project in California, under construction by the bureau of reclamation, work continued on several large irrigation canals. The first 73 mi. of the 160-mi. Friant-Kern canal were complete or under construction. This huge canal was to convey San Joaquin river water from back of Friant dam to rich farm lands as far south as the Kern river. Construction was underway on a 24-mi. section of the Delta-Mendota canal, to carry Sacramento river water from the San Francisco bay area southward 120 mi. along the San Joaquin river and discharge it into the San Joaquin at Mendota, Calif., thereby providing water for irrigation purposes along the San Joaquin, in lieu of that diverted by the Friant-Kern canal.

Construction of major irrigation canals, initiated in 1946 by the bureau, continued on the Columbia Basin project in Washington. Columbia river water stored in Lake Roosevelt behind Grand Coulee dam was to pass through these river-size canals and be used for the irrigation of more than 1,000,000 ac. in central Washington. The 14-mi. Main canal, with a capacity sufficient to irrigate most of this vast acreage, was to be the largest irrigation canal in the northwest. Other canals under construction in this area included the 80-mi. West canal and the 130-mi. East Low canal. These latter canals were to branch from the Main canal and serve a total of over 530,000 ac. (*See* also CANALS AND INLAND WATERWAYS; DAMS; TUNNELS.) (M. W. Ss.)

ARA: *see* AGRICULTURAL RESEARCH ADMINISTRATION.

Arabia. A peninsula of *c.* 927,000 sq.mi.; pop. (1941 est.) 7,756,000. It consists politically of two independent Arab states, Saudi Arabia and Yemen, of the following nominally independent territories: the sultanate of Oman and Masqat (Muscat), the territories of the Trucial sheikhdoms of Oman and Qatar, the sheikhdoms of Kuwait and of Bahrein,

KING IBN SA'UD (right) being entertained by U.S. executives of the Arabian-American Oil company in Jan. 1947, during the royal tour of inspection at Dhahran, site of a huge new oil development



an archipelago in the Persian gulf; and of the colony and protectorate of Aden (*q.v.*). Language: Arabic; religion: Moslem. Rulers: Saudi Arabia, King Abdul-Aziz ibn Abdurrahman al-Faisal al-Sa'ud; Yemen, Zaidi Imam Yahya ben Muhammed ben Hamid ed Din; Oman and Masqat, Sultan Sayyid Said bin Taimur; Kuwait, Sheikh Sir Ahmed ibn Jabir al-Subah; Bahrein, Sheikh Sir Sulman ibn Hamad al Khalifah.

History.—The main developments in Arabia during 1947 were connected with oil. Two new pipe lines, to carry the oil of the peninsula to the Mediterranean, were planned, one from Kuwait (a branch of which would go to Abadan, and would transport Persian oil to the Mediterranean), the other from Dammam to Sidon. In the sheikhdom of Kuwait work on the rich wells in the south of the territory, suspended during World War II, was resumed. The presence of oil-drilling machinery made possible the sinking of deep bore water wells, which might result in the irrigation of an area in the east of King Ibn Sa'ud's dominions hitherto regarded as irredeemably sterile. A railroad, to run from Dammam to Riyadh, and to be operated by diesel-electric locomotives, was being planned by U.S. engineers at the king's request.

King Ibn Sa'ud continued to harbour Rashid Ali, the Iraqi who organized the rebellion in 1941; and publicly protested against the activities of King Abdullah of Trans-Jordan in regard to Greater Syria (*see* TRANS-JORDAN); but tranquillity remained unbroken throughout the peninsula. Saudi Arabia and also Yemen, in common with all other Arabic-speaking powers, sent delegates to the United Nations during September to support the cause of the Palestine Arabs.

Yemen was admitted as a member of the United Nations on Sept. 30.

Arabia, that is, the kingdom of Saudi Arabia and the sheikhdoms of Kuwait and Bahrein, formed one of the most important oil-producing areas in the world. Its proximity to Palestine and the fact that its development was almost entirely in U.S. and British hands gave it a special political importance.

(F. ST.)

Finance.—The monetary unit in Saudi Arabia is the Saudian rial. Exchange rate, 1942: 1 rial = Rs. 1 (Indian) = 30.12 U.S. cents.

Trade.—With Great Britain: (1947, first eight months) Saudi Arabia and Yemen: imports £564,017; exports £484,014. Bahrein, Kuwait and Trucial sheikhdoms of Oman and Qatar: imports £1,910,425; exports £1,704,665. Masqat and Oman: imports £20,201; exports nil. Saudi Arabia: exports petroleum, skins, wool, gold, charcoal, cattle, dates, clarified butter and gum.

Arab League: *see* ARABIA; EGYPT; IRAQ; PALESTINE; SYRIA AND LEBANON; TRANS-JORDAN.

Aranha, Oswaldo (1894–), Brazilian diplomat, was born on Feb. 15 in Alegrete, in the state of Rio Grande do Sul. He studied law and social sciences and his first political office was as prefect of Alegrete (1926). He held various important posts in his native state and in 1930 became leader of the liberal movement. He held several cabinet and assembly posts, and in 1934 was appointed ambassador to the U.S.

In 1937, he returned to Rio de Janeiro and became minister for foreign affairs in the following year. In this post, Aranha was said to have laboured strenuously to cement genuine amicable relations between the Vargas dictatorship and the North American "colossus," to the extent of jeopardizing his political career, as Vargas at the time was not overfriendly toward Washington.

He played a leading role in the major hemispheric conferences between 1938 and 1944, and succeeded Pedro Leao Velloso as Brazil's permanent delegate on the United Nations security council in 1946. In the spring of 1947, he presided over the special session of the U.N. general assembly on the Palestine question, and in the subsequent autumn session he was elected president of that body on Sept. 16.

In a statement Oct. 17 at the annual Lafayette college alumni dinner, Aranha contended that there was no reason to be pessimistic over war talk, arguing that those "who want war cannot make war and those who can make it do not want war."

Archaeology. **Western Hemisphere.**—*Arctic North America.*—J. L. Giddings of the University of Alaska undertook dendrochronological and archaeological investigations in the Kotzebue area of Alaska. Ivar Skarland of the University of Alaska made an archaeological survey of the Bering Sea region of Alaska. Frank H. H. Roberts reported that a fluted point found in northern Alaska was a true Folsom type of the kind found at the Lindenmeier site in Colorado. This was the first instance of a fluted Folsom point's having been found in Alaska.

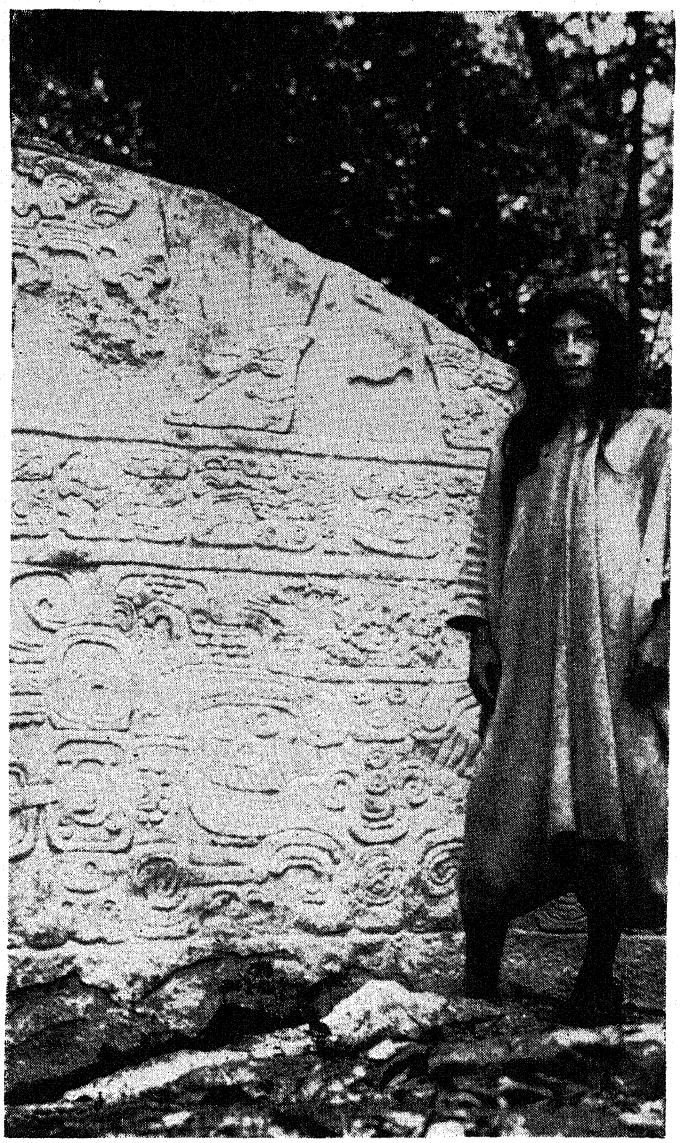
Eastern North America.—Under the sponsorship of the Massachusetts Archaeological society and the R. S. Peabody foundation of Andover, archaeological excavations were undertaken at the Titicut site near Bridgewater, Massachusetts. Three or four cultural horizons were discovered at this site. The uppermost and most recent horizon which was examined by Maurice Robbins of the Massachusetts Archaeological society contained protohistoric or historic materials. The earliest horizon of the site was investigated by Frederick Johnson of the Peabody foundation. He found a chipped stone complex of possible great antiquity lying upon wind-blown glacial sand.

Douglas S. Byers of the R. S. Peabody foundation excavated a site on an island in the Union river near Ellsworth, Me. The site was a stratified village. Among the significant discoveries was the presence of pottery accompanied by artifacts indicative of the Red Paint culture.

In Massachusetts, a protohistoric village site near Westfield was excavated by Harold Mohrman. Near Kingston, Charles E. Sherman excavated a shell midden; the upper level of this site belonged to the historic period. Near Brookfield, a village site excavated by George L. Carey produced gouges, bannerstones, semilunar knives and other artifacts indicative of the Laurentian Aspect. Howard Torrey, investigating a small shell midden near Ipswich, discovered burial traits that associated it with the Point Peninsula Focus of New York. Ripley P. Bullen excavated a site near Marshfield. Beneath a Colonial period dump he found a shell midden containing stone gouges, steatite vessel fragments and pottery sherds. Early in the year remains of an ancient fish trap were found in Boston during the excavation of a building 800 ft. from the site of the famous Boylston street fishweir.

A number of archaeologists and institutions investigated Delaware sites in the east. Richard MacNeish and John Witthoff of the University of Michigan excavated two sites near Easton, Pennsylvania. One of the sites historically identified as Unami Delaware produced Mohawklike remains with contact materials; the other was stratified. The upper level produced a Mohawklike complex with late Owasco connections. The middle level contained early Owasco materials plus a ceramic complex of cord-marked pottery with incised decoration. The bottom level, unrelated to the upper levels, produced an early Woodland complex.

William A. Ritchie of the Rochester museum excavated an historically identified Munsee Delaware site south of Port Jervis, New York. The top level of the site produced Mohawk cultural remains, the intermediate level contained "epigonal Iroquois" remains, and the bottom level was early Owasco (Castle Creek). Ritchie also excavated an early Point Peninsula site at Jacks Reef in central New York.



A LACANDONE, contemporary Maya Indian, standing before part of a stele, or basic date glyph, found by archaeologists of the Carnegie institution at the ruins of Bonampak, Mex., in 1947

Richard MacNeish made an analytical survey of Iroquois collections in the eastern U.S. in an attempt to differentiate the tribes of the period from 1550 to 1700, and to obtain relationships between prehistoric Iroquois complexes and the historic groupings.

T. F. McIlwraith, Norman Emerson and Margaret Thompson of the Royal Ontario museum excavated a historic Huron site near Warminster, Ont.

Wilfred Jurey of the University of Western Ontario excavated a historic Huron site near Lake Simcoe and a Neutral site near London, Ont. Frederica de Laguna of Bryn Mawr college and Douglas Leechman of the National museum of Canada made an archaeological survey of the upper St. Lawrence river valley in Ontario. Emerson F. Greenman of the University of Michigan continued his research program in the Manitoulin district of Ontario.

Richard Morgan and Raymond Baby of the Ohio State museum directed the excavation of a late Woodland village site in Delaware county, north of Columbus.

A joint expedition of the University of Chicago and the Illinois State museum excavated historic village sites on the Illinois river near Ottawa. John McGregor and Kenneth Orr directed the work of exploration. European trade materials were associated with the following complexes: Fisher, Fort Ancient, Oneota and late Woodland. It was tentatively considered that the Fisher unit represents the Kaskaskia Illinois and the Fort Ancient unit the Shawnee.

A field party from the University of Michigan made stratigraphic tests of a Hopewellian village site in Calhoun county, Ill. Tremendous quantities of sherds were obtained from a thick midden deposit.

William G. Haag of the University of Kentucky made an archaeological survey of the Wolf Creek dam reservoir in southern Kentucky. A wealth of material, much of it new in Kentucky, was found in the course of the survey. Gordon R. Willey of the bureau of American ethnology made an archaeological survey of the Caney Fork river basin in central Tennessee. Thirty new sites were recorded.

An archaeological survey of the Chattahoochee river valley in Alabama was conducted by Wesley Hurt for the Alabama Museum of Natural History. John W. Griffin and G. Hale Smith of the Florida park service investigated a number of sites in coastal Volusia county. The sites tested by excavation were representative of all periods from the earliest fibre tempered pottery complexes to historic Timucua.

Under the auspices of the Smithsonian institution Robert L. Stephenson made an archaeological survey of the Whitney reservoir area on the Brazos river between Hill and Bosque counties in Texas. As part of the Smithsonian Institution River Valley project, Joe Ben Wheat surveyed parts of coastal Texas.

Plains Area.—Most of the archaeological research in the Plains area continued to be focused on proposed reservoir areas that would become inaccessible after construction of dams.

In collaboration with the Smithsonian institution, Carl Chapman of the University of Missouri tested a number of important sites on the White river in Missouri. Robert E. Bell of the University of Oklahoma made an archaeological survey of several reservoir areas in Oklahoma. Certain sites along the Faurche Maline produce a culture resembling the Archaic cultures of eastern North America.

Wesley L. Bliss of the Smithsonian River Basin project, during an archaeological survey of reservoir areas in Montana and Wyoming, discovered numerous sites, some giving evidence of great antiquity. Elmer E. Meleen of the University of South Dakota excavated a number of sites in the vicinity of Pierre, S.D.

Paul L. Cooper of the Smithsonian River Basin survey made a reconnaissance of the Fort Randall reservoir in South Dakota. His excavations at the Pease creek site revealed two occupations separated by sterile layers of soil. Gordon W. Hewes of the University of North Dakota tested a number of sites in the Heart Butte reservoir. One of these sites, containing a large rectangular earth lodge, was Archaic Mandan. Marvin F. Kivett of the Smithsonian River Basin survey discovered numerous occupation sites in the Garrison reservoir, N.D.

Walter M. Hlady of the Manitoba museum, Winnipeg, made an archaeological survey along the Red river of the north in eastern Manitoba. Chris Vickers of the Manitoba Historical society examined a number of pottery producing sites of the historic period in western Manitoba.

Pacific Slope.—L. S. Cressman of the University of Oregon undertook archaeological explorations on the Klamath Indian reservation in an attempt to determine the prehistoric affiliation of the Klamath Indians.

Archaeological field parties from the University of California excavated an early site near Thornton; a historic Nisenan site near Sacramento; and a San Dieguito-Lake Mohave site near Los Angeles. Franklin Fenenga made an archaeological survey of reservoir areas in central California under the direction of the Smithsonian institution.

Southwest.—Deric O'Bryan of Gila pueblo made an archaeological survey of the Tularosa valley in New Mexico. O'Bryan excavated developmental pueblo ruins at Mesa Verde in Colorado. The Chicago Natural History museum expedition undertook archaeological investigations in the Pine Lawn valley of New Mexico. John Rinaldo and E. B. Sayles made an archaeological survey of the Pine Lawn valley. Strategic sites were excavated under the direction of Paul S. Martin assisted by George I. Quimby and John Rinaldo. Ernst Antevs studied the geology of the Pine Lawn valley in relation to the Indian occupancy and the dating of early sites. The sites investigated were as follows: a Chiricahua stage Cochise site; a Pine Lawn phase Mogollon site; two Three-circle phase Mogollon sites; and a Reserve phase pueblo site.

The University of New Mexico summer field school under the direction of Dr. Paul Reiter investigated sites in Chaco canyon, N.M. The University of Arizona conducted its Archaeological Field school at Point of Pines in the San Carlos Indian reservation under the direction of Emil W. Haury and E. B. Sayles.

J. O. Brew of the Peabody museum, Harvard university, made an archaeological survey of some 10,000 sq.mi. on the Arizona-New Mexico border. Alfred K. Guthe of the University of Chicago excavated a pueblo ruin near Cahone, Colorado in association with Ansel F. Hall's Explorer's club.

Middle America.—Fossil skeletal remains were discovered in Feb. 1947 near Tepexpan, Mexico by Helmut de Terra and Hans Lundberg. The find was made by means of geophysical techniques and apparatus developed by Lundberg. The search for Palaeo-Indian remains was made in an area that De Terra previously had determined would meet the geological requirements for such a find.

The skeletal remains at Tepexpan were found in an alluvial deposition of post-Wisconsin pluvial times, dating back 8,000 to 10,000 years. The possibly related artifacts were scanty, but seemed to belong to the San Juan lithic industry discovered by De Terra in 1946. The skeletal remains consisted of a cranium, broken femurs and tibias, and other bones. The skull was almost brachycranial and possessed some primitive characteristics.

One of the most spectacular events of the year was the investigation of Bonampak, by a Carnegie institution expedition. Bonampak, an ancient Maya ceremonial centre, includes a group of eight standing temples in Chiapas, Mexico, near the Guatemalan border. In one of the temples were three rooms containing brightly painted murals depicting processions of nearly life-size figures, battle scenes and elaborate ceremonies of the Maya. These were the most extensive and complete murals ever found in the Maya region, and provided a wealth of information about art, costumes, ornaments, musical instruments and other categories. They were painted on stucco plastered over the limestone walls of the temple. Other significant remains found at Bonampak included some elaborately carved altarstones and stelae. The largest stela was about 21 ft. high, 8 ft. wide and weighed at least 4 tons. According to the calendrical glyphs carved on the stelae, Bonampak was in its prime in the 7th century A.D., although it may have been founded earlier.

Early in the year Gordon F. Ekholm of the American Museum of Natural History undertook further archaeological reconnaissance of coastal Mexico south of the Huastec area.

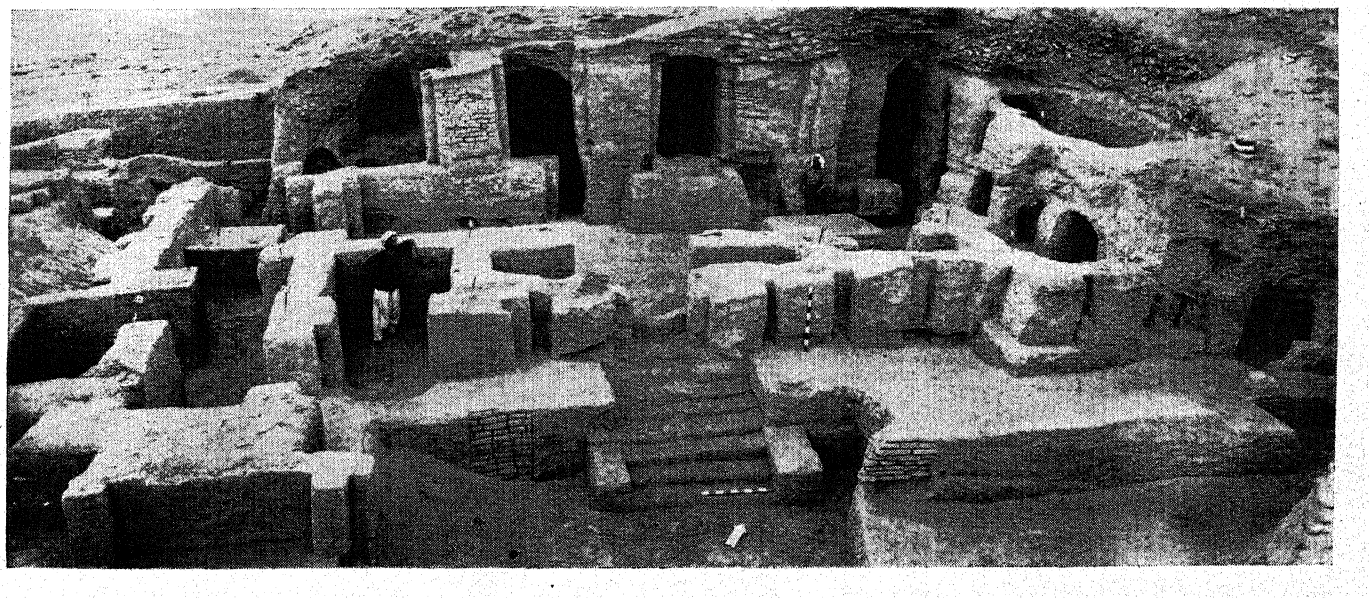
Some significant discoveries were made by a Smithsonian institution-National Geographic society expedition to Chiapas, Mexico, in the summer of 1947. Excavation of a deep midden deposit under the supervision of Phillip Drucker revealed two ancient cultural levels. The lowermost level of the midden produced the remains of a preceramic culture whereas the uppermost level presented evidence of people who used crude pottery. The ceramic level was believed to have been pre-Olmec and pre-Zapotec. This find seemed to offer the first concrete evidence of a real "archaic" horizon in Mexico.

Excavations were continued at Zaculeu, a well preserved site near Huehuetenango, Guatemala. Directed by Stanley H. Boggs, John Dimick, Aubrey Trik, and Gus Stromsvik, the excavations produced quantities of stratified material and a large tomb whose contents seemed to be no later than the 6th or 7th centuries A.D. A large amount of the pottery from Zaculeu could be cross-dated with pottery from Kaminaljuyú, northern Guatemalan finds and sites in central Mexico.

The Carnegie institution of Washington continued its program of archaeological research in Guatemala. Edwin Shook directed the excavation of a site at Finca Paraiso. Investigation of the site revealed a very productive mound and an unusual, circular communal sweat bath. At Nebaj Ledyard Smith of the Carnegie staff excavated a series of tombs dating from Early to Post-Classic times.

President Carey Croneis of Beloit college and Andrew Whiteford and Moreau Maxwell made a brief survey of sites and archaeological collections in Mexico, Guatemala, Costa Rica,

EXCAVATIONS of temples VI and VII at Eridu, in southern Iraq, reported on in 1947

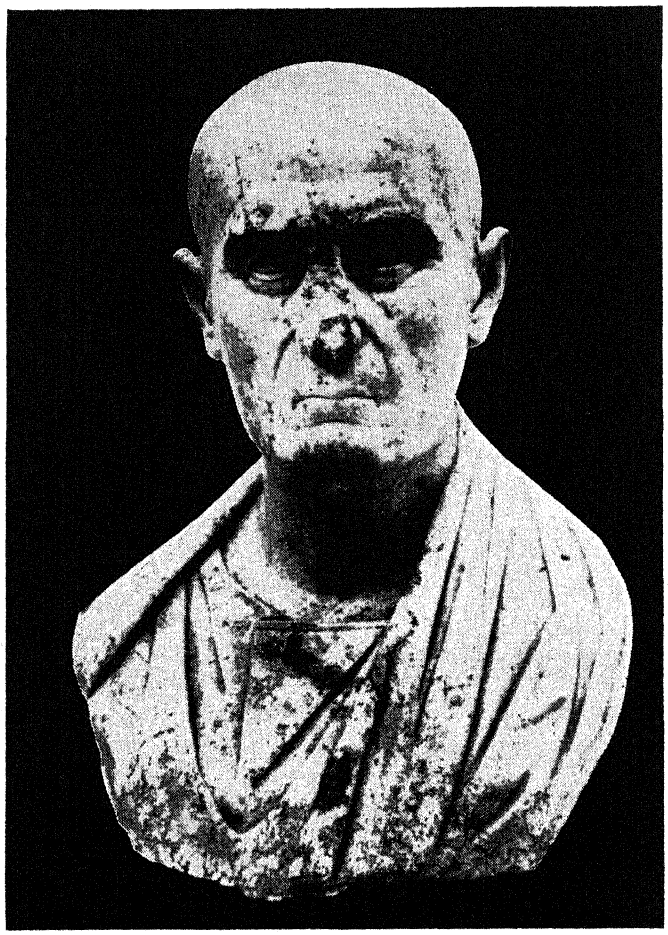


Panamá and Colombia. The survey was undertaken as a preparatory step in the planning of an archaeological program in Middle America and South America by Beloit college.

South America.—In Colombia, Luis Duque Gomez, director of the Instituto Nacional, continued his excavations of graves near San Augustin. Gregorio Hernandez de Alba made a survey of the Tierra Dentro region. Gerardo Reichel-Dolmatoff of the Instituto de Arqueologia y Etnologia del Magdalena excavated at the well-known Tiarona site of Pueblito. Preston Holder of the University of Buffalo excavated a burial cave near Convencion, probably a Motilon burial site.

BIBLIOGRAPHY.—Among significant publications of 1947 were the following: *Man in Northeastern North America,* edited by Frederick Johnson; J. O. Brew, *The Archaeology of Alkali Ridge, Southeastern Utah;* Alex D. Krieger, *Culture Complexes and Chronology in Northern Texas;* Alfred V. Kidder, Jesse D. Jennings and Edwin M. Shook, *Excavations at Kaminaljuyu, Guatemala;* Paul S. Martin, George I. Quimby and Donald Collier, *Indians Before Columbus, 20,000 Years of North American History Revealed by Archaeology.* (G. I. Q.)

Eastern Hemisphere.—In 1947, for the first time after World War II archaeological field parties from western Europe and the United States began to resume programs of excavation comparable to prewar activities. This was so particularly in the near east and in European countries where reconstruction had gone forward, less so in eastern Europe, Italy, Greece and the far east. In Greece, the government's decision that no digging might be resumed until the national museums were in order, had kept proper excavation at a virtual standstill, with only minor clearances being allowed. As 1947 ended, the reaction of the countries of the Arab nations to the United Nations' decision for partitioning of Palestine had compromised the position of many foreign archaeologists in the Arab near east.



MARBLE BUST OF A ROMAN, dating from the 1st century A.D., excavated in the ancient agora at Athens, in 1947, by archaeologists of the American School of Classical Studies

Nevertheless, there were increasing signs of field activity on every hand.

So far as reported, the important finds of the year came in the near east. Several expeditions were at work in the early dynastic pyramid—cemetery fields in the Sakkara district in Egypt. The fine work of the Iraq government's Directorate of Antiquities was continued with the opening of work on the site of ancient Eridu, and the exposure of an Ubaid period temple on the site. In Turkey, several important finds were made by both Turkish and foreign archaeologists; perhaps the most spectacular of these was the work done on a late "Syro-Hittite" site at Kara Tepe by the University of Istanbul.

There was also news during the year with possible important bearing on archaeological chronology. In Nov. 1947 Robert Redfield, chairman of the department of anthropology of the University of Chicago, announced the result of conferences held by his staff with Profs. H. S. Brown, W. F. Libby and H. C. Urey of the university's department of chemistry, concerning the use of the radium or the carbon 14 isotope content of certain archaeological materials for the purpose of fixing chronology. Robert Merrill, a graduate student in anthropology at Chicago, prepared (in consultation with Professors Libby and Brown) a report on the literature, status and possible potentialities of the two phenomena and their application to archaeological chronology. Essentially both phenomena concern the gradual and predictable decline of the radium or carbon 14 content in organic matter—radium with a half-life of about 2,000 years, and carbon 14 with a half-life of about 5,000 years. The possibility of using carbon 14 seemed perhaps more promising (theoretically its accuracy for dating at the half-life would be within 2% and its range might go back at least 40,000 years), but both methods were subject to experimental error and insufficient theoretical interpretation.

Pleistocene Prehistory.—The American School of Prehistoric Research returned to the cave in Tangier which C. S. Coon of Harvard had examined before the war. A report on this cave, the Mugharet el 'Aliya, was published by Bruce Howe and H. L. Movius, Jr. (vol. XXVIII—1, *Papers Peabody Museum,* Harvard, 1947), in which the Mousterian and also the important Upper Palaeolithic finds were described. The implements found in the Upper Palaeolithic layers were of great significance, bearing on the question of relationships between the Aterian and Solutrean type tools and the possibility of a North African centre of origin of the Solutrean.

A preliminary note was published on the excavations at the cave of Ksar 'Akil near Beirut, Lebanon, at which cave J. G. Doherty, J. F. Ewing and J. W. Murphy, of Boston college and Fordham university again resumed work. The cave contained some 3 metres of Gravettian deposit overlaying 4 metres of Middle Aurignacian, then 5 metres of Chatelperronian, then a "mixed zone" of some 3 metres, and a basal 4 to 5 metres of Upper Levalloiso—Mousterian.

In Turkey, the task of finding, recording, and testing the various open and cave sites of prehistoric Anatolia, instituted by S. A. Kansu, rector of the University of Ankara, was carried forward. İ. Kiliç Kökten published a map of the sites so far surveyed in reports of Ankara university. Certain fine examples of early Acheulean bifaces were discovered near Gazi Antep, and it became even more than ever certain that the Pleistocene prehistory of Anatolia followed a pattern much like that of Syria and Palestine.

From farther Asia, H. R. van Heekeren illustrated examples of the middle Pleistocene chopper-tool type of artifact from Siam, an area from which tools of this tradition of manufacture had not yet been known.

The Near East.—Excavation in Egypt was confined for the

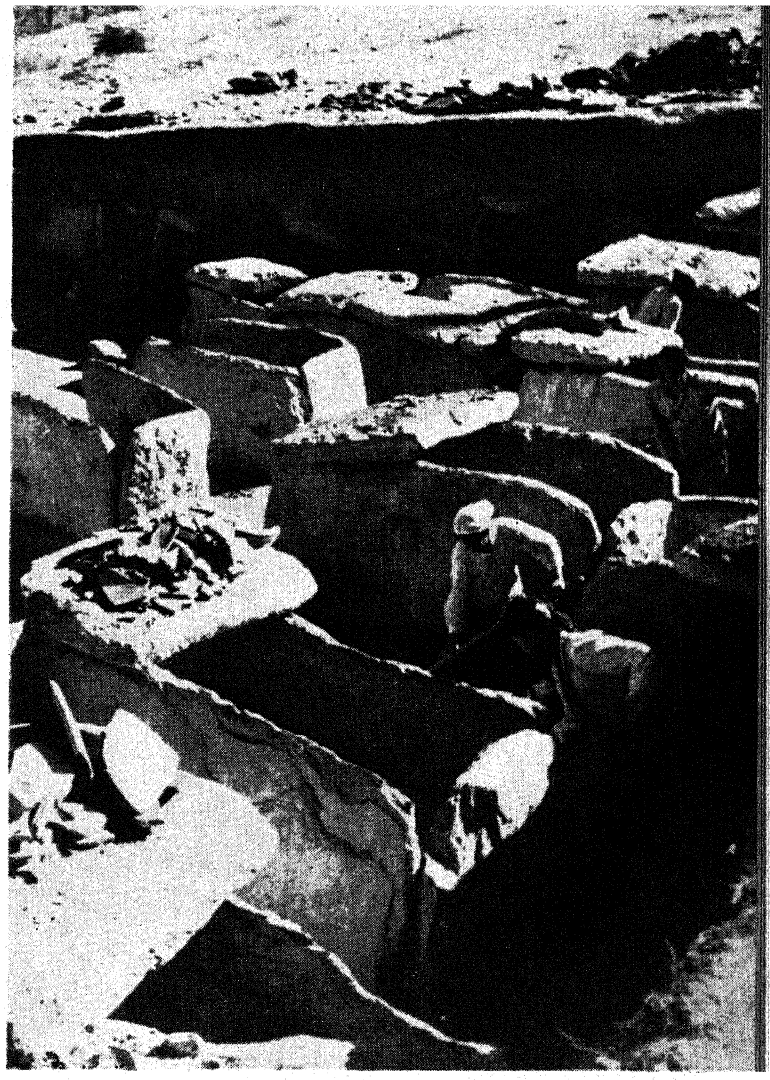
most part to the region about Cairo,—at Sakkara (12 mi. south of the pyramids at Giza) and at Helwan on the opposite side of the Nile. At Sakkara, Walter Emery found a mastaba-tomb of considerable size which contained the name of Queen Merneith—either the wife or daughter of King Zer, an early king of the first dynasty. The tomb had been burnt and badly destroyed by robbers and contained the charred remains of a large wooden coffin. Within the enclosure were also tombs of retainers, apparently buried at the time of the funeral of the royal owner. Emery's discovery posed two questions: (1) whether the so-called tombs at Abydos (which included a tomb of Merneith) were really only cenotaphs and (2) whether the buried retainers were in fact slaves killed to accompany and aid their great owner in the next world.

At Helwan, the Egyptian government's Service des Antiquités carried out a new campaign on the huge first-second dynasty necropolis. The finds were mainly small objects, but these included symbols of Osiris and Isis (hitherto unsuspected at so early a stage). There was also some use of stone slabs in the construction of the tombs, which also represented an earlier instance of this usage than had been suspected. Another interesting aspect of the work done by the Egyptian Service des Antiquités was the identification of the "south" or "bent" pyramid of Dahshur with King Snefru of the fourth dynasty. Clearances within this pyramid seemed to indicate that it had never been successfully robbed and that an intact royal burial might yet be concealed in it.

In Mesopotamia, the spectacular find of the year concerned the protohistoric Ubaid period, the earliest cultural manifestation in southern Iraq. There, at the site of ancient Eridu, the Iraq Directorate of Antiquities' expedition under Seton Lloyd and Fuad Safar exposed a succession of temple structures which had been in part overlaid by the ziggurat of the third Ur dynasty period. Five successive levels, sealed by the ziggurat, were represented only by mud-brick platforms on which temples must once have stood. At the sixth and seventh levels, the Iraqi archaeologists came upon traces of the temple structures proper, as well as the platforms on which the temples had stood. Soundings made below the seventh level revealed at least five even deeper strata. The temple of the seventh level was best preserved; it was of the recumbent ⊢ type of plan, known already in the late Ubaid stage in northern Iraq, and antecedent in form and in its niched decoration to the typical Mesopotamian temple of later historical times. The broad central room of the temple was provided with an altarlike structure against one end-wall, and with a central bench which may have been an offering table. Large quantities of fish bones were found about it, indicating that the temple may have been a shrine to the god Enki, lord of the deep. The temples of both the sixth and seventh layers were unequivocally dated by their painted pottery content to the Ubaid period. It had once been postulated that one or more ethnic changes took place in southern Mesopotamia between the flourish of the Ubaid assemblage and the early dynastic Sumerian period. Other evidence pointed to at least a cultural continuity. The appearance of the characteristic temple plan already in the Ubaid period added considerable weight to the continuity theory.

The Directorate of Antiquities also reported the discovery of two hitherto unrecorded rock-reliefs in north Iraq, one Sassanian and the other Assyrian.

In Palestine, I. Ben-Dor worked for two months on a Middle Bronze Age temple in Nahariyeh. The work of the Hebrew university at Khirbet Kerak, at the southern end of the Sea of Galilee, was reported; more of the spectacular red-black burnished pottery of the end of the Early Bronze Age was recovered and also a stone founded and paved building of some



SLAB-BUILT cist graves in an ancient cemetery in the Samtavro area which were discovered in 1947 by soviet archaeologists of the Georgian Academy of Sciences

size and complexity of plan.

Dr. R. Ghirshmann returned to the site of Susa in Iran, long the scene of a French archaeological mission. It was planned to completely retest the site in a stratigraphic sense; efforts so far had been confined to the uppermost (Islamic, *et al.*) levels. Daniel Schlumberger, director of the French Archaeological Mission at Kabul, was continuing the clearance of the Greco-Oriental site of Balkh in Afghanistan. From India, R. E. M. Wheeler reported on studies made by the government archaeological survey on the numerous megalithic tomb structures of the Deccan plateau and the south. Certain detailed similarities between these structures and the megaliths of Iran, the Caucasus, France and England could be cited. In fact, the Indian megaliths covered a broad range of time, from the latter part of the third millennium to the beginning of the Christian era or even later. In 1947 simultaneous excavations were undertaken on a site equated with the Isila of King Asoka's edicts, and the megalithic cists and stone circles adjacent to the site. Clear evidence for dating both the site and the megaliths to not later than the 1st and 2nd centuries A.D. was obtained.

There was considerable archaeological activity in Turkey during 1947. The year saw the final campaigns of two great British archaeologists, John Garstang at his site of Mersin in Cilicia, and Sir Leonard Woolley at Atchana in Hatay (both sites in southern Turkey). At Mersin Garstang completed a long stratigraphic sequence with a succession of 26 occupational levels covering a range from Islamic to earliest village times (some 6,000 or more years). At Atchana-Alalakh, Woolley's final cam-

paign revealed an underground tomb structure attributed to Yarim-Lim, a king of ancient Alalakh in the 18th century B.C. Unfortunately the burial itself was much deeper than the modern ground-water level, and hence was not reached. From pottery recovered in other deeper operations, Woolley assessed the founding of the town to have taken place within the fourth millennium B.C. Others judged this pottery to be at least 1,000 years later in date. The Atchana expedition also opened a small trench in Tell esh Sheikh, a low mound nearby, and exposed materials of the period of Ubaid influence in Hatay.

On the Anatolian plateau proper, the important work at Alaca was continued under Hamit Kosay, and the French under Claude Schaeffer carried on a stratigraphic rechecking of their earlier work in Malatya. A brilliant short season's work was carried out for the Turkish Historical society at two mounds near Elbistan, by Tahsin Özgüc and his wife Nimet Özgüc. On a large mound called Karahüyük they exposed a sequence of classical, Phrygian, Hittite and "Early Bronze" materials. This sequence would not only serve to check the key site of Alishar, but seemed to yield antiquities of considerably finer quality than Alishar. At a smaller mound, nearby, the Özgücs also exposed a rich Hittite layer, and in one room came upon Egyptian scarabs, a Babylonian seal of the time of Hammurabi and a Mycenaean vase. The most spectacular excavations in Turkey, however, were those of the Istanbul university under A. Bahadir, H. Cambel, and H. Th. Bossert at Kara Tepe, near Gaziantep. This site contained the architectural, sculptural and epigraphic remains of a mountain fortress of "Syro-Hittite" times (early first millennium B.C.). Inscriptions in both Aramaic and Hittite were found which, when studied, would doubtless be of great historical importance.

From the U.S.S.R. there were reports of archaeological activity in Georgia, where the Georgian Academy of Sciences and the Dzhavakishvili Institute of History staffs excavated in cemeteries and town sites of the Samtavro and Armazi districts. Armazi was the seat of Georgian governors in the 2nd–3rd centuries A.D. Clearances of ancient monuments were also carried out in Moscow, in celebration of that city's eighth centenary.

In Greece the major clearances were those made by the American School of Classical Studies in ancient Corinth and in the Athenian Agora. The major effort in the Agora excavations was the removal of architectural remains of Roman houses and earlier Greek houses and shops, in the area where the new permanent museum was to be built. A marble head of Heracles, a portrait bust of an elderly bald-headed man, and a number of marble inscriptions were found. There was also a report on work finished late in 1946 by the French school at Athens working on the island of Delos. Objects of gold, ivory and bronze, of the Mycenaean and Cycladic Geometric periods were recovered. The National Museum of Athens reopened, to the extent of three fine rooms in its new wing.

P. Dikaios, curator of the Cyprus museum, made trial excavations at Sotira near Kourion, Cyprus, for the University Museum of Philadelphia. The site yielded materials called "neolithic" and assigned to the fourth millennium, B.C.; it was described as containing intact tholoi houses, streets and a massive wall on one flank of a hill.

The excavation of the 8th century A.D. Carolingian basilica at St.-Denis, near Paris, was continued by S. M. Crosby. Various interesting architectural details were recovered, also some burials (including that of a 13th century bishop, still in his vestments and gloves and with his pastoral cross). The most valuable discovery was a six-foot slab of stone bearing a bas-relief of the 12 apostles. Stylistically, this bas-relief would be of great importance in understanding the artistic changes from late Romanesque to early Gothic sculpture. The slab was dated at approximately 1140 A.D.

Sources used in the preparation of this section, other than those specifically mentioned: *American Journal of Archaeology, Antiquaries Journal, L'Anthropologie, Antiquity, Bulletin of the American Schools of Oriental Research, Illustrated London News, Journal of Near Eastern Studies, Man, Nature, Quarterly of the Department of Antiquities of Palestine.* (R. J. B.)

Archery. The 63rd championship tournament of the National Archery association was held at Amherst, Mass., with 378 archers participating, a new record. Twenty new records were established. Archers came from Canada, Sweden and 25 states. The championship winners were:

Senior Division		
Women's Championship		Ann M. Weber, Bloomfield, N.J.
Scores:	Double National Round	144– 980
	Double Columbia Round	144–1096
	Double American Round	179–1307 3383
Men's Championship		Jack K. Wilson, Springfield, Mo.
Scores:	Double York Round	280–1698
	Double American Round	180–1386 3084
Junior Division		
Boy Champion		Jerome J. Moga, Niagara Falls, N.Y.
Scores:	Quadruple Junior American Round	360–2868
Girl Champion		Lorraine Avery, Saginaw, Mich.
Scores:	Double Columbia Round	140– 870
	Double American Round	172–1086 1956
Flight Shooting		
Women		
Regular Style	Millie Hill, Dayton, O.	401 yd. 2 ft. 4 in.
Men		
Regular Style	Irving Baker, Westfield, N.J.	575 yd. 2 ft. 3 in.
Free Style	Paul J. Berry, Middletown, O.	589 yd. 2 ft. 10 in.
Junior Division		
Boys		
Regular Style	Richard E. Finke, Covington, Ky.	319 yd. 2 ft. 5 in.
Girls		
Regular Style	Virginia Hersh, Dayton, O.	308 yd. 2 ft. 8 in.

New records established: Single York, 141–881 by Jack Wilson; Double York, 280–1698, Jack Wilson; Junior American, 90–740, Richard E. Finke; Double Junior American, 180–1428, Jerome J. Moga; Single American (girl), 88–558, Lorraine M. Avery; Double American (girl), 172–1086, Lorraine M. Avery; 65 lb. flight, 547–2–2, Herb Henderson; all weights flight, 523–2–6, Don Gourley; 50 lb. flight, 575–2–3, Irving Baker; 100 yd. range, 70–392, Jack Wilson; 50 yd. range, 30–288, Jack Wilson; 40 yd. range, 30–262, Russ Reynolds; tied clout record, 36–276, Ann M. Weber.



CONTESTANTS in the women's national archery tournament held at Amherst, Mass., in Aug. 1947

An important event took place during February when the Olympic Bowman league held its 20th anniversary indoor tournament in which there were almost 1,400 contestants—the largest number ever to shoot in a mail match. Eleanore Hamilton had the highest average score for the five matches in the Olympic round with 774.0; while Marie Krohmann led the Chicago round with an average of 763.6. W. J. Burton of New Zealand won first place among the men in the Olympic round with 799.6; Ralph Gargiulo was first in the Chicago round with 775.6. Cleveland Archery club placed first for both men and women for team honours.

The 2nd championship tournament of the National Field Archery association was held at Salt Lake City, Utah, with 266 archers from 28 states, the District of Columbia and Canada attending. The championship winners were: (men) Erwin C. Pletscher, Bakersfield, Calif., 2345; (women) H. A. "Babe" Bitzenburger, Los Angeles, Calif., 1608; (junior boy) David Webb, Wichita, Kan., 1045; (junior girl) Kathleen Powell, Portland, Ore., 593.

Louis Carter Smith retired after 26 years service as secretary-treasurer of the National Archery association; his place was filled by Henry S. C. Cummings. The 1948 National tournament was to be held at Reno, Nev., during the first week in August. (H. S. C. C.)

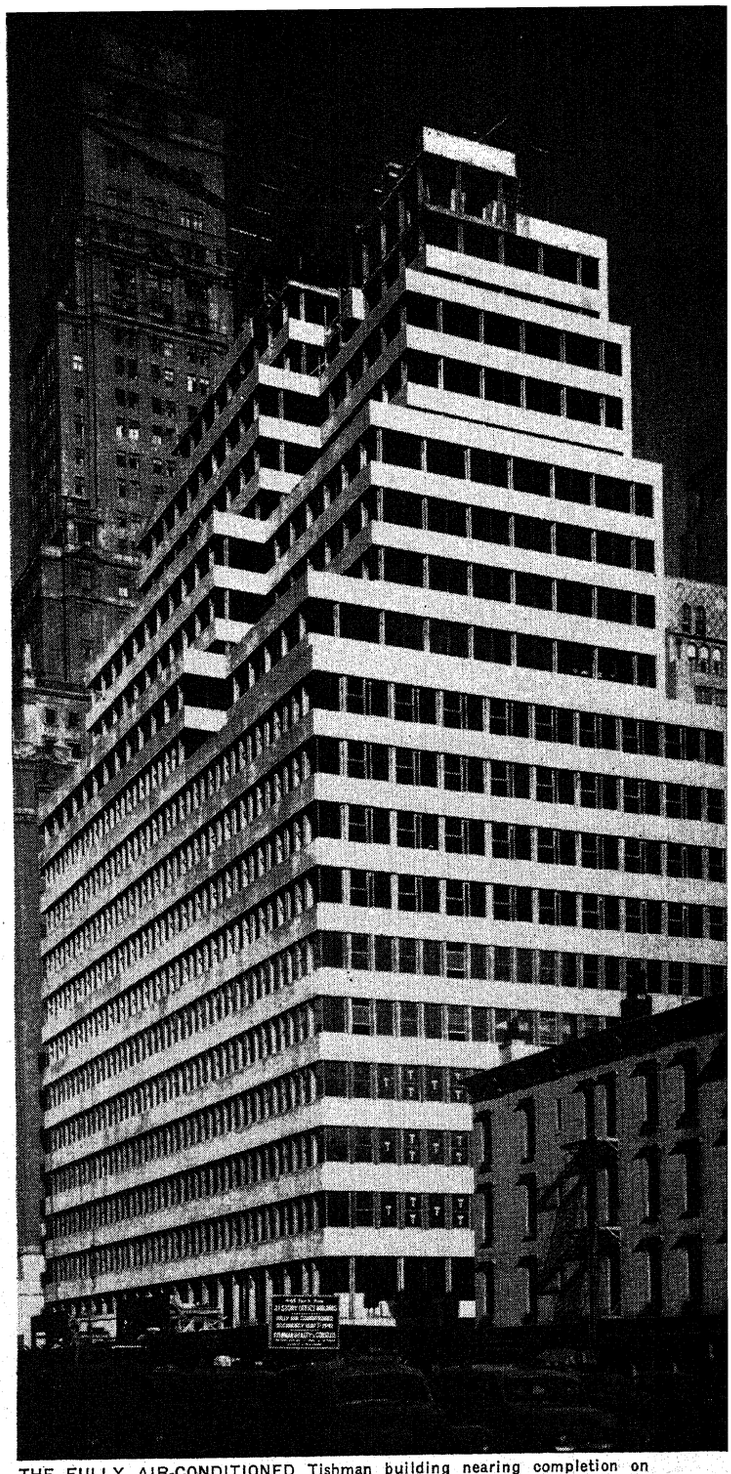
Architecture. A considerable increase in the total volume of civil building took place during 1947, and in the United States housing reached the volume of the great boom of 1925. Elsewhere the end of the year saw appreciable gains in spite of strikes, shortages and such setbacks as the blizzard in Great Britain. Materials and construction benefitted by new inventions; housing by increased mass production. The degree of recovery from World War II was highlighted by the preoccupation of architects and planners with values, such as arose out of the consideration of the designs for the permanent headquarters of the United Nations.

Materials and Construction.—Technological innovations poured forth, although some were announced before they had been thoroughly tested. Among them were Flexicore, a hollow precast panel for floors and walls, with rigidity and light weight; Alfred Poor's Hexadrome, based on a system of four-inch triangles, with a high weight-strength ratio; Higgen's Thermo-Namel system, a prefabricated panel with a patented foamy core surfaced with metal, later modified to omit the metal, and called Thermo-Con. The John B. Pierce foundation announced a resilient concrete, made with asphalt which was as comfortable as wood flooring, but more durable and more economical.

In Great Britain, a war product, Holoplast, was adapted for structural purposes. Made of plastic-impregnated paper tubes with a variety of surfaces, it was found light, durable, impervious to damp, vermin and fireproof. William Lescaze and Robert Davison offered a metal-clad, insulated wall panel. Rigidized sheet metals permitted many possibilities for new expression, particularly in returning curves.

Shell-concrete construction for long spans continued to be studied, notably in the Jewish centre for Cleveland by Eric Mendelsohn. Such developments also pointed up a trend toward reducing the weight and bulk of architecture, both in fact and in appearance; a closer approach toward the aesthetic of aeroplane and boat design. Prefabricated structural units in concrete were tried with some success in small office buildings and seemed to be more economical for such purposes than fireproofed steel.

One of the goals of low cost architecture, unification of the roof and the wall, seemed nearer at hand. Kenneth N. Lind's system of a single truss for this purpose was in production by Production Line Structures. Many designers, notably J. C. Campbell and W. K. Wong, were adapting the quonset hut with great success to houses, farm buildings, factories, banks and a motel. Manuel Flores' system "DC" of lowering the forms for concrete floors from the top of skeleton buildings was introduced into Texas from Mexico.



THE FULLY AIR-CONDITIONED Tishman building nearing completion on Park avenue, Manhattan, early in 1947. Slender outside vertical columns permitted continuous fenestration

Interest in cavity-wall construction was growing. It was believed to offer great strength, good insulation and an effective barrier to infiltration. Welding for steel frame buildings was becoming recognized as potentially superior to riveting. For bridges, a return to the tubular members, proved to be economical in the Ead's and Firth of Forth bridges of the 19th century, was proposed. Air cleaning by electronic precipitation increased; its advantages to health and its savings in time and money for

laboratories and department stores were acknowledged.

Heating.—Heat pumps for house heating were in production by four companies. In radiant heating, methods of cold bending the pipes were improved, preformed tubing panels were announced, and a tube with integral fins became available. Research in solar housing was continued at the Massachusetts Institute of Technology and at Purdue university, Lafayette, Ind. More study was still required to evaluate all the factors contributing to the initial and long run economies expected of this system. Short-period storage of solar heat seemed to promise great economies; one method used a filler of Glaubers salts.

Housing and Research.—Throughout the world housing continued to be the primary architectural problem. Rising costs of labour and materials, together with shortages of materials delayed the programs envisaged by thoughtful people and governments. In the U.S., the building construction research board of the National Academy of Sciences had not gotten far; nor had the research program of the American Institute of Architects. The Committee of the Hygiene of Housing of the American Public Health association was doing the best work in that country. Helmut Landsberg's work in microclimatology, published in 1947, indicated the values to be derived from intensive local studies. A hopeful sign was the developing acceptance of modular co-ordination by industry and the recognition by the producer's council of the need for co-ordinated research.

Two stumbling blocks to mass production and increased volume of building were lifted when the American Federation of Labor in the Chicago area signed an agreement to remove some of the jurisdictional barriers to new methods of construction, and in the New York area when an agreement stabilizing labour costs was signed, thus enabling estimates to be made on a firmer basis over a long period. There were other signs of increasing stability in building costs at the end of the year such as upset price contracts and voluntary lowering of prices on some items of house equipment.

Nearly three-quarters of the housing built in the U.S. during 1947 was found to be in the hands of large-scale operators, who by mass production methods could bring the cost of small houses closer to the incomes of those for whom they were intended. Even so, the average price of a small house, about $8,000, was still $1,000 more than could be afforded.

Brazilian buildings continued to be widely publicized in 1947. Architecture in South America seemed to employ the clichés of the international style, with particular attention to sun-control devices. Although many of the projects were still in the design stage it could be concluded that the bulk of the work lacked the humanity, intimacy and variety characteristic of the best work of the northern hemisphere. In housing it was reported that 1,000 units were being built according to Walter Neff's "Airform" method (blowing concrete over an inflated balloon), another instance of the wide interest in continuous wall and roof systems and in curved forms.

The enormous problem of reconstruction in the U.S.S.R. was proceeding under the close control of the state, and to non-Russian eyes the results seemed to lack originality and distinction. The Russian policy was to win public acceptance by employing familiar understandable symbolism. Because of shortages of transportation, local building materials were being extensively employed, with constant experimentation toward developing new techniques to make use of them.

The village of Fournah in Egypt, the work of Hassan Fathy Bey, illustrated that sensitive and elegant architectural expression was possible within a rigid economy and within a strong local tradition.

Events.—In 1947 the American Institute of Architects, for the first time, held seminars for the exchange of information on hospitals, schools and town planning. Princeton university was host to a conference of architects and planners, at which a very distinguished international group discussed the problems of the profession in an informal atmosphere. The discussions were to be published. The International Congress of Modern Architecture met, at Bridgewater in England (for the first time since 1937), and exchanged data on city planning on a world-wide basis.

Planning.—Large scale planning projects were under discussion during 1947 including the Cidade dos Motores in Brazil, La Rochelle-Pallice in France, and numerous projects in the U.S.S.R. and Great Britain. In the U.S. the replanning of large cities, such as Pittsburgh and Philadelphia, focused toward huge exhibitions, strategically installed in department stores, where they would receive more attention from the public than if they had been in the usual museum. Modern techniques of publicity, and striking installations were also effectively employed. Good progress was made in Los Angeles under the Regional Zoning act. A book, *Communitas,* by Paul and Percival Goodman, was received with unusual approval, since it contained a fresh and inspiring approach to the problems of city planning in terms of durable human values.

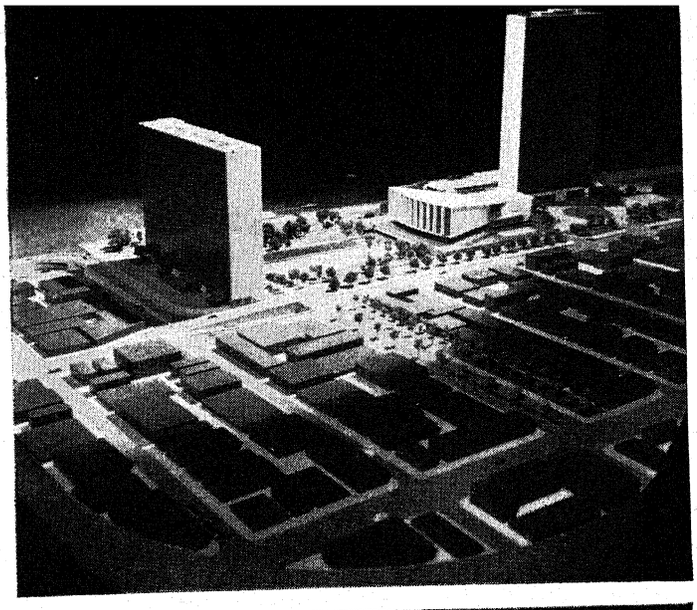
Hospitals.—The largest class of building, after housing, was the Veterans Hospital program for which about $1,000,000,000 would be spent. While still in the planning stage, the program became badly snarled in red tape but toward the end of the year was moving again. Local architects were employed, and the designs were correspondingly varied; they included conventional and progressive schemes.

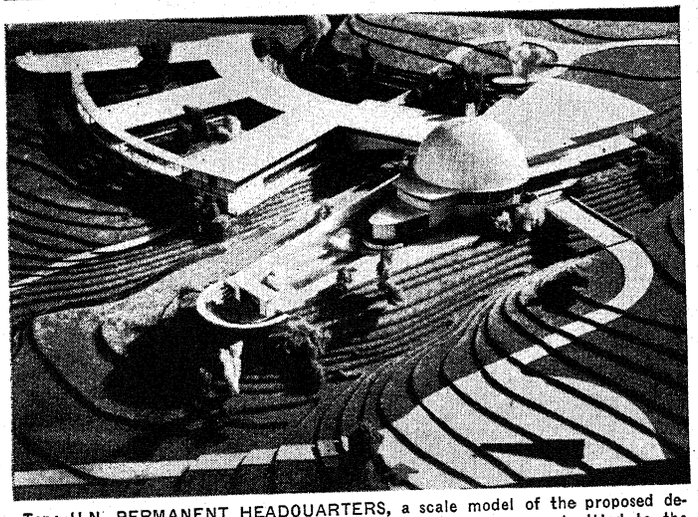
Important Buildings.—Palm Springs, Calif., saw the completion of three distinguished buildings—houses by Richard Neutra and Raymond Loewy and a tennis club by Paul Williams and A. Q. Jones, Jr. This luxury resort in the desert seemed to stimulate original, imaginative design, characterized by lightheartedness and exceptional freedom. Since resorts had, in the past, often been laboratories for new architectural growth as at Frascati, Italy, and Newport, R.I., this work might prove to be highly significant.

At Lincoln, Mass., Carl Koch built a house which carried the current romantic trend in domestic architecture to a new point, by the inclusion of a greenhouse in the main mass of the house with resulting dramatic spatial and textural contrasts. Two houses by Robert Paul Schweikher and Winston Elting belonged to another current of modern practice. Their work was strongly individual but was dominated by a note of austerity and a more rigidly formal organization of mass and space. Gordon Drake of Los Angeles was another architect whose personal handling of the modern idiom indicated that architecture was reaching a level of maturity which permitted sophisticated refinement.

At Cambridge, Mass., Alvar Aalto, the Finnish architect, was beginning the erection of a dormitory which promised to introduce new qualities into the field of collegiate architecture. The King County Central Blood bank, in Seattle, Wash., combined the almost irreconcilable qualities of inviting casualness and significant dignity. A feature of the planning was the circulation of the blood donors in, through, and out of the building. A model was photographed at each stage in the process, thus graphically illustrating the functional character of the plan. The new TVA dam at Fontana was considered by some to be an admirable solution to the problem of monumental design.

The first great architectural competition in many years was begun in 1947—the Jefferson National Expansion Memorial competition for an 80 ac. site in St. Louis, Mo. The first stage of the competition was judged in the fall and five winners, anonymous until judging of the second stage in 1948, were se-



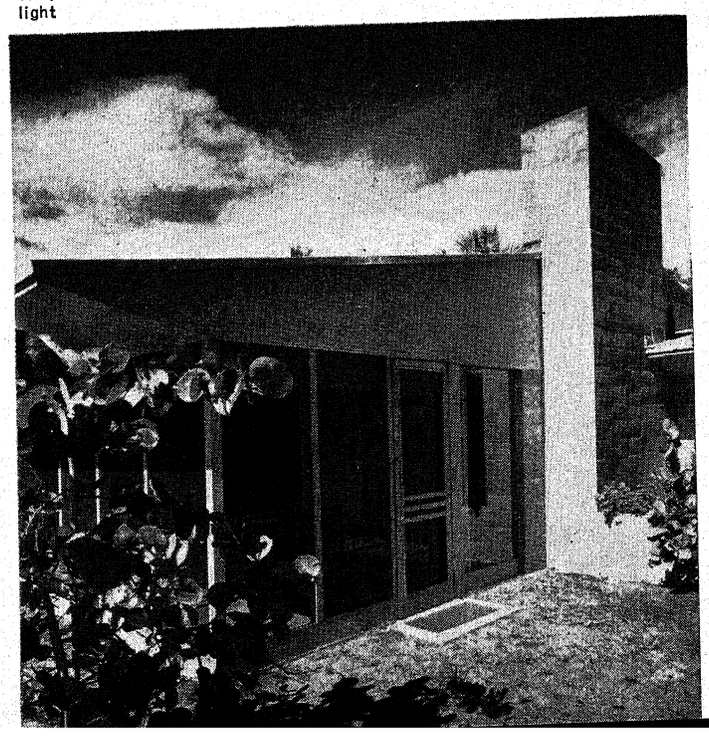


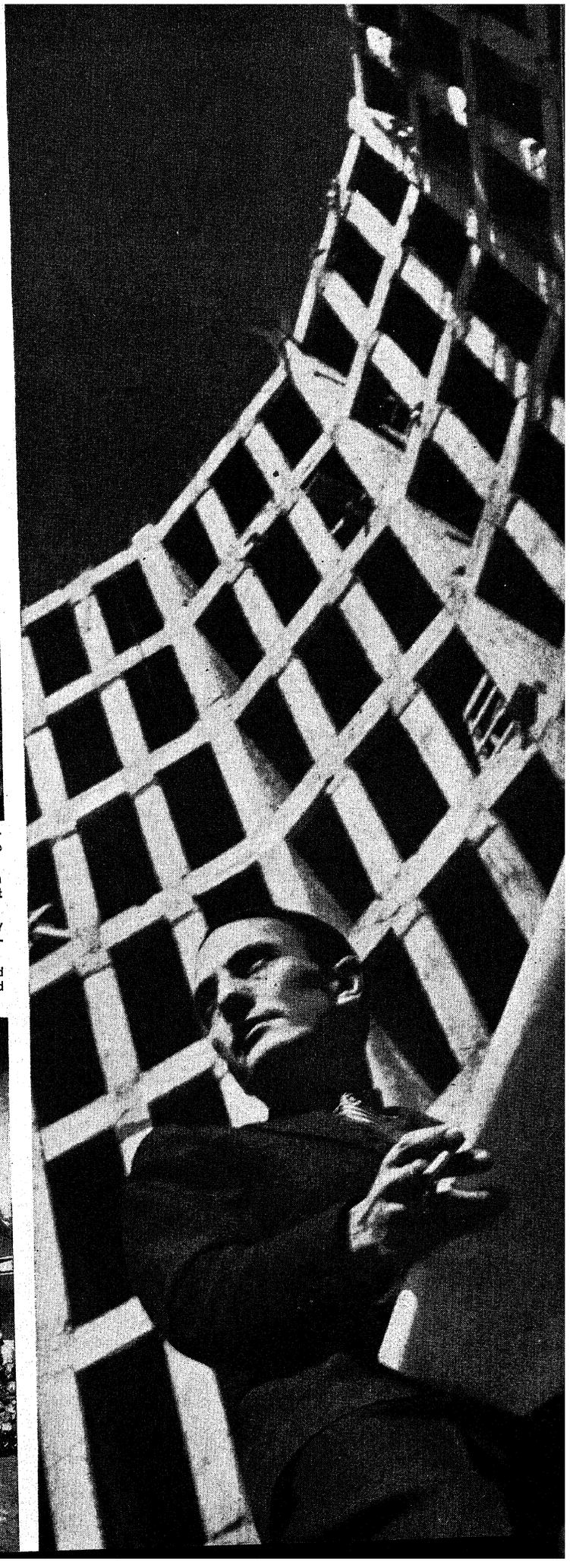
Top: U.N. PERMANENT HEADQUARTERS, a scale model of the proposed design for buildings to be erected in midtown Manhattan, as submitted to the general assembly by the U.N. Headquarters Planning office in 1947

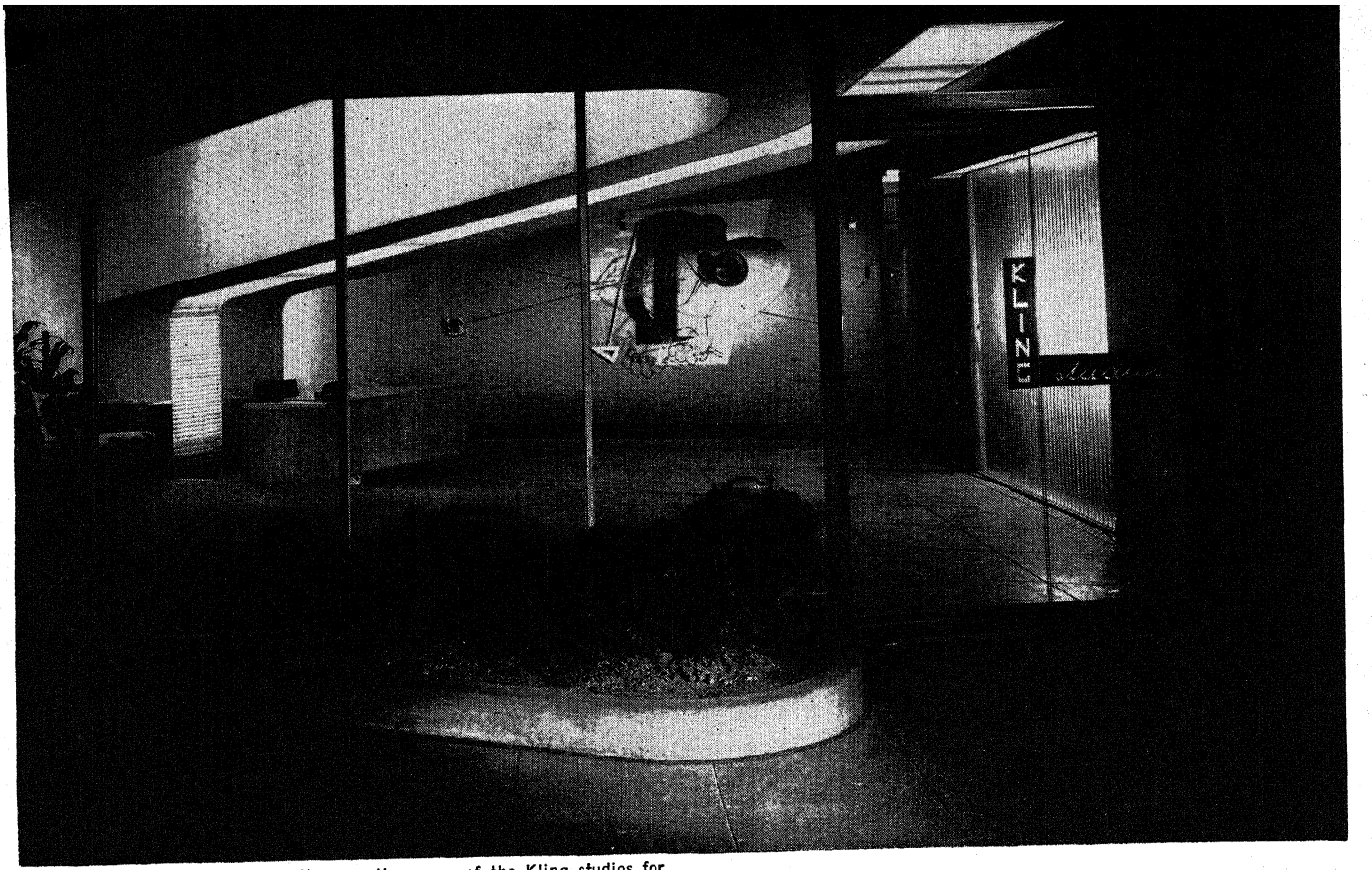
Above: ERIC MENDELSOHN'S design for the Cleveland Jewish centre, on which construction was begun in 1947. The circular temple was designed to seat 1,000 persons

Right: SEMICIRCULAR PLAZA HOTEL, under construction in Mexico City during 1947. The building was designed by Mario Pani (foreground) to contain outside rooms only

Below: PRIVATE HOME in Sarasota, Fla., designed by Ralph Twitchell and completed in 1947, featured wide, up-tilted overhangs for maximum shade and light







GLASS-WALLED ENTRANCE to the reception room of the Kling studios for commercial art. Designed by Henry P. Glass, the building was completed in Chicago in 1947

lected. The prizes, $10,000 each, were in proportion to the significance of the problem, which was to find suitable expression for monumental and symbolic ideas.

The outstanding architectural event of 1947, both for the wide interest taken in it and its significance in world events, was the design for the United Nations headquarters building in New York. The ten architects, pressed for time, decided to concentrate on a workshop for peace, intending to raise the quality of the final solution by further study after a satisfactory basic scheme had been approved. (C. L. V. M.)

Great Britain and Europe.—The development of European architecture was handicapped by shortages of labour and materials. Shortages were reflected in a concentration on those building techniques which made best use of the materials available and on labour-saving methods for the fabrication and assembly of buildings.

The technique of prestressing concrete, although not a new one, received much wider recognition. In France, where its advantages had been exploited for some time, there were numerous constructional works in progress that employed its principles. In Britain, owing to the shortage of mild steel, the technique had been applied only in the production of railway sleepers (ties). Its implications were undoubtedly of importance to architecture, although they still awaited the opportunity (and the architect) for their realization.

An outstanding steel building of 1947 was the aircraft assembly hall at Filton, near Bristol, built to house the Brabazon Mark I. Its designers were Eric Ross, David du R. Aberdeen, F. and P. N. Taylor and Brian H. Colquhoun and Partners. Covering an area of 7½ ac., with roof trusses spanning 331 ft. clear, its scale and simplicity had a magnificence seldom achieved even in less utilitarian structures.

In Denmark the new central building of Aarhus university (built just before World War II, and partially bombed) was completed by its original architect, C. F. Mueller. It was in direct line with Denmark's tradition of good brick building.

The eighth (first post-war) triennial exhibition of architecture was held in Milan during the months of June to October. A central feature was the plan for an experimental garden city at San Siro by a group of Italian architect-planners. The theme of the exhibition was "A home for everyone," and exhibits in the form of specimen furnished rooms and reconstruction projects came from Austria, Belgium, Czechoslovakia, Sweden and Switzerland. These exhibits, with their emphasis on mass-production and utility, were in sharp contrast with those of the earlier triennials where luxury had been the keynote. The exhibition clearly showed Europe's urgent preoccupation with emergency housing and house equipment. (*See* also BUILDING AND CONSTRUCTION INDUSTRY; HOUSING; TOWN AND REGIONAL PLANNING.) (I. R. M. M.)

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Archives, National. Established by congress in 1934, the National Archives preserves the valuable noncurrent records of the United States government and makes them available to the government and the people.

By the close of 1947 there were more than 833,000 cu.ft. of such records in the custody of the archivist. Ranging in date from the Revolutionary War to 1947, they came from almost every federal agency. Notable among records received in 1947 were several bodies of older records, including letterbooks, 1789–1902, and journals, 1879–1940, of the postmaster general; the records of the United States mint at Philadelphia, Pa., 1793–1899; and selected records from 52 customhouses in the United States and Alaska. Large quantities of records were also received from certain World War II agencies.

Recording as they do the growth of democracy in the United States, a number of documents from the National Archives were installed on the Freedom Train, which began a year-long tour to carry the story of their heritage to the people in more than 300 communities throughout the land. Among the documents selected were the Treaty of Paris of 1783, the Bill of

Rights, the Emancipation Proclamation and the World War II surrender papers.

To facilitate the use of records in the archivist's custody, a comprehensive guide to them was prepared and sent to press. *The National Archives—What It Is and What It Does* and *A Brief Guide to the Museum Collections in the Franklin D. Roosevelt Library* were among the year's publications.

Current government regulations that have general applicability and legal effect and descriptions of the organization and procedures of federal agencies are published by the National Archives in the *Federal Register*. The archivist of the U.S. is also responsible for the Franklin D. Roosevelt library at Hyde Park, N.Y. The papers of President Roosevelt that were in the White House at the time of his death are the property of the library by virtue of a court ruling. (S. J. Bu.)

Areas and Populations of the Countries of the World.

The political entities of the world are listed here with their areas, populations and number of persons per square mile. The latest census or official estimates are given for each country. Areas in square miles, including inland water areas, are in accordance with the boundaries for the year of the population figure. Some of the later boundary adjustments had not been recognized at the end of 1947 by the U.S. government. The subtotals for colonial groupings within continents do not carry density figures. Where two figures are given for a country, the most recent is used in the continental and world totals. This table provides a fundamental basis for country comparisons.

Areas and Populations of the Countries of the World

(For statistical details and dates see separate country and empire articles)

Name of continent and state	Area (In sq.mi.)	Population (In thousands)	Persons per sq.mi.
World total	57,566,335	2,247,361	42.8*
AFRICA	11,610,615	169,777	14.6
Belgian colony and trusteeship	925,000	14,088	
†British colonies, dependencies, protectorates and trusteeships	3,917,896	58,978	
Egypt	383,000	19,090	49.8
Ethiopia	350,000	7,000	20.0
French colonies, trusteeships, protectorates, department and metropolitan area	4,271,490	46,000	
Liberia	43,000	2,000	46.5
Portuguese colonies	794,959	9,416	
South-West Africa (mandate of Union of South Africa)	317,725	321	1.0
Spanish colonies and protectorate	134,763	1,392	
Tangier, International Zone of	232	100	431.0
Union of South Africa	472,550	11,392	24.1
ANTARCTICA	5,000,000	Uninhabited	
ASIA (exclusive of U.S.S.R.)	11,056,834	1,185,126	107.2
Afghanistan	270,000	12,000	44.4
Arabian peninsula	927,000	7,756	8.4
Bhutan	18,000	250	13.9
British colonies, dependencies, protectorates, mandate, protected state and independent state under British protection	284,554	17,224	60.5
Burma	261,749	16,824	64.3
China (35 provinces, including Formosa, Kwantung and South Manchurian railway, Manchuria and Tibet)	4,346,956	458,900	105.6
French India	197	323	1,639.6
India (before Aug. 15, 1947)	1,581,410	388,998	246.0
India, Dominion of	1,221,000	320,000	246.0
Indo-China	285,794	23,030	80.6
Iran	634,413	15,550	24.5
Iraq	116,600	4,803	41.2
Japan (1947)	146,690	78,221	533.2
Korea	85,225	24,326	285.4
Lebanon	3,470	1,200	345.8
Nepal	54,000	5,574	103.2
Netherlands Indies	735,000	72,000	98.0
Outer Mongolia	580,158	900	1.6
Pakistan, Dominion of	361,000	70,000	193.9
Philippines, Republic of the	115,000	16,971	147.6
Portuguese colonies	8,876	1,463	
Siam	198,247	15,718	79.3
Syria	72,560	2,860	39.4
Trans-Jordan	34,750	371	10.7
Turkey	296,185	18,862	63.7
AUSTRALIA and OCEANIA	3,304,637	11,693	3.5
Australia	2,974,581	7,581	2.5
Australian dependency, territory and trusteeships	183,561	1,016	
British colonies, dependencies, condominium, protectorate and protected state	24,683	472	
French colonies	9,199	111	
New Zealand	103,416	1,793	17.3
New Zealand dependencies and trusteeship	1,652	92	
United States possessions, territory and trusteeship	7,545	628	
‡EUROPE (exclusive of U.S.S.R.)	1,907,902	380,322	199.3
Albania	10,629	1,120	105.4
Andorra	174	6	34.5
Austria	32,000	6,650	207.8
Belgium	11,774	8,389	712.5
British colonies and dependencies	124	305	
Bulgaria	42,796	7,022	164.1
Czechoslovakia (1947)	49,353	12,242	248.0
Denmark (excl. Greenland, incl. Faeroe Islands)	17,109	4,071	237.9
Eire	26,602	2,953	111.0
Estonia	18,357	1,122	61.1
Finland (including Aland Islands)	130,159	4,000	30.7
France	212,737	40,518	190.5
Germany (1937 area, 1939 population)	181,742	69,317	381.4
Germany (1946)	143,245	65,911	460.1
Greece (including Aegean Islands)	51,182	7,461	145.8
Hungary	35,911	9,317	259.4
Iceland	39,768	126	3.2
Italy (1946)	119,733	45,646	381.2
Latvia	25,395	1,995	78.6
Liechtenstein	61	11	180.3
Lithuania	22,958	2,879	125.4
Luxembourg	999	282	282.3
Monaco	0.59	19	32,613.6
Netherlands	13,440	9,636	717.0
Norway (including Spitzbergen)	148,849	3,124	21.0
Poland (pre-World War II)	149,922	35,339	235.7
Poland (1946)	119,734	23,911	199.7
Portugal (incl. Azores and Madeira Islands)	35,413	8,233	232.5
Rumania	91,671	16,472	179.6
San Marino	38	15	394.7
Spain (including Canary Islands)	194,945	27,246	139.8
Sweden	173,390	6,764	39.0
Switzerland	15,940	4,450	279.2
Trieste, Free Territory of	258	341	1,321.7
United Kingdom	93,667	48,367	516.4
Vatican City	0.5	1	2,000.0
Yugoslavia (after Sept. 15, 1947)	96,200	15,713	163.3
U.S.S.R. (1939)	8,173,557	170,467	20.9
U.S.S.R. (1947 area, 1945 pop. est.)	8,443,710	192,900	22.8
NORTH AMERICA	9,387,343	204,783	21.8
British colonies and dependencies	174,175	2,881	
Canada	3,694,863	12,582	3.4
Costa Rica	19,238	772	40.1
Cuba	44,217	4,779	108.1
Danish colony (Greenland, including ice cap)	839,782	21	0.03
Dominican Republic	19,129	2,059	107.6
El Salvador	13,176	1,997	151.6
French colony and departments	1,206	584	
Guatemala	45,452	3,547	78.0
Haiti	10,748	2,719	253.0
Honduras	59,160	1,201	20.3
Mexico	767,168	22,753	29.6
Netherlands colony (Curaçao)	403	128	317.6
Nicaragua	57,143	1,095	19.2
Panama (excluding Canal Zone)	28,575	623	21.8
United States	3,022,387	144,708	47.9
United States possessions	590,521	2,334	
SOUTH AMERICA	6,855,294	102,760	15.0
Argentina	1,079,965	16,109	14.9
Bolivia	416,040	3,596	8.6
Brazil	3,286,170	48,000	14.6
British colonies and dependencies	97,161	379	
Chile	286,323	5,390	18.8
Colombia	439,714	10,343	23.5
Ecuador	104,510	3,340	32.0
French department and territory (French Guiana and Inini)	34,740	37	1.1
Netherlands colony (Surinam)	54,291	178	3.3
Paraguay	149,807	1,200	8.0
Peru	482,258	7,653	15.9
Uruguay	72,172	2,235	31.0
Venezuela	352,143	4,300	12.2

*In computing the world density the area of Antarctica is omitted.
†Includes as military trustee areas Libya, Eritrea and Italian Somaliland.
‡Areas and populations of Baltic republics included in 1947 U.S.S.R. totals.

Argentina. A federal republic in southeastern South America, the second largest on the continent. Area: 1,079,965 sq.mi.; pop. (1947 census): 8,243,659 men and 7,864,914 women, a total of 16,108,573. The population is estimated to be 97% of European (mostly Spanish and Italian) descent; the total of foreign-born population in 1940 was 2,355,900, the largest proportion of foreign-born population of any new world state. Urban population is approximately 75%. Population density at the beginning of 1944 was 12.96 per square mile. The capital and chief port is Buenos Aires (pop., 1947 census, preliminary figures, 3,150,000). Other important cities (with latest official pop. estimates) are Rosario (521,210), Avellaneda, a Buenos Aires suburb (399,021), Córdoba (339,375), La Plata (256,378), Tucumán (169,556), Santa Fé (149,926), Bahía Blanca (121,055), Mendoza (100,429) and Lomas de Zamora (100,000). Under the constitution of 1853 (the oldest in any Latin American state) Argentina includes 14 provinces and 9 territories. The government is headed by a president chosen by



JUAN PERÓN, president of Argentina (right) and Eurico Dutra, president of Brazil, are shown on May 21, 1947, as they opened an international bridge uniting their countries

an electoral college for a six-year term. The bicameral congress includes a senate of 30 and a chamber of deputies of 158 members. President in 1947: Gen. Juan Domingo Perón.

History.—Foreign Minister Juan Atilio Bramuglia on Jan. 13 denied a statement by U.S. Secy. of State James F. Byrnes that the Argentine government was not ridding the country of nazis; he called on U.S. Ambassador George Messersmith for evidence that action was being taken. A government decree on Jan. 24 authorized the buying of all businesses of former axis nationals, involving about 60 firms. Messersmith in a statement at Rio de Janeiro, Brazil, on Jan. 31, while en route to Buenos Aires, said that the Argentine government had gone a long way toward eliminating former nazis. The comprehensive five-year plan for Argentine economic development, presented to congress by President Perón in Nov. 1946, continued to attract much attention in 1947. Perón on Jan. 23 announced the retention of the Worldwide Development company of New York city to aid in effecting the plan. In an important anniversary address at the Colón Opera house on Feb. 24, he attacked communism and outlined ten essential rights for workers, including the right to jobs, adequate pay and safe working conditions. A few minutes after the broadcast of the president's address, a bomb wrecked the progovernment station Radio Libertad. President Perón on March 8 again attacked Argentine communists as well as the American Federation of Labor, a commission of which had severely criticized the Argentine government, and called for a boycott of the newspapers opposed to his regime. The following day members of the A.F. of L. delegation surveying Argentine labour conditions accused the government of using tricks, bribery, force and favouritism to make the Argentine General Labour confederation its political tool; the A.F. of L. International Labour committee rejected a proposal for collaboration with the Argentine confederation. The chamber of deputies on March 28 passed the basic features of the government's five-year plan without debate. On April 1, *La Prensa,* one of the leading Buenos Aires papers, rejected demands made by the news vendors' and distributors' union and charged it with conspiracy in the government's campaign against the paper.

The ministry of marine on April 2 announced an Argentine claim, on the basis of an expedition then in the far south, to the Melchior archipelago in the antarctic region. President Perón on April 23 led in the festive welcome to the returning antarctic expedition. Argentina took its first census in 33 years in April and May; preliminary reports indicated about 250,000 commercial and 100,000 industrial establishments. The government announced on April 24 that all of its Central American diplomatic missions would be raised to embassy rank. President Perón opened a congressional session on May 1 and announced a program of army modernization. Congress voted Perón drastic powers to reduce the high cost of living and the senate sustained the previous impeachment of three opposition members of the supreme court and the attorney general, thus removing the last remaining judicial obstacles to the Perón regime and leaving the president free to appoint others who would presumably not attempt to maintain the previous independence of the judiciary. Perón and Pres. Eurico Gaspar Dutra of Brazil met at Uruguaiana, Brazil, on May 21 to dedicate a new international bridge. On the same day 8 more former nazi agents were deported; 69 other cases remained under study at the same time. Several persons were wounded by gunfire on May 25 in Buenos Aires clashes between nationalists and communists during Liberty day celebrations. Gen. Filomeno J. Velazco resigned on June 5 as federal and Buenos Aires police chief and was succeeded by Gen. Arturo Bertollo, who had earlier been decorated by the United States for service on the Inter-American Defense board. Perón on the same day spoke on a nationwide network

in celebrations as his wife, Sra. Eva Duarte de Perón, left for Spain as the first stop on a widely publicized European tour; during Perón's broadcast he was interrupted by a mysterious radio voice calling "Death to Perón." Señora Perón on June 9 received a high Spanish decoration from Gen. Francisco Franco.

The Argentine government on June 11 denied rumoured plans to attack Brazil. On June 12 the government seized factory stocks of clothing and shoes and began application of a retail-price-fixing policy. Perón on June 18 conferred a high Argentine decoration on Ambassador Messersmith; other Argentine decorations were on July 2 conferred on the presidents of Peru, Ecuador, Haiti, Panamá and the Dominican Republic. Communists demonstrated on June 27 outside the Argentine embassy in Rome protesting Señora Perón's visit there; she was at the same time received by Pope Pius XII.

A bomb thrown in a socialist meeting in Buenos Aires on June 29 killed 1 and injured 30 persons. Police on July 1 confiscated copies of the socialist paper *La Vanguardia* for editorially criticizing the Perón regime. The following day Rodolfo Katz, an opposition editor, was kidnapped and beaten in Buenos Aires. Gunmen at La Plata failed on July 4 in an effort to kill Cipriano Reyes, leader of the anti-Perón labour bloc in the chamber of deputies. President Perón on July 6 broadcast an important speech pledging co-operation with all peace-loving nations and economic aid to wartorn countries; despite army modernization, he said, Argentina would not enter an armaments race. Foreign Minister Juan Atilio Bramuglia on June 7 addressed the Vatican and the other American foreign offices asking co-operation for peace and reconstruction. A nationalist Buenos Aires editor fled to Uruguay July 10. Señora Perón on July 23 was made a knight of the French Legion of Honour. On Aug. 5 the Swiss federal council expressed regret to Señora Perón for a stone- and tomato-throwing incident at Berne. The senate on July 25 confirmed four new supreme court appointments. A 7-day strike of 35,000 bakery workers at Buenos Aires ended Aug. 7. The Vatican on Aug. 8 denied any political significance attached to giving Señora Perón a decoration for relief work. The government on Aug. 20 suspended a Peasants' party weekly paper for attacking the United States, Señora Perón and the government. Señora Perón received a huge welcome on her return from Europe on Aug. 23. Buenos Aires police on Aug. 28 closed *La Vanguardia* for minor safety violations, but the paper went on sale on Sept. 16 in an underground edition. Two opposition weeklies were suspended on Sept. 1 and 2 because printing plants, after police warnings, refused to print them. The *New York Herald Tribune* reported on Sept. 18 that Argentina was charging needy European countries $5.90 per bushel (payable in dollars) for wheat which it bought from Argentine farmers for $1.35. Buenos Aires police on Sept. 20 seized 11 in a suspected bombing plot against Señora Perón. The president signed a woman-suffrage law on Sept. 23.

Buenos Aires police on Sept. 26 reported the closing of the underground *La Vanguardia*. More than 150,000 textile workers went out on strike on Oct. 2. Argentine Ambassador Oscar Ivanissevich announced at Washington, D.C., on Oct. 8 that his government had set up a "Marshall plan" to aid its South American neighbours. The Argentine press office simultaneously criticized the United States in its announcement that Argentina had been forced to burn more than 2,000,000,000 pesos of crops because of lack of shipping amounting to an "economic blockade." The government on Nov. 8 authorized a 20,000,000-peso fund for fighting infectious and contagious diseases. About 140,000 metal workers struck for higher wages on Nov. 13. The national economic council stated at Buenos Aires Nov. 15 that Argentina would reduce cereal prices to the world level if it could buy all its U.S. needs at factory prices. The government on Dec. 1 banned the Italian antifascist film *Open City*. Diego Luis Molinari, head of the Argentine delegation to the U.N. Trade conference, stated at Havana, Cuba, on Dec. 16 that his country was prepared to offer $5,000,000,000 in loans to "deserving" nations; the plan would involve credits repayable in up to 50 years.

Education and Religion.—Many educators were reported on Jan. 24 to be fleeing to Mexico because of the government's interference with university freedom. The government took steps to complete its intervention in the nation's universities beginning Jan. 1, 1948. School enrolment in 1946 was about 2,000,000. The literacy rate was estimated at 85%.

Finance.—The monetary unit is the peso, valued on Nov. 6, 1947, at from 20.24 cents to 26.81 cents, U.S. currency, depending on the type of exchange. The 1948 budget, as proposed originally early in 1947, involved ordinary budgetary expenditures of 3,092,000,000 pesos and extraordinary expenditures of 1,146,000,000 pesos. When the deputies finally voted it on Sept. 29 it had been increased, including sums for autonomous agencies, to the record figure of 6,400,000,000 pesos. Central bank holdings on April 30 were $1,472,000,000 as against $1,729,000,000 on Dec. 31, 1946. President Perón stated on Aug. 20 that the per capita debt was only 22 pesos and the gold reserve totalled 1,000 tons. A growing shortage of dollar exchange developed in midyear; the government on July 15 suspended credit permits for import of luxury goods in order to conserve foreign exchange. The government in May and June began a campaign against inflation; an antispeculation law was passed May 3 and the central bank on Aug. 9 restricted credit on speculative ventures as an inflationary curb. Early in June congress created a mixed capital institute for securities investment, gave it a capital of 100,000,000 pesos and authorized it to engage in all kinds of transactions in bonds and shares to "regulate, order, and strengthen the securities market." On June 13 congress approved a bill for creation of a mixed Argentine reinsurance institute to promote Argentine over foreign insurance companies. The stock market index reached a record high of 382 in April as against 100 in 1943. All bans on foreign investments were lifted July 6. The government on July 25 prohibited further use of foreign exchange for imports of newsprint, although this was interpreted to have political as much as economic motivation. It was reported on Aug. 10 that the exchange value of the peso had dropped more than 10% in relation to the dollar. The central bank on Aug. 21 halted all new imports pending a study of British suspension of sterling conversion; Argentina resumed trade in sterling on Sept. 3. The government created a national economic council on Sept. 3 to co-ordinate economic planning, partially in connection with the five-year plan. The government on Oct. 10 signed a pact giving Rumania a $25,000,000 credit, and 3 days later Italy was granted

SEÑORA PERÓN, wife of the Argentine president, is shown leaving St. Peter's cathedral in Rome, Italy, with a Vatican dignitary during her European visit in the summer of 1947. Señora Perón was granted a papal audience on June 27



a 700,000,000-peso credit for purchase of food and raw materials.

Trade and Communications.—Trade in 1947 was characterized by an increasing degree of governmental control, especially through the I.A.P.I. (Instituto Autónomo de Producción y Industrialización), and a tendency for lowered production to have a delayed effect on trade. Quebracho extract exports in the first 4 months of 1947 were 71,691 metric tons (same period in 1946: 90,414 tons). Wool exports from Oct. 1, 1946, to March 31, 1947, were 72,008 metric tons (same period in 1945–46: 125,671 tons); of the 1946–47 exports, the United States took 37,256 tons. Cotton exports in the first 5 months of 1947 were 5,864 metric tons (same period in 1946: 18,174 tons); the chief markets were the United Kingdom 2,094 metric tons (same period in 1946: 14,592 tons); the Netherlands 1,912 tons (1946: none); Bolivia 1,021 tons (1946: 541 tons). Total foreign trade in Sept. 1947 reached a record figure of 1,029,000,000 pesos. Hide and skin exports in 1946 showed general increases over those for 1945; they were partially itemized as follows (with 1945 figures in parentheses): cattle 6,890,249 (4,443,257); horse 433,698 (344,906); goat 3,114 bales of 815 lb. (2,178 bales); kid 550 bales (212 bales); sheep 53,607 bales of 880 lb. (27,057 bales); pickled hog 231 short tons (795 short tons); other pickled skins 4,738 short tons (6,638 tons); tanned hides 14,959 short tons (15,284 tons). Imports of petroleum and products in 1946 were 22,547,100 bbl. (1945: 3,658,168 bbl.), 7,232,000 bbl. of crude oil and 14,451,800 bbl. of residual fuel oil; the chief sources were the Netherlands West Indies (11,132,900 bbl.), Venezuela (8,638,400 bbl.) and the United States (1,018,800 bbl.). Imports of rubber in the first 3 months of 1947 were 8,007 long tons.

The year was an active one as far as trade agreements of various kinds were concerned. Argentina and Chile concluded an important one on Dec. 13, 1946, which did not take effect until 1947. It provided for an Argentine investment of $80,430,000 in industrialization projects in Chile, especially those affecting copper, nitrates, iron and steel, coal and wood and electric power; Chile guaranteed the sale of the excess of such products, after supplying its own needs, to Argentina. A like sum of $80,430,000 was pledged as a loan for Chilean public works construction, chiefly railways and roads, of kinds which would promote Argentine-Chilean commercial exchange. The agreement also established a revolving credit of $26,800,000 to aid Chile in financing its unfavourable trade balance with Argentina. It further provided for elimination of tariffs between the two countries except on competitive items. Argentina later (March 8) negotiated a similar but smaller-scale pact with Bolivia. A second agreement with Chile, July 12, provided for Argentine purchase of Chilean nitrates and abandonment of Argentine manufacture of synthetic nitrate. An agreement was concluded in May to exchange 9,000 metric tons of linseed oil for Canadian newsprint. The Anglo-Argentine trade agreement (commonly called the Roca-Runciman agreement) expired at the end of 1946 after 14 years; it was extended indefinitely from Jan. 1, 1947. A commercial and financial agreement with France was signed at Paris on Aug. 23; by its terms Argentina set up a 600,000,000-peso rotating fund against which France could buy Argentine products for 3 years. A Venezuelan agreement for purchase of Argentine foodstuffs was signed late in 1947. The establishment early in 1947 of the policy of concentrating all exports of agricultural products in the government's Argentine Trade Promotion institute gave the government much more control over trade policies; it affected such exports as corn, wheat, meat, vegetable oils, birdseed, oats, barley, rye, sorghum, cattle hides, pigskins and sheepskins; profits were intended to help finance the five-year plan. The chamber of exporters reported on Sept. 26, however, that Argentina had been ousted from many foreign markets because the government had entered the export trade. The government on Sept. 3 resumed the licensing of some chemical, medical and industrial imports and on Sept. 18 it resumed the shipment of canned beef to Great Britain and relaxed some earlier curbs on Spanish, Belgian and French imports. Port congestion was a problem at Buenos Aires in the second quarter of the year and the port was tied up on Sept. 27 by a strike of 10,000 dock workers asking higher wages. The Argentine delegation to the U.N. Trade conference at Havana, Cuba, in December took a generally critical position toward U.S. proposals there.

Argentina continued in 1947 its policy of repatriating foreign capital invested in Argentine transportation. The government on Dec. 17, 1946, purchased 3 French-owned railways, totalling 2,648 mi., for 182,796,174 pesos. A development of consummate importance was the government's purchase on Feb. 12 of the extensive British-owned share of the Argentine railway network, plus associated companies, for £150,000,000. The price included £135,500,000 for 16,000 mi. of railway and £14,500,000 for related properties; the total represented only about one-third of the original investment, but there had been no return on the bulk of the capital for about 20 years. These properties were the largest block of foreign investment in Argentina. The payment was made largely with blocked sterling and was expected to wipe out the Argentine sterling balance in London. The government stated it would make no immediate changes in management. The government planned to increase the railway construction budget from 80,000,000 pesos to 110,000,000 pesos annually under the five-year plan.

Agriculture.—Estimates of production of various agricultural crops and products in 1946–47 (in metric tons) included: wheat 6,024,000; oats 684,500; rye 522,200; barley 1,171,400; linseed 1,034,300 (1945–46: 964,100); cotton fibre 67,800 (1945–46: 61,687); sugar cane 7,452,800 (down 7.3% from 1945–46); sugar 600,000; wine grapes 1,258,700 (up 14.5% from 1945–46, but just enough to supply domestic demands); sunflower seed 894,000; peanuts 115,600 (down 17% from 1945–46); potatoes 852,000 (down 30% from the preceding 5-year average); rice 160,500 (up slightly from 1945–46); oranges 257,500 (1945–46: 211,700); tangerines 83,000 (1945–46: 77,000); lemons 44,000 (1945–46: 35,200); grapefruit 6,100 (1945–46: 3,600). The government concluded an agreement with Italy on Feb. 21 for stimulation of agricultural immigration by which it hoped to obtain 5,000 farm workers monthly. On March 19 Argentina refused to join the United States, Canada and Australia in setting a $1.25–$1.80 price scale for exported wheat. The government early in the year undertook to acquire 2,317 sq.mi. of land in the main cropping zones for early subdivision; it also planned to impound water to irrigate an additional 618 sq.mi. in the Rio Negro valley. Seedlings for 500,000 mulberry trees were planted in 1947. President Perón on Oct. 11 launched a campaign against locust pests.

Manufacturing and Mining.—President Perón stated on Aug. 20 that industry had increased 500% from the time he took office, but *La Nación*, prominent Buenos Aires paper, reported Aug. 25 that production had dropped 40% in the preceding few months, partly the result of higher wages and salaries which made absences possible. Perón on Aug. 23 outlined a program to penalize absences and output drops and at the same time stabilize prices and adjust wages to living costs. It was planned in 1947 to begin manufacture of railway tires and axles at Córdoba; realization of the five-year plan was reported to be somewhat slowed because of a shortage of freight cars in which to haul cement. Sulphuric acid production in 1946 was 66,840 metric tons. Production of yarn in 1946 included 61,619 metric tons of carded and 2,758 tons of combed; cotton yarn production in the first 3 months of 1947 was 14,071 tons. Hosiery manufacture in 1946 totalled 76,709,340 pairs. The national corporation for production of rubber began operations in 1947; it hoped by 1951 to produce from 15% to 25% of Argentina's rubber needs, chiefly from guayule. Argentina concluded an important agreement with Uruguay on Dec. 30, 1946, for a large-scale hydroelectric project on the Uruguay river at the Salto Grande falls designed to assure low-cost electricity and also water for irrigation for both countries; a joint technical commission was to supervise the project. The city of Rosario announced plans to expropriate one of Argentina's largest power plants when its concession expired in 1952. On Nov. 3 the government bought the British-owned Smithfield Argentine Meat company's packing plant at Zarate for 25,000,000 pesos.

Production of crude oil in 1946 was 20,924,246 bbl. (1945: 23,816,347 bbl.). Crude-oil runs to stills in 1946 totalled 27,673,000 bbl., of which 20,808,000 bbl. were Argentine oil and the rest foreign. Production of petroleum by-products (in barrels) in 1946 included: aviation gasoline 101,000; motor fuel 8,366,000; kerosene 3,345,000; distillates 2,511,000; residual fuel oil 9,673,000; others 3,055,000. On Feb. 2 uranium was reported discovered in Mendoza and San Luis provinces. (*See* also FASCISM.)

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Arizona. The "Grand Canyon state" lies in the southwestern part of the United States; the Colorado river forms most of the western boundary. Area, 113,909 sq.mi. The provisional census of July 1947 estimated the population at 637,000. The 1940 census gave rural population 65.2%; urban 34.8%; native-born whites 78.1%; foreign-born whites (including Mexicans) 7.3%; Negroes 2.9%; other races (mostly Indians) 11.5%. The capital is Phoenix with an estimated population (1947) of 90,000 (metropolitan area 200,000); chief cities with their estimated population: Tucson 50,000 (metropolitan area 100,000); Yuma 11,500; Mesa 11,000; Douglas 10,000; Flagstaff 9,000; Prescott 9,000; Winslow 8,000; Glendale 7,500; Globe 7,000.

History.—The state officials (1947) were: chief justice, Rawghlie C. Stanford; governor, Sidney P. Osborn; secretary of state, Dan E. Garvey; treasurer, William T. Brooks; attorney general, John L. Sullivan and Evo de Conceni (appointed Dec. 13); superintendent of public instruction, Nolan D. Pulliam and L. D. Klemmedson. The regular session of the 18th legislature met in Jan. 1947 and two special sessions in June and July. Instead of two congressmen-at-large, Arizona was divided into two congressional districts with definite provision for a third when population required. Attempted legislation to control ground water for irrigation was defeated by various interested groups to the great concern of those fearing the constantly lowering water level. On Dec. 2, 1947, Governor Osborn announced three special sessions for early in 1948, the second to consider a ground water code, since previous attempts during the year never emerged from committees. The governor's message of Jan. 13, 1947, charged the power interests with responsibility for power deficiencies, and one special session (call of Dec. 2, 1947) was to deal with possible better protection of consumers' interests. Social security was another controversial issue, there being an appropriation of $10,000 in the regular session, increased to $40,000 in one special session, for an investigation of local and state administration. The special session (called Dec. 1947) was to secure more satisfactory legislation on the issue.

Education.—The net enrolment and the number of teachers in the public schools for 1946–47 stood respectively as follows: elementary schools 102,192 and 2,739; high schools 26,961 and 936. There were about 50 private and parochial schools.

Social Insurance and Assistance, Public Welfare and Related Programs.—In Sept. 1947 the state department of social security and welfare aided 19,382 persons, and the state appropriation was $5,650,193. Other appropriations for 1947 were: industrial school $174,300; juvenile girl offenders $97,630; prison $276,315; state hospital for insane $1,086,900; pioneer home $103,150. An appropriation was made to organize a colony for defective children.

Communications.—Arizona highways in 1947 were as follows: state highway mileage 3,765; county roads 15,543; forest, Indian reservation and military roads 9,795. Railroad mileage was 2,651; number of air bases for interstate travel 5; number of telephones 108,511.

Banking and Finance.—National banks in Oct. 1947 had deposits of $283,478,162; loans and discounts $113,329,172; U.S. government securities $105,936,274. State banks had deposits of $107,959,748; loans and discounts $24,733,060; U.S. government securities $59,961,463.

Agriculture.—The year 1947 was the driest in 50 years, the irrigation reservoirs being empty and the ground water level lowered.

Table I.—*Leading Agricultural Products of Arizona, 1947 and 1946*

Crop	1947 (est.)	1946
Wheat, bu.	588,000	567,000
Oats, bu.	392,000	336,000
Sorghum grain, bu.	1,750,000	1,872,000
Corn, bu.	352,000	352,000
Cotton lint, bales	210,000	158,000
Grapefruit, boxes*	4,100,000	4,100,000
Oranges, boxes*	1,210,000	1,200,000
Horses and colts, head†	71,000	72,000
Cattle and calves, head†	921,000	949,000
Sheep and lambs, head†	462,000	515,000

*Year ended July 31, 1947.
†Number on farms and ranches, Jan. 1, 1947.

Manufacturing.—Less than 9% of the population of Arizona were engaged in manufacturing during 1947, there being fewer than 400 establishments, these being mostly lumber mills and producers of food articles.

Table II.—*Mineral Production of Arizona, 1946*

Products	Weight	Value
Copper, lb.	578,446,000	$93,708,252
Gold, oz.	79,024	2,765,840
Silver, oz.	3,268,765	2,641,162
Zinc, lb.	87,330,000	10,654,260
Lead, lb.	47,860,000	5,216,740

Mineral Production.—Arizona ranks first of the states in the production of copper, third in silver, and fifth in gold. It was estimated that the mineral production for 1947 would exceed all records. (H. A. H.)

Arkansas. Arkansas is an inland state in the south central United States, admitted to the union in 1836. Area 53,102 sq.mi., 377 of which are normally under water.

The population (1940) of 1,949,387 was an increase of 5.1% over that of 1930. The state lost 262,609 in population during World War II (U.S. census estimates) because of migration to other areas for war work. The population had recovered to 1,903,000 by July 1, 1947 (U.S. census estimates). Most returning people did not go back to farms, but stayed in towns and cities, finding jobs in new and expanded industries. The census of 1940 shows 53 towns and cities, 431,910 urban and 1,517,477 rural population. The Negro population, 506,550, was chiefly in the southeast half of state. Capital: Little Rock (pop. 1940, 88,039). Other cities with populations (1940 census): Fort Smith, 36,584; Hot Springs, 21,370; Pine Bluff, 21,290; North Little Rock, 21,137.

History.—The principal state officers during 1947 were Ben T. Laney, governor; Nathan Gordon, lieutenant governor; C. G. Hall, secretary of state; J. C. Humphry, auditor; J. V. Clayton, treasurer; Guy E. Williams, attorney general; C. A. Rankin, land commissioner.

The year 1947 was marked by a 21% increase in state tax revenues, reflecting increased per capita income, larger business volume and higher prices. Appropriations for public service were increased by the 1947 legislature. Provision was made for broader programs of resource protection and development, public schools, buildings and operating budgets for state educational and charitable institutions.

Education.—Total expenditures, state and local, for public schools in the school year 1946–47 were approximately $27,000,000. Estimated expenditures for 1947–48 were $30,000,000. Total attendance in the 1946–47 school year was (approximately) 325,500 of which 248,000 were white and 77,500 Negro. The per capita expenditure for current expenses was approximately $71.61. Teachers numbered 10,390 white and 2,612 Negro for a total of 13,002. The commissioner of education was Ralph B. Jones, beginning his eighth year Jan. 1, 1948.

Social Insurance and Assistance, Public Welfare and Related Programs.—The state in 1947 maintained 30 charitable and correctional institutions, including state penitentiary farms, state farm for women, girls' industrial school, boys' industrial school, Negro boys' industrial school, state hospital for nervous diseases, tuberculosis sanatoriums, school for the blind, school for the deaf, Confederate veterans' home and children's home and hospital. All these agencies received increased operating budgets for 1947 and 1948. The 1947 legislature appropriated approximately $7,000,000 per year of state funds for welfare grants and operating costs.

Communications.—Highways, local and state, totalled about 75,000 mi. in 1947. Construction contracts let for state highways in 1947 totalled $16,740,783. The paved and gravelled mileage on the state system at the end of the year was 9,269 mi.; unimproved 81 mi. Total highway revenues were about $23,500,000, a new high record. Aid to county roads and city streets from state sources was increased $3,000,000 per year. Railway mileage remained the same, about 5,000 mi. Plans for expanded airport facilities were perfected and were ready for construction in 1948. Flood control projects on the principal rivers were active during the year, with the largest funds in history available from federal sources.

Banking and Finance.—There were 221 state and national banks, with combined assets as of Dec. 31, 1946, of $829,000,000 (compared with $227,000,000 on Dec. 31, 1939). Deposits totalled $783,000,000.

The state treasurer reported a net bonded debt Dec. 31, 1947, of $123,279,650, a reduction of $5,415,158.54 in principal during the year. The treasury balance at the end of 1947, including trust and sinking funds, was $51,500,000.

Agriculture.—The total value of agricultural production for 1947 was estimated at $500,000,000 to $525,000,000. Production is widely diversified. The chief products are cotton, livestock, rice, corn, soybeans, peaches, chickens, berries, truck and dairy products. During the year the canning industry attracted two can factories to supply the canneries.

Manufactures.—The total manufacturing output for 1947 was estimated at $650,000,000. A three-year gain in new industries and important expansions, reported by the Arkansas Economic Council-State Chamber of Commerce, included 1,500 new plants, with a capital investment of $100,000,000, providing 30,000 jobs, with an annual payroll of $50,000,000. Lumber production for 1947 was estimated at 1,600,000,000 board feet. The value of the forest products industry was estimated at $159,000,000.

Minerals.—The value of mineral production for 1946 was $64,955,000 (severance tax figures). It included: barite, 288,963 short tons; bauxite, 1,199,003 long wet tons; cement, 284,865 barrels; chert, 17,990 short tons; raw clay, 263,812 short tons; coal, 1,365,147 short tons; dolomite, 48,709 short tons; gravel, 1,704,040 short tons; gypsum, 27,624 short tons; manganese and manganiferous ore, 2,384 short tons; natural gas marketed, 48,000,000,000 cu.ft.; natural gasoline, 1,098,353 bbl.; condensate, 39,337 bbl.; butane and propane, 826,317 bbl.; novaculite, 1,711,705 lbs.; petroleum, 28,367,496 bbl.; glass sand, 191,780 short tons; construction sand, 1,234,457 short tons; limestone dimension stone, 852 short tons; crushed sandstone, 656,112 short tons; novaculite for ballast, 77,352 short tons; tripoli, 830 short tons. (C. F. Bs.)

Armies of the World. In the second year after the end of World War II, more than 15,000,000 men remained mobilized in the armies of the world. Two factors contributed to the maintenance of land forces of extraordinary size in 1947. Tension between the Soviet Union and the United States accounted for the maintenance of large



"GUINEA PIG" testing a gas mask for U.S. army Task Force "Furnace" near Yuma, Ariz., in 1947. Twelve such volunteers wore various types of masks at their regular duties for an hour each day in 120° heat and then reported on their feasibility

armies by Turkey, Great Britain and the United States that otherwise would have been greatly reduced in size. Internal unrest and colonial troubles, or the threat thereof, were responsible for the size of the armies of China, Spain, India, Pakistan, the Netherlands and France.

With the armies of Germany dispersed, the land power of the Soviet Union assumed undisputed supremacy on the landmass of Europe-Asia. The number of men under arms in China exceeded that of Russia, but the Chinese forces were split by the civil war between the communists and Kuomintang. Even a united Chinese army, although possibly superior in numbers, would have been no match for soviet experience, equipment and training.

The following table gives the comparative strength of the armies of the great powers in 1947:

Country	Divisions	Active Force	Reserves
U.S.S.R.	200	3,800,000	7,000,000
United States	13	670,000	6,000,000
China	350	5,750,000	
Great Britain	20	650,000	2,000,000
France	15	430,000	2,000,000

Disposition.—With the exception of China, whose forces were engaged in civil war, all of the great land powers had the bulk of their troops committed to duties outside the homeland. The Soviet Union had 1,500,000 to 2,000,000 men on occupation duties in Europe and the far east. The United States, with a system of voluntary enlistment, was fully extended to keep its occupation forces in Germany, Austria, Italy, Japan and Korea and its garrisons in the Caribbean and the Pacific Islands up to strength. Great Britain, although in the course of withdrawing its forces from Italy, India, Egypt and Palestine, maintained a large force in Germany with smaller groups in Austria and Italy. The French army was committed to occupation duties in Germany and Austria or occupied with colonial difficulties in Madagascar, Indo-China and Morocco. During the course of 1947, the French were forced to call up about 200,000 reserves because of internal troubles in metropolitan France.

Training.—During 1947 only the Soviet Union was able to place in operation an effective peacetime system of military training. China's forces had the costly but practical training of civil war. Great Britain, France and the United States were forced to suspend normal training activities as the bulk of their forces were committed to occupation or colonial duties.

Equipment.—A considerable proportion of the military expenditures of the great powers in 1947 was allocated to the development of new equipment. The atom bomb, guided missiles and supersonic aircraft interposed new factors to be reckoned with in developing land armies. Firepower of infantry units was greatly increased by the development of recoilless, light artillery weapons. Larger, faster and more heavily armed tanks were under development by all powers. The Soviet Union and the United States experimented in arctic equipment since that was the area commonly contiguous.

Organization.—All the major powers showed concern with the development of land forces transportable by air. This conception was combined with an emphasis on armoured striking forces of high speed and considerable firepower designed for quick break-through thrusts. In most armies, as a result of experience in World War II showing the necessity for the close integration of infantry with armour, the infantry division was strengthened by the addition of component armoured units as well as organic anti-aircraft units. The rifle platoon's firepower was increased by the addition of more man-carried automatic weapons. The squad reverted to its prewar size.

United States.—The wartime peak strength of 89 divisions and some 4,500,000 men of the United States army had dropped by 1947 to the equivalent of 13 divisions and 670,000 men. As the only major power without peacetime conscription, the United States was hard pressed to keep its units manned through voluntary enlistments. Occupation commitments delayed the army from completing its peacetime organization which called for 11 regular fully equipped combat divisions. This small regular force "on paper" was to be backed by 24 national guard and 23 reserve divisions, all of which could be mobilized in a year, giving the army a strength of 58 divisions one year after M-day. At the year's end this program was still largely in the recruiting stage.

Disposition.—During 1947 the evacuation of Italy, in accordance with the peace treaty, reduced the overseas commitments of the United States to 5,000 troops in Trieste, 10,000 in Austria, 105,000 in Germany and 150,000 in Japan and Korea. In the United States, two understrength regular army divisions, the 82nd airborne at Fort Bragg, N.C., the 2nd infantry division and elements of 2nd armoured at Camp Hood, Tex., were supplemented by four units that existed primarily on paper: the 3rd, 4th and 9th infantry and 3rd armoured divisions.

The organization of the national guard and the reserve divisions began to take the following planned disposition:

1st army—Governors Island, N.Y.
National guard—76th, 77th, 94th and 97th infantry and 98th airborne divisions
Reserve—26th, 27th and 43rd infantry and 50th armoured divisions plus one undesignated

2nd army—Baltimore, Md.
National guard—28th, 29th and 37th infantry divisions
Reserve—79th and 83rd infantry and 80th and 100th airborne divisions

3rd army—Atlanta, Ga.
National guard—30th, 31st and 48th infantry divisions
Reserve—81st and 87th infantry and 108th airborne divisions

4th army—San Antonio, Tex.
National guard—36th, 39th and 45th infantry and 49th armoured divisions
Reserve—90th and 95th infantry and 22nd armoured divisions

5th army—Chicago, Ill.
National guard—32nd, 33rd, 34th, 35th, 38th, 46th and 47th infantry divisions
Reserve—85th, 89th, 102nd and 103rd infantry divisions and 21st armoured and 84th airborne divisions

6th army, San Francisco, Calif.
National guard—40th and 41st infantry divisions
Reserve—91st, 96th, 104th infantry and 19th armoured divisions

Training.—During 1947 training in the United States army was devoted almost entirely to basic training and the schooling of enlistees for occupation duties. Comprehensive training programs were being developed for the reserve and national guard, and the army developed its plans in the event that the congress might authorize and implement universal military training.

Equipment.—Like the Soviet Union and Great Britain, the United States devoted a considerable amount of money to the development of guided missiles. Equipment for the ground forces under development included new types of amphibious vehicles, a new heavy tank to replace the General Pershing (which was to become the medium tank of the future), recoilless artillery and heavier self-propelled artillery.

Organization.—The departments of the army, navy and air force were created in 1947 as separate entities but subordinate to a common department of national defense. During the year the United States army made known its plans to reorganize both the infantry and armoured divisions. The new infantry division numbered more than 17,000 men, an increase of 3,000 over the World War II division. A tank battalion and an anti-aircraft artillery battalion were included as organic parts of the division. The firepower of the divisional artillery was increased 50% by the addition of 2 more howitzers to each of the 12 firing batteries. The infantry squad was reduced from 12 to 9 men. A 4th company and a bridge platoon was added to the engineer battalion.

The new-type armoured division included three equal-strength combat commands instead of the former organization of two



U.S. ARMY'S TASK FORCE "FRIGID" using a dog team to haul a "casualty" to a helicopter for evacuation during a mock rescue party in Alaska early in 1947

commands with an understrength reserve command. An entire battalion of infantry was added to the division as well as a heavy tank battalion. A new artillery battalion added 18 self-propelled 155-mm. howitzers to the firepower of the division. An anti-aircraft artillery battalion was added, composed of 32 self-propelled quadruple .50-calibre machine guns and 32 self-propelled dual 40-mm. guns. The tank-destroyer battalion was dropped. The half-track personnel carriers were eliminated, and 530 full-track personnel carriers became standard. The new-type division would have 325 medium tanks plus the battalion of heavy tanks.

Great Britain.—The strength of the British ground forces declined during the year to approximately 650,000, of which more than half were located outside the United Kingdom. The serious economic crisis of the country forced a continued attrition of military manpower in order to obtain essential labour for industry. The British government was under constant pressure to make even more drastic cuts in the armed services. Great Britain continued conscription and inducted approximately 190,000 men into the army during the year for a service of 18 months. After compulsory service each man was required to serve six years in the reserves.

Disposition.—During 1947 Great Britain continued to withdraw more troops from overseas commitments, although a large proportion remained on occupation duties at the end of the year. British forces in Germany were reduced to approximately 125,000 men. The 20,000 in Italy completed withdrawal in December in accordance with the terms of the Italian peace treaty, although some 5,000 remained in Trieste in conjunction with U.S. forces. Another 5,000 troops remained in Greece but were scheduled for early withdrawal, and the 70,000 in Palestine and the 75,000 in India were scheduled to be completely withdrawn during the first half of 1948.

Training.—Training, to a large part, was carried on by the army of the Rhine in Germany, although the first postwar manoeuvres were held in Great Britain. Emphasis was placed on airborne operations and armoured penetrations. Exercise "Longstop," held in the fall of 1947, posed the problem of capturing an airfield with two battalions of paratroops reinforced by one battalion of air-transported infantry.

Equipment.—Like the other great powers, Great Britain concentrated on the development of equipment necessitated by the advent of atomic power and guided missiles. Most of this work was carried on in close co-operation with the United States, and steps were taken to standardize the ground force equipment of the two countries.

Organization.—On the top level, Great Britain instituted an organizational change similar to unification in the United States. The three service ministers were subordinated to a minister of defense, and a defense committee was created similar to the U.S. national security council.

U.S.S.R.—Although the Soviet Union demobilized at least 30 classes of conscripts after the end of World War II, the red army still maintained up to 3,800,000 men under arms in 1947. Demobilization of the red army was carried forward on a systematic and selective basis, with basic infantrymen quickly released while technicians and armoured force troops were retained. The result gave the Soviet Union an army with special skill in armoured warfare. Of the ground forces 2,000,000 were in the Soviet Union, with the remainder on occupation duties. This level of strength would probably diminish slightly as occupation forces were reduced. One of the cardinal points of the latest soviet five-year plan provided for the strengthening and maintaining of the armed forces.

The red army maintained a professional cadre of approximately 2,000,000 officers and men. In addition, 800,000 to 1,000,000 men were being conscripted into the army each year for a two-year period of service after which they reverted into the reserve. By this method the Soviet Union was building up a trained reserve which by 1955 would amount to 15,000,000–20,000,000 men.

Disposition.—The actual disposition of the soviet armies was one of the secrets most carefully guarded by the Kremlin. During 1947 the red army completed the replacement of the bulk of its combat veterans on occupation duties with new conscripts (called by the Germans "Stalin Youth") who had been rigorously indoctrinated with Marxist philosophy so as not to be contaminated by contact with the outside world. The combat veterans, upon returning to the U.S.S.R., were reindoctrinated and screened before being discharged or placed in the professional cadre.

From 1,000,000 to 1,500,000 troops, 75–80 divisions, were

engaged in occupation duties in Europe, located in eastern Germany, Poland, Rumania, Bulgaria, Austria and Hungary. Another 250,000, approximating 12–15 divisions, were on duty in northern Korea. Instructional groups remained in Yugoslavia, and many officers in Polish uniform were in reality Russians. Hundreds of thousands of discharged soldiers put on civilian clothes and became part of the civilian communities of the satellite countries.

Probably the most accurate disposition of the soviet forces in the U.S.S.R. was reported by a dissident soviet general officer to the North American Newspaper alliance in Paris. This placed 6 soviet army commands of 20 or more divisions each, in the following locations:

Army	Headquarters	Commander
Army of the north	Leningrad	Marshal Klementiy Voroshilov
Western army	Minsk	Marshal Konstantin Rokossovsky
Army of the south	Odessa	Marshal Georgi K. Zhukov
Caucasian army	Tiflis	Marshal Ivan C. Bagramyan
Turkestan army	Tashkent	Marshal Semyon K. Timoshenko
Far eastern army	Vladivostok	Marshal Rodion Y. Malinovsky

Training.—By virtue of the size of the occupation forces maintained by the Soviet Union, the red army was able to conduct training exercises in the occupied areas in divisional and corps strength. These exercises featured the use of massed armour and stressed individual initiative. The basic training of the Russian infantryman was expanded. The training of the Russian soldier had heretofore been more narrow than that of the British Tommy or the American G.I. The soviet wartime infantryman learned only discipline, political ideology, his weapon (usually the Russian tommy gun) and squad and platoon tactics. Only a smattering of other subjects such as gas defense and first aid was taught. This narrow training, along with a lack of general culture, was manifest when soviet troops assumed the role of occupying forces in Europe. Continuing a trend started before World War II and accentuated by experience in the war, the Soviet Union devoted considerable attention to the development of a professional corps of officers. Officers were given new privileges, higher pay and great authority. The uniform and traditions of the tsarist officer class were gradually revived. During the war Alexander Suvarov and Mikhail Kutusov became recognized historical heroes, ranking only below Lenin himself. Thus was pitched a new keynote for the 1947 soviet armies.

Equipment.—The Soviet Union spent more than $1,225,000,000 in 1947 on military research. An additional $9,000,000,000 to $10,000,000,000 was spent on new equipment. A considerable proportion of the allotment to research was spent on atom bomb development. More than 500 German scientists worked on the development of new and improved weapons, particularly guided missiles, tanks and aircraft. A new tank, probably the largest in the world, was developed.

Organization.—During 1947 the soviet tendency to develop elite infantry units for break-through operations continued. The guards rifle divisions were strengthened by the addition of one or more regiments of tanks. These units were designed for break-through of enemy lines and striking at key industrial and transportation centres. Additional firepower was given to armoured units.

France.—The ground forces of the French army numbered approximately 430,000 men in 1947. This number was increased somewhat during the year by the call-up of reserves during the general strike crisis in November. France conscripted 150,000 19-year olds for compulsory service. These conscriptees were required to serve in the reserves for 20 years.

Disposition.—Only about a quarter of the active ground forces were in metropolitan France. Some 110,000 French troops were on occupation duties in Germany and Austria,

Strength of the Armies of the World

Country	Number of men	Per cent of budget for military	Number of civilians per soldier*	World rank on basis of number of men in the army
Afghanistan	100,000		120	19
Albania	60,000		17	23
Argentina	100,000	38	140	17
Australia	35,000	30	206	27
Belgium	85,000	10	99	20
Bolivia	30,000	30	118	29
Brazil	110,000	42	404	16
Bulgaria	60,000		109	21
Canada	25,000	12	460	30
Chile	25,000	19	209	31
China	5,750,000	80	91	1
Colombia	14,000	10	678	36
Cuba	15,000	18	320	35
Czechoslovakia	105,000	20	138	18
Denmark	14,000	14	271	37
Ecuador	10,000	20	308	41
Egypt	160,000		108	14
Eire	11,000	6	273	38
Finland	34,000		114	28
France	430,000	32	93	7
Great Britain	650,000	28	72	5
Greece	145,000		49	15
Hungary	50,000		182	24
India	375,000		736	8
Italy	200,000		229	12
Mexico	50,000	22	412	25
Netherlands	175,000	26	51	13
New Zealand	11,000		145	39
Norway	15,000		193	34
Pakistan	250,000		460	10
Peru	25,000	21	280	32
Poland	250,000	25	179	11
Portugal	18,000		444	33
Rumania	45,000		349	26
South Africa	10,000		1,070	40
Spain	450,000	33	60	6
Sweden	60,000		109	22
Switzerland	10,000		426	42
Turkey	675,000	19	28	3
United States	670,000	34	209	4
U.S.S.R.	3,800,000	18	51	2
Uruguay	10,000		218	43
Venezuela	10,000	9	383	44
Yugoslavia	300,000	22	54	9

*Indicates the degree of mobilization, the lowest figures indicating the highest state of mobilization.

¶Information for Paraguay not available because of 1947 revolution.

another 100,000 were in North Africa, and about 110,000 were in the colonies and the far east. It was necessary for France to maintain abnormally large forces in Madagascar and Indo-China because of insurgent activities in those areas. Perhaps by some design, the November crisis found metropolitan France almost denuded of troops. At that time it was necessary to call up 200,000 reserves.

Equipment.—During 1947 the French army found that most of the equipment it had received during World War II from the United States was wearing out. New equipment for one airborne division was obtained from Great Britain, and some surplus equipment, particularly transport, was obtained from the United States. Only a relatively small amount of equipment was available domestically, as French armament production was subordinated to commercial production for export.

Organization.—The postwar French army was organized on the principle of a small highly-mobile striking force supported by a large trained reserve. In contrast with the Maginot concept of fixed defense which prevailed in 1939, French military thinking now stressed war of movement. The French army had approximately three armoured and one airborne divisions under organization in 1947.

China.—Little accurate information was available on the Chinese armed forces. On the Kuomintang side there were approximately 3,500,000 men, of whom about half were combat effectives. Of some 200 divisions which the Kuomintang tried to keep in action, approximately 20 were partially American-trained and an additional 30–40 had some surplus equipment purchased from the United States.

On the communist side a fluctuating force of from 1,500,000 to 2,000,000 men were equipped with American material captured from the Kuomintang as well as some Russian equipment.

British Commonwealth.—*Australia.*—During 1947 the Australian army was rapidly demobilized toward a peacetime goal of 35,000 men. Occupation duties in Japan were the principal

commitment abroad.

Canada.—Canada's wartime army of 495,000 was almost completely demobilized by 1947, and the peacetime cadre of 25,000 volunteers was in the process of formation. The regular force was supported by a reserve of 180,000 organized into two armoured and four infantry divisions.

All military exercises were closely linked with those of the United States. Emphasis was placed on the defense of Canada's northern frontier against possible attack across the arctic.

India.—In the split-up of the Indian forces which served under the British, the dominion of India received 45 regiments approximating 250,000 men. In addition, 25,000 Gurkha troops from Nepal were serving in the forces of the new dominion. Total land strength was between 375,000 and 400,000 men.

New Zealand.—Armed forces of New Zealand were stabilized at 11,000 volunteers for peacetime.

Pakistan.—The division of the former British Indian army gave to the new dominion of Pakistan some 20 regiments. This, together with levies and contributions of native princes, gave the new army a strength of about 250,000 men.

European Powers.—*Belgium.*—During 1947 Belgium continued the slow rebuilding of its army, reaching a strength of about 85,000 men. The Belgian army had two divisions, each composed of two infantry brigades and a reinforced reconnaissance regiment. Part of the Belgian army was committed to occupation duties in the Aachen-Cologne area of Germany.

Bulgaria.—Under reorganization to conform to the soviet pattern, Bulgaria's army numbered about 60,000 men in 1947.

Czechoslovakia.—With about 20% of the country's budget allocated to military expenditures, the once crack Czech army had been reorganized along soviet lines. With approximately 105,000 men in the army in 1947, the Czechs stressed mechanization and mobility. Russian equipment and methods were used.

Denmark.—The Danes had about 14,000 men under arms in 1947. One Danish brigade participated in the occupation of Germany.

Finland.—Under the peace treaty between Finland and the Soviet Union, an army of 34,000 professional soldiers was permitted. Approximately 18,000 recruits were trained for the reserve.

Germany.—Although Hitler's legions were disbanded after the defeat of 1945, there was some evidence of a German army in Russia. While difficult to assess, the most alarmist reports, if true, would indicate that this force was organized by the soviets to take over in eastern Germany after the red army withdrew and consisted of 36 divisions of former German soldiers whom the Russians considered good communists. Of the divisions, 18 were reported to be armoured and another 7 motorized, using German, Russian, British and U.S. equipment. The German force was alleged to be concentrated in three places: in the Crimea, near Lake Ladoga and near Minsk. The existence of the red German armies, however, remained unconfirmed.

Greece.—A Greek army of about 145,000 men was engaged in constant operations against a guerrilla force numbering between 10,000–15,000 men. The Greek army, consisting of four mountain and three mechanized divisions, was dispersed throughout the country in units ranging from company to regimental size in an effort to hold territory against the guerrillas and keep communications open. This left few troops for offensive operations.

Hungary.—Under soviet occupation, Hungary's ground force of 50,000 was reorganized along Russian lines and under Russian tutelage.

Italy.—Italy's army, reorganized as an associate of the Allied powers during World War II, totalled some 200,000 men, equipped with British and U.S. equipment.

The Netherlands.—The Netherlands' army consisted of 175,000 men in the ground forces, of which over 100,000 were in the Netherlands Indies. There was sufficient equipment for three divisions. Conscription brought 28,000 men into the army in 1947.

Norway.—The ground forces totalled 15,000 and were organized into mountain and coastal battalions. The equipment was British.

Poland.—A total of 250,000 in the ground forces was supported by 100,000 militia. The Polish army had three armoured and ten infantry divisions and was being reorganized along soviet lines.

Portugal.—Ground forces totalled 18,000.

Rumania.—Reorganized along soviet lines with the bulk of its troops specially indoctrinated in Russia, the Rumanian army totalled 45,000.

Spain.—Ground forces in Spain totalled 450,000, organized into 16 infantry, 4 mountain, 1 armoured and 1 cavalry divisions. Four divisions were in Spanish Morocco.

Sweden.—Sweden maintained 60,000 men in the ground forces in 1947. These were augmented by a trained reserve of 600,000 men, built up by compulsory military service of 12 months' term. Excellently equipped, the army was specially skilled in mountain warfare although untested in modern combat.

Switzerland.—About 10,000 regulars were in the ground forces in 1947. This force was augmented by a trained reserve of 500,000 which could be mobilized in four days for defense of the national redoubt in the Alps. The Swiss were excellently equipped for mountain warfare.

Turkey.—Turkey maintained 675,000 men in the ground forces in 1947 as a show of strength against pressure from the Soviet Union. These forces were organized into three field armies, with seven fortification commands and four military regions. There were 35 active divisions of which 4 were mechanized, 2 armoured and 4 mountain. Heterogeneously equipped with material from nearly every European country, Turkey was scheduled to be re-equipped by the United States.

Yugoslavia.—Ground forces of 300,000 were maintained in 1947 with principal concentrations on the Italian and Greek frontiers. These forces were organized into 3 armies with approximately 35 infantry and 2 armoured divisions. World War II equipment was being replaced by soviet equipment.

Middle Eastern Powers.—Few accurate figures were available on the ground strength of the middle eastern powers. Egypt had an army of approximately 160,000 men with considerable British equipment. The constabulary force of Iran was organized and schooled along U.S. lines, while those of Iraq and Trans-Jordan showed British influence, and those of Syria and Lebanon showed French influence. The middle eastern powers were mobilizing their strength at the close of 1947 as the possibility of a holy war over Palestine developed. (*See* also AVIATION, MILITARY; MUNITIONS OF WAR; SELECTIVE SERVICE.) (E. L. S.)

Arsenic.

The output of white arsenic (arsenous oxide) in the major producing countries in late years was as follows:

World Production of Arsenic

(Thousands of short tons)

	1939	1940	1941	1942	1943	1944	1945	1946
Australia	1.59	3.73	3.78	3.05	2.56	2.58	2.23	1.82
Belgium (exp.)	3.67	?	?	?	?	?	?	?
Brazil	0.78	1.19	1.29	0.99	1.07	0.93	1.06	1.0
Canada	0.87	1.05	1.77	3.92	1.58	1.31	1.02	0.37
France	6.61	7.75	5.28	5.38	5.33	1.98	?	?
Germany (exp.)	1.96	?	?	3.95	6.18	?	?	?
Italy	1.27	1.41	0.60	?	?	?	?	?
Mexico	7.79	10.22	14.16	20.41	22.39	16.87	16.55	10.64
United States	22.34	24.98	32.48	28.68	31.20	36.09	24.35	10.24
Total	51.2	58.8	66.9	69.5	78.9	73.0	56.9	36.1

Normally Belgium and Italy would appear in the table, but no late data were available. Sweden has a larger potential arsenic output than the United States, but the available market is small, and output is kept low.

United States.—Because of strikes in the smelting plants producing arsenic, the 1946 output was the lowest in 20 years. The shortage of supply forced the exhaustion of a government stock of almost 2,000 tons by the end of the first quarter, and before the year was over industry stocks had been depleted 80%. (G. A. Ro.)

Art: *see* AMERICAN LITERATURE; ARCHITECTURE; PAINTING; SCULPTURE; etc.

Art Exhibitions.

Museums, art organizations and sales galleries of the U.S. continued in 1947 the same full schedule of exhibitions which had been increasing during the past few years.

The oldest annual in the U.S. is held at the Pennsylvania Academy of the Fine Arts, and in 1947 reached its 142nd year. Arthur Osver won the much coveted Temple gold medal for "Majestic Tenement."

New York's National Academy of Design held its 121st annual in two sections, the first of which included a few nonmembers by special invitation. Philip Guston was awarded the $1,200 Altman prize for "Holiday." In the second section of the exhibition Eugene Speicher and Paul Sample (both painters) and Marion Sanford and Peter Dalton (both sculptors) all won $1,000 prizes.

In Pittsburgh, Carnegie institute, formerly well-known for its international exhibitions, continued to hold an all-invited American annual. Presumably the international art scene was not yet bright enough to warrant including European artists. Zoltan Sepeshy won the top prize of $1,500 for "Marine Still Life" and Joseph Hirsch carried off the $1,000 second prize for "The Iceman."

Chicago's Art institute made its 58th American annual into a theme show and limited it to two modern trends, abstraction and surrealism. The much-discussed $1,000 Campana purchase prize went to William Baziotes for "Cyclops" while Rico Lebrun was awarded the $500 Harris prize for "Vertical Composition."

Pepsi-Cola, sponsor of industry's largest annual, held its



ANNUAL GREENWICH VILLAGE outdoor art exhibit. Passersby are shown viewing 1947 entries by N.Y. city residents which lined the walls of buildings at Washington Square park early in June

fourth exhibition for American artists and awarded $35,960 in prizes. Top prize of $2,500 went to Henry Kallem, a scarcely known artist, for "Country Tenement" and the $2,000 second prize to Lamar Dodd for "The Breaker."

An unusual exhibition was held at the Philbrook Art Center in Tulsa, Okla., which sponsored its second annual open only to Indians of the U.S. and Alaska. Though many state fairs had held art exhibitions, nothing so impressive was ever assembled as the Old Northwest Territory exhibition held at the Illinois State fair in Springfield.

Prizes of $2,900 were distributed and the intention was expressed of making this an annual event.

Numerous one-man exhibitions dotted the year's calendar. The Museum of Fine Arts, Boston, and the Detroit Institute of Arts collaborated on a comprehensive exhibition of the work of the early 19th century American romanticist, Washington Allston (1779–1843). The Suffolk museum at Stone Brook, Long Island, assembled a remarkably interesting group of paintings by the three Mount brothers, famed in the mid-19th century both for portraits and genre work. Ben Shahn was given a retrospective exhibition at the Museum of Modern Art in New York where his social commentaries and symbolic themes showed to advantage. Gaston Lachaise, the French born U.S. sculptor who died in 1935, was given an impressive showing of both sculpture and drawings at the Knoedler gallery in New York.

The Whitney museum in New York departed from its usual policy of showing only American art and assembled an exhibition "Painting in France 1939–1946." This included 117 paintings by 67 artists. Georges Braque's "The Studio" was perhaps the most distinguished painting in the exhibition. Much of the work was not of the best and there appeared to be little stylistic development from French art before World War II.

An exhibition of the work of the three Le Nain brothers was assembled at the Toledo museum and centred around "The Family Dinner," a painting by Mathieu le Nain which the museum had acquired. These painters, who often combined on the same canvas, depicted with sensitivity and charm the daily life of humble people in 17th century France.

The Cleveland Museum of Art staged an imposing exhibition of paintings, pastels, drawings and sculpture by Edgar Degas, the great French painter of horse races and ballet girls. During the summer the Philadelphia museum showed an impressive array of top-flight pictures borrowed from local collectors. In the group were such famous items as Edouard Manet's "Le Bon Bock" (Carroll S. Tyson collection), Toulouse-Lautrec's "At the Moulin Rouge" (Henry P. McIlhenny collection), Henri Rousseau's "Storm in the Jungle" (Henry Clifford collection). Two other collectors, R. Sturgis Ingersoll and Rodolphe M. de Schauensee, also lent paintings.

More than 1,000 objects were included in the magnificent exhibition of Byzantine art held at the Walters gallery in Baltimore, Md. Ivories, manuscripts, textiles, sculpture and metalwork were combined in examples of superlative quality to form a rich and varied exhibition.

Mary Cassatt, the U.S. painter who went to France and became a member of the impressionists group, was given a full-scale showing at the Wildenstein galleries in New York.

Adolphe Monticelli, whose popularity had been somewhat dimmed in late years, was revived in a well-selected exhibition at the Vose gallery in Boston. Albert Pinkham Ryder, the 19th century U.S. romantic-mystic, was given an important exhibition at the Whitney museum.

New York's Museum of Non-Objective Paintings arranged a memorial exhibition of the work of Lazlo Moholy-Nagy, member of the German Bauhaus who was the head of the Institute of Design in Chicago. A more selective exhibition featuring work done in Chicago was subsequently shown at the Art institute.

Alfred Stieglitz, noted photographer, collector and pioneer dealer in modern art, was given a memorial exhibition at the Museum of Modern Art. This not only included a selection of his photographs but also items which he had collected such as African Negro sculpture, Toulouse-Lautrec lithographs and paintings by Arthur Dove, Marsden Hartley, John Marin and Georgia O'Keeffe. At the Cleveland Museum of Art a fabulous exhibition of gold objects was assembled. Jewellery, ritual vessels and previous objects of all sorts from all periods combined in a unique and impressive display.

Probably the most important exhibition of the year was the French tapestry exhibition sent to the Metropolitan museum in New York by the French government. This included 200 items ranging from the Angers tapestries of the late 14th century, the famous 15th century Cluny tapestries, a great set depicting the life of Louis XIV, a group of the Louis XV period designed by François Boucher, and finally a group of modern tapestries. This was the most important exhibition of the kind ever assembled. (*See* also ART SALES; MUSEUMS.)

(F. A. Sw.)

Arthritis. The incidence of infectious arthritis caused by identifiable or recoverable specific germs decreased notably, as the articular complications were largely prevented by such chemotherapeutic agents as penicillin and sulfonamides. Thus the incidence of gonorrhoeal arthritis in the United States during 1947 was only about 10% of what it was a few years before. Other forms of bacterial arthritis, such as those from staphylococci, haemolytic streptococci or pneumococci, formerly so destructive and crippling, were found to be curable promptly when treated adequately with penicillin. Reports indicated that suppurative arthritis from war wounds, which in previous wars often caused loss of limb or life, was largely prevented by the improved methods of treatment used in World War II. This new method of treatment consisted of early and adequate surgical treatment of the wound, closure of the synovial cavity and

articular capsule and then adequate immobilization. When suppurative arthritis did occur, it was generally controlled by penicillin administered systematically and intra-articularly, with or without the supplementary use of secondary reparative surgery. The amount of permanent disability among soldiers of World War II prevented by these means was incalculable.

The newer antibiotic, streptomycin, had not yet found an established place in the treatment of arthritis, but a few patients with tuberculous arthritis who were treated thereby were notably improved, and the articular and other manifestations of Haverhill fever (epidemic arthritic erythema, one form of rat-bite fever) were thought to be amenable to therapy by streptomycin.

The cause of rheumatoid arthritis remained unknown. Further evidence was reported indicating that the disease is a systemic one and that many bodily tissues other than those of joints are affected. Although lesions in hearts were rarely detected during life, post-mortem studies on rheumatoid patients revealed the common presence of lesions in cardiac muscles or valves which were indistinguishable from those found in the hearts of patients dead of rheumatic fever. Inflammatory and degenerative lesions were often found also in the skeletal muscles of rheumatoid patients, and the cerebrospinal fluid also was sometimes altered in its content of cells and protein. These findings suggested that the noxious agent of rheumatoid arthritis is a blood-borne irritant which becomes widely disseminated.

Because the serum of patients with rheumatoid arthritis usually contains agglutinins against group A haemolytic streptococci and also precipitins against certain fractions of these bacteria, the latter bacteria had been considered by some investigators to be the probable cause of the disease. But a new hypothesis (based on the presence of hyaluronic acid in synovial fluid as well as in the capsule of group A haemolytic streptococci) was proposed which accounted for the presence of such antibodies without the intervention of bacteria.

The treatment of rheumatoid arthritis by injections of gold salts retained the favour of most rheumatologists. A new treatment was reported for the control of the toxic manifestations of gold salts, the use of BAL (British anti-lewisite, 2,3-dimercaptopropanol). Gold dermatitis, severe purpura and granulocytopenia following treatment with gold responded rapidly to such treatment. The French physician who originally brought treatment with gold salts into favour reported his belief that injections of an organic copper compound gave results superior to those from gold.

No direct indication was found for the use of any vitamin in rheumatoid arthritis, and further severe nonfatal and fatal toxic reactions to concentrated vitamin D compounds, including "ertron," were reported. Penicillin was valueless in rheumatoid arthritis; further results with prostigmine were disappointing.

World War II brought greater prominence to four forms of "rheumatism": rheumatoid spondylitis, psychogenic rheumatism, Reiter's syndrome and acute epidemic tropical polyarthritis. Rheumatoid spondylitis, being a disease chiefly of young men, was commonly encountered among military personnel. In this disease a tendency for an increased urinary excretion of 17-ketosteroids was reported. Many persons with diffuse or localized musculoskeletal aches and pains, suspected of having arthritis or "rheumatism" are merely suffering from tension states or psychoneurosis; so concluded medical officers who noted psychogenic rheumatism among 15% of rheumatic patients sent to army rheumatism centres.

So-called Reiter's syndrome (urethritis, conjunctivitis and arthritis) was studied further; its cause was reported as a dysentery bacillus, a pleuro-pneumonialike organism or a filtrable virus. Secret war reports on the acute epidemic tropical polyarthritis which affected U.S. and Australian troops in northern Australia, Bougainville and nearby islands were made public. Symptoms lasted generally one, occasionally three or four weeks, and disappeared without residues. No cause was discovered.

Further studies of the typical and atypical (including cerebral) manifestations of rheumatic fever were reported. Enthusiasm for the intravenous (rather than the oral) administration of salicylates waned, since no definite clinical superiority, but greater toxicity, was attached thereto. Long-term sulfonamide prophylaxis to prevent the recurrences and complications of rheumatic fever received further approval; patients protected thereby had only a sixth as many recurrences as did the controls. The first report on prophylaxis by the oral use of penicillin appeared: ten patients so treated for a year had only a fifth as many recurrences as did the controls.

Under investigation was the possible relationship of hyaluronidase and hyaluronic acid to the development of certain rheumatic diseases, especially rheumatic fever.

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(P. S. H.)

Artificial Weather: *see* METEOROLOGY.
Artillery: *see* MUNITIONS OF WAR.

Art Sales. As auction price totals are announced at the close of each season, the statistics indicated here cover the 1946–47 season rather than the 1947 calendar year. Parke-Bernet, the leading New York auction house, had a total of more than $6,000,000 for the fourth consecutive season. The total figure, $6,019,153, was actually around $650,000 less than the figure for the previous season which had been the all-time high for auction prices. The Plaza Art galleries totalled $1,411,426 for the season (a decline of only $30,000 from the previous year) and the Kende galleries at Gimbel Brothers in New York had a busy season but announced no figures.

Undoubtedly the most interesting item sold by Parke-Bernet was the *Bay Psalm Book* of 1640, the first book printed in America. This was bid in at $151,000 by Dr. A. S. W. Rosenbach from the Gertrude Vanderbilt Whitney trust and was the highest price ever paid for a printed book. The two collections which brought the highest totals were the Stotesbury estate, $294,480, and the Satterlee sale, $276,710, but 18 other sales netted more than $100,000 each. Madame Vigée-Lebrun's "Self-Portrait with Her Daughter" brought $21,000 at the Thompson sale, the highest price of the season for a painting. Antoine Watteau's "La Danse Paysanne" went for $14,000 at the Rosenfeld sale. Return to popularity of Joaquin Sorolla was indicated by the unusually high price of $13,500 paid for his "Playa de Valencia." There was also a revival of interest in realistic genre painting as indicated by the sale of Jean Vibert's "Vision of Monks Listening to Chamber Music" at $4,800.

Furniture and objects d'art featured frequently in the sales rooms, top items at Parke-Bernet being a pair of Hepplewhite chests at $10,000 and a Chippendale break-front bookcase at $9,500. Prints also were prominent on the sales lists and the top bid was $6,000 for the fourth plate of Blake's "America, a Prophecy."

In London the auction market continued to bring top prices. One of the most publicized sales was the property of the duke of Kent which totalled £92,341 at Christie's. High items in the sale were three Claude Lorrain landscapes sold at £6,930, a set of 20 Chippendale chairs at £2,310 and a pair of silver gilt tea caddies (1766–67) at £900.

Also at Christie's the effects of Viscount Rothermere brought £30,639, top single items being £13,125 for a Rembrandt "Self-Portrait." The earl of Lonsdale's silver fetched a total of £45,769 at Christie's, high item of which was a 34-piece toilet set (1708) at £7,800. At Sotheby's leading sales were a Velazquez "Portrait of Don Gaspar de Guzman" sold for Viscount Cowdray at £11,000 and a Gainsborough "View of the Mouth of the Thames" from the estate of Sir Reginald Proctor-Beauchamp which sold for £4,000. (F. A. Sw.)

Aruba: *see* CURAÇAO.

Asbestos. The asbestos output of the major producing countries was as follows during late years:

World Production of Asbestos

(Thousands of short tons)

	1939	1940	1941	1942	1943	1944	1945	1946
Canada	364.5	345.8	477.8	439.5	467.2	419.3	466.9	547.6
Cyprus (exp.)	11.4	10.7	5.4	3.4	1.3	2.2	3.3	6.6
Italy	7.5	9.1	11.9	12.9	?	?	5.3	?
South Africa	22.1	27.4	28.3	34.6	35.6	34.6	28.2	18.
Southern Rhodesia	58.3	57.9	54.2	62.3	56.4	58.3	56.3	55.9
Swaziland	8.0	20.8	21.1	25.6	18.9	32.7	23.4	32.1
United States	15.1	19.2	22.4	15.3	3.9	7.6	13.6	14.4

United States.—The domestic asbestos production increased from 13,590 short tons in 1945 to 14,426 tons in 1946, and sales rose from 12,226 tons to 14,075 tons. There was a sharp increase in demand, jumping imports from 374,199 tons in 1945 to 456,688 tons in 1946—a new record. Even with the high imports, the supply was short.

Canada.—The high demand in the United States caused asbestos production in Canada to rise to a level above that of the war years. The 1945 sales of 466,896 short tons rose in 1946 to 547,685 tons, and in the first half of 1947 to 314,107 tons.

Mines and mills were being expanded in 1947 to meet the higher demand.

South Africa.—After the 1943 peak, production dropped to 34,582 short tons in 1944, 28,216 tons in 1945, and 14,435 tons in the first three quarters of 1946. Exports in the same years were 28,174 tons, 22,005 tons and 13,186 tons.

Southern Rhodesia.—The postwar decline was less pronounced in Southern Rhodesia, with a production of 58,293 short tons in 1944, 56,348 tons in 1945, and 55,872 tons in 1946.

Swaziland.—Beginning as a new producer in 1939, Swaziland developed an output that in 1946 surpassed that of South Africa. (G. A. Ro.)

ASCAP (American Society of Composers, Authors and Publishers): *see* SOCIETIES AND ASSOCIATIONS.

Ascension: *see* BRITISH EMPIRE.

Asia: *see* AFGHANISTAN; CHINA; INDIA; etc.

Asphalt. Production and consumption of asphalt and related bitumens in the United States were as follows during late years, in thousands of short tons:

	1942	1943	1944	1945	1946
Petroleum asphalt:					
Production	6,296.3	6,756.7	6,996.1	7,126.6	8,165.6
Sales	6,840.8	6,897.8	6,735.2	6,851.0	7,614.3
Domestic oil	6,337.7	6,597.4	6,023.0	5,770.2	6,064.1
Foreign oil	503.1	300.4	712.2	1,080.8	1,550.2
Road oil (000 bbl):					
Production		2,295	1,556	2,686	6,175
Sales		2,054	2,031	2,567	5,034
Bituminous rock:					
Sales	935.3	835.6	740.5	643.6	777.5
Gilsonite:					
Sales	40.0	50.4	49.1	61.3	68.4

Imports of natural asphalts are small, amounting to only 5,148 short tons of all types in 1945 and 4,449 tons in 1946, most of which was lake asphalt from Trinidad. Petroleum asphalt imports were 142,802 tons of solid and 4,029 tons of liquid in 1945 and 97,204 tons of solid and 25,629 tons of liquid in 1946. Imports of all types are more than offset by exports of petroleum asphalt. (G. A. Ro.)

Assassinations. The assassinations of 1947, actual or attempted, included the following:

Feb. 10. Pola, Italy. Brig. Gen. R. W. M. de Winten, commander of British 13th infantry brigade, was shot and killed by Italian woman who was enraged by award of Pola to Yugoslavia.

Feb. 26. Haifa, Palestine. A. E. Conquest, Haifa's deputy superintendent of police, was assassinated by Jewish underground gunmen who shot at him from cruising taxicab.

March 27. Sanok, Poland. Ukrainian underground members assassinated Col. Gen. Karl Swierczewski, Polish vice-minister for national defense, near there.

July 12. Washington, D.C. William L. Kaiser, former policeman, fired several shots at Sen. John W. Bricker in senate office building in abortive assassination attempt.

July 19. Rangoon, Burma. Premier U Aung San and five other members of Burma's interim government were assassinated and two others wounded by three assassins armed with machine guns.

July 19. Seoul, Korea. Lyuh Woon-heung, Korean anticommunist leader, was slain by assassin who crawled into back of his car.

July 18. Simla, India. Sir Shafa'at Ahmad Khan, former member of Moslem league, was slain by knife-wielding assassin a few hours after joining the Indian interim government.

Sept. 12. Haifa, Palestine. Sami Taha, Arab labour leader and political foe of Haj Amin el-Husseini, exiled grand mufti, was shot and killed on one of Haifa's main streets by unidentified assassins.

Oct. 10. Indo-China. Dr. Truong Dinh Tri, head of Hanoi municipal council, was mortally wounded by grenades thrown at him by terrorists. (He died on Oct. 11.)

Oct. 10. Cholon, Indo-China. Nguyen Van Sam, anticommunist leader, was shot by passenger travelling on bus with him two miles from Saigon.

Nov. 27. Bordeaux, France. Gen. Raoul Montrelay was wounded by man who, after capture by military police, was identified as Capt. Jean Muselier, son of Free French naval commander.

Dec. 25. Stockholm, Sweden. Alberto Bellardi Ricci, Italian minister to Sweden, was stabbed to death by insane countryman as he was giving farewell party to legation staff.

Association for the Advancement of Science, American: *see* SOCIETIES AND ASSOCIATIONS.

Association of Research Libraries: *see* SOCIETIES AND ASSOCIATIONS.

Astronomy. Probably the most important development of the year was the completion of the 200-in. telescope; the giant mirror was moved from the optical shop in Pasadena, Calif., to the observatory on Mount Palomar on Nov. 18–19. Of comparable importance was the near completion of the 48-in. Schmidt telescope of the same observatory. The two instruments would supplement each other; for light-gathering power and distance penetration the 200-in. would be supreme, while the 48-in. Schmidt would occupy a similar position for investigations connected with the structure of our galaxy and other problems which require photographing considerable areas of the sky on a single plate. (*See* also TELESCOPES.)

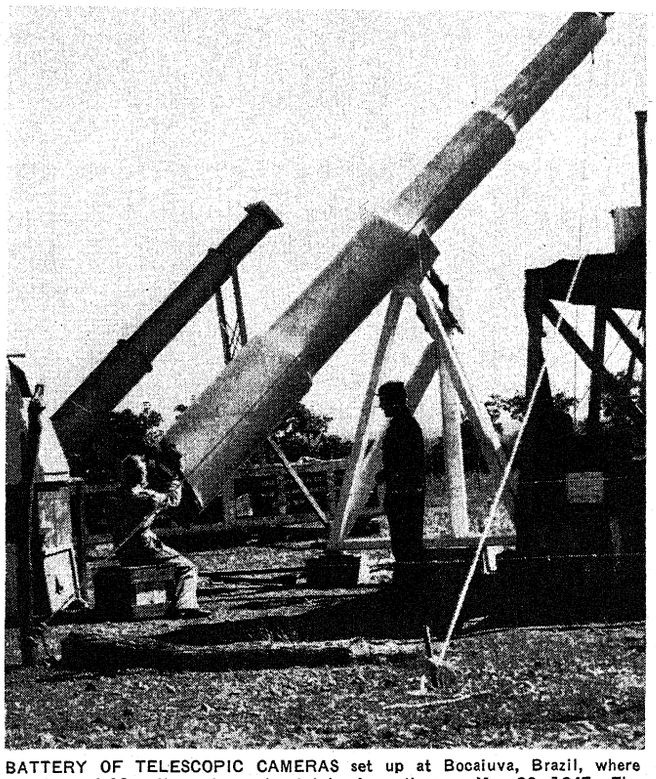
A remarkable wide-angle camera was designed by J. L. Greenstein and L. G. Henyey of the University of Chicago in connection with a contract with the U.S. navy. The telescope has a field of 140° in diameter and works at a speed of F:2; with it most of the sky visible at any one time can be photographed with a single exposure. The optical system consists of a mirror which forms an image and a lens which photographs this image. The camera should be exceedingly valuable for the photography of meteors, the zodiacal light and aurorae.

The introduction of the new photoelectric cells had a profound effect on astronomical research. The electron multiplier cell made it possible to observe stars of such faintness that photoelectric methods of determining stellar brightness and colour were superseding earlier photographic procedures. It appeared likely that the determination of brightness of stars intended to serve as standards would be done almost exclusively by the photoelectric method, because of its far greater accuracy; for extended programs the photographic method still possesses advantages in that large numbers of stars can be recorded on one plate. The lead-sulphide cell, which is sensitive to light in the far infra-red, was being used by G. P. Kuiper and by A. E. Whitford with great success for both planetary and stellar problems.

Solar System.—*The Sun.*—Several successful attempts were made to photograph the far ultra-violet spectrum of the sun with spectrographs mounted on V-2 rockets. The spectrum illustrated was obtained by the Applied Physics laboratory of Johns Hopkins university on a rocket flight at White Sands, N.M., on July 29, 1947; the photograph was obtained at an altitude of 84 mi. This height is above the ozone blanket which cuts off solar radiation at the earth's surface for wave lengths smaller than 2,900 Ångstrom units.

A giant group of sunspots was observed during March and April; in March this group contained the largest single sunspot ever observed; it was somewhat larger than that of Jan. 1946, which previously held the record for size.

The Planets.—The radiation of several of the planets was measured in the infra-red by means of a Cashman lead-sulphide cell by G. P. Kuiper at the McDonald observatory, Mount Locke, Tex. Many features were recorded in the range between 7,500 and 23,000 Ångstrom units. The heat radiation (as distinguished from reflected sunlight) from the planet Mercury was detected; because of this planetary radiation Mercury is the brightest of the planets at a wave length of 21,000 Ångstroms. In Oct. 1947, Kuiper announced the discovery of carbon dioxide in the atmosphere of Mars. This is of the greatest interest as indicating similarity in the Martian atmosphere to that of the earth—in particular in connection with the possi-



BATTERY OF TELESCOPIC CAMERAS set up at Bocaiuva, Brazil, where scientists of 20 nations observed a total solar eclipse on May 20, 1947. The camera at the right was designed to take star pictures as a check on the Einstein theory of relativity

bility of some form of life on Mars. The amount of carbon dioxide present in the Martian atmosphere is similar to that found for the earth.

Comets.—A very bright comet was discovered in December; it was a conspicuous object to the naked eye for observers in the southern hemisphere.

The Stars.—One of the most remarkable developments of the year in stellar astronomy was the discovery of magnetic fields in several stars by H. W. Babcock of the Mount Wilson observatory. Prior to Babcock's work, the only star known to have a magnetic field was the sun. The fields were discovered from measurements of minute shifts of certain lines in the spectra of a peculiar group of stars. The implications of this discovery were far reaching and the field promised to be one of the most active in astronomy in the future.

Among other results may be mentioned the search for the nucleus of our galactic system by Joel Stebbins and A. E. Whitford of the Washburn observatory with the use of a photoelectric cell sensitive in the region of 10,000 Ångstroms. A bright region in the infra-red was detected at a position which suggests that it is actually the nucleus of our system. The reason for working in the infra-red for problems of this kind is the greater transparency of the space between the stars for light of long wave length. A somewhat similar investigation making use of photographic plates sensitized for the infra-red was carried out by J. J. Nassau and G. B. van Albada of the Case Institute of Technology. Their photographs, which were made with the Schmidt telescope of the Warner and Swasey observatory, reveal myriads of distant red stars and open a new field for galactic studies. It was expected that more and more investigations would utilize the infra-red spectral region because of its greater space-penetrating power. (W. W. M.)

Athletics: *see* TRACK AND FIELD SPORTS; etc.

Atomic Energy.

The subject of atomic energy during 1947 can be divided into four topics, namely, (1) international deliberations; (2) activities in the United States, including actions of the U.S. Atomic Energy commission, distribution and use of radioactive isotopes, studies of power production and military reports; (3) activities in other nations; and (4) advances in atomic physics.

International Deliberations.—While considerable progress was made during 1947 in developing the plan of international control acceptable to a majority of the members of the United Nations Atomic Energy commission, virtually no progress was made in reconciling the majority and minority viewpoints. To state the situation another way, no progress was made in reconciling the U.S. and soviet viewpoints. For the majority plan in essence was that proposed by the U.S., and every nation represented on the commission favoured it with the exception of the Soviet Union and Poland.

As the year progressed, the continued bitter charges of the soviet representatives attacking the good faith of the U.S. brought forth countercharges from the U.S. representatives that the Soviet Union had followed a policy designed to delay as long as possible any settlement of the problem.

It will be recalled that the United Nations Atomic Energy commission adopted its first report on Dec. 30, 1946, by a vote of ten to zero but with two of its members, the Soviet Union and Poland, abstaining from voting. This report was transmitted to the Security council on the last day of 1946.

The First Report.—The plan outlined in the commission's first report was essentially an elaboration of the plan proposed to the commission at its initial meeting on June 14, 1946, by the U.S. representative, Bernard M. Baruch. It was based on the Acheson-Lilienthal report made public by the U.S. department of state on March 28, 1946.

It provided for the establishment of an international control agency in the field of atomic energy charged with the duty of preventing the use of atomic energy for destructive purposes and ensuring its use for peaceful purposes. The agency was to be authorized to maintain a system of international inspection and to supervise or manage all activities whose nature made them dangerous to world peace.

In addition the plan called for prompt punishment of violators of the international agreement and provided further that the veto power in the Security council was not to apply to the agreed activities of the international control agency or the prompt punishment of violators.

Resignation of Baruch.—On Jan. 4, 1947, Bernard M. Baruch presented his resignation as the U.S. representative on the United Nations Atomic Energy commission. He explained that he and his associates had accomplished their task and that since practically every other nation was represented on the commission by its delegate to the Security council, it would be wise for the U.S. to follow the same plan. Accordingly, Pres. Harry S. Truman appointed Warren R. Austin, chief U.S. delegate to the Security council, to replace Baruch.

The Security Council.—No progress was made by the Security council in reconciling the U.S. and soviet points of view, although the situation looked momentarily brighter in February. On Feb. 14 Andrei A. Gromyko, the soviet representative in the Security council, stated that "in spite of serious defects of the report, the U.S.S.R. is prepared to consider it item by item and submit amendments." On Feb. 18 he submitted a list of 12 such amendments.

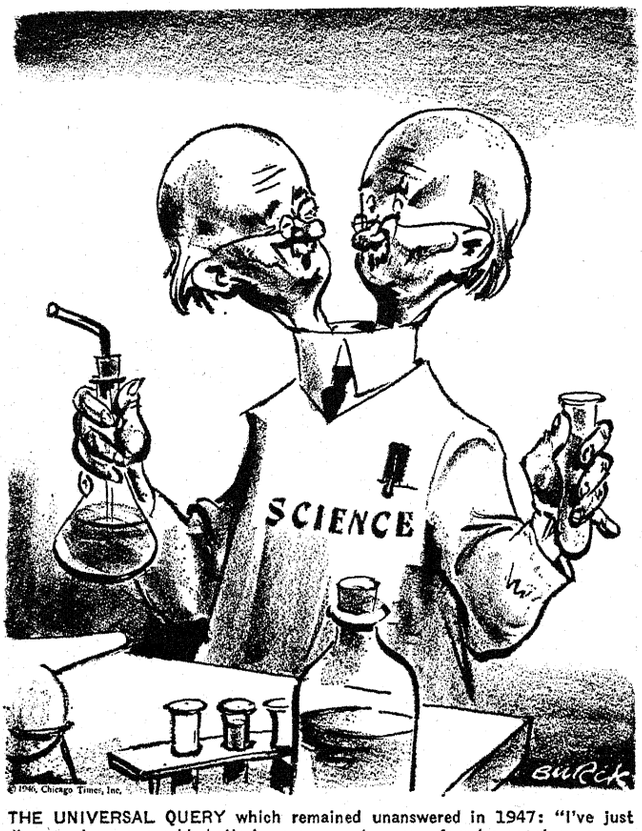
However, on March 5 he delivered an address that was so bitter an attack upon the U.S. as to make it apparent that no immediate solution of the problem was possible in the Security council. Accordingly on March 10 the Security council voted to return the problem to the Atomic Energy commission with instructions to return a second report before the next session of the general assembly which had been set for Sept. 25.

The Commission Resumes.—On March 19 the United Nations Atomic Energy commission began its second series of meetings.

Addressing a full session of the commission on June 11, Gromyko set forth more clearly the soviet plan for atomic control. He agreed that inspection should be carried out by international personnel and, reversing previous soviet policy, agreed that the international control agency should operate its own research laboratories. However, he reiterated the familiar soviet demand that atomic bombs be outlawed and the U.S. stockpile of bombs be destroyed before international control methods were discussed. Likewise, he again insisted on the maintenance of the veto power. On Aug. 13 the Canadian representative offered a resolution calling the soviet proposals inadequate. This was adopted two days later by ten votes, all but those of the Soviet Union and Poland. No negative votes or abstentions were recorded.

The commission's Control committee spent the summer studying a series of six "working papers" which had been prepared by small subcommittees whose members served as individual experts without committing their governments. These six papers constituted a detailed elaboration of the control scheme in the commission's original report. They dealt with the operational and developmental functions of the proposed international control agency, its research activities, and its functions in every phase of the production of atomic energy from the mining of ores to the distribution of nuclear fuels. During the discussion of these papers, the soviet representatives assumed the role of interested observers only. On Sept. 8 both the Control committee and the Working committee approved these six papers. Ten nations voted for the papers. The U.S.S.R. voted against all six. Poland voted against five and abstained from voting on one.

The Commission's Second Report.—The commission adopted its second report on Sept. 11 by a vote of 10 to 1. The negative vote was that of the Soviet Union. Poland abstained from voting.



THE UNIVERSAL QUERY which remained unanswered in 1947: "I've just discovered a new world shattering weapon—have you found a counter measure yet?" Cartoon by Burck in the *Chicago Times*

The report summarized the 1947 proceedings of the commission and incorporated the six working papers as Part II under the title of "Operational and Developmental Functions of the International Control Agency." The report recommended the establishment of production quotas based on principles and policies to be specified in the international treaty or convention; ownership by the international control agency of nuclear fuel and source material; ownership, management and operation by the agency of facilities dangerous to world security; licensing by the agency of nondangerous facilities to be operated by nations; and inspection by the agency to prevent or detect clandestine operations.

In the United States.—Control of atomic energy in the U.S. passed from the Manhattan Engineer district of the army to the U.S. Atomic Energy commission on Jan. 1, 1947.

President Truman had appointed the members of the commission on Oct. 28, 1946, but long debate in the U.S. senate delayed the confirmation of these appointments until April 9, 1947. Members of the commission were David E. Lilienthal, chairman, Robert Fox Bacher, Sumner T. Pike, Lewis L. Strauss, and William Wesley Waymack. Carroll L. Wilson was general manager.

In a report to congress on July 22, the commission summarized the first six months of its operation. The report stated that the commission "has pressed the production of fissionable materials and the improvement of atomic weapons as essential to the security of the country." The plants at Oak Ridge, Tenn., for the separation of uranium 235 from ordinary uranium, and at Hanford, Wash., for the manufacture of plutonium from uranium, had been operated steadily from the start of the year and improvements and economies effected in their operation. The atomic weapons program was being carried forward at the Los Alamos laboratory near Santa Fe, N.M. The report made it plain that the commission had no intention of relaxing these activities until congress "affirms that acceptable international agreements have been reached."

Budget and Personnel.—By June 30 the commission had obligated approximately $600,000,000 to cover contracts and other obligations from funds of the Manhattan project which President Truman had allocated to the commission. The president's budget for 1948 recommended congressional appropriations of $250,000,000 for expenditures in 1948 plus an authorization for the commission to enter into contracts during 1948 that would involve the expenditure of a similar amount in 1949.

The commission had 4,133 employees as of May 31. About half of these were at Oak Ridge. Fewer than 200 were in Washington, D.C.

Plan of Operation.—Headquarters of the Atomic Energy commission were in Washington. The commission was planning a decentralized organization with broad operational authority designated to five major centres of operation, each charged with the responsibility for a different part of the commission's total program.

The first of these centres, the Office of New York Directed Operations, was established on June 9. The Office of Santa Fe Directed Operations was established on July 2. The other three centres were to be at Oak Ridge, Hanford and Chicago.

None of the commission's major production or research programs was being carried on by direct commission operation. The commission had more than 100 contractors and these in turn had several hundred subcontractors. These contractors and subcontractors had about 37,000 employes.

Pacific Proving Grounds.—An important step taken by the commission during 1947 was the establishment of a proving

grounds in the Pacific for routine experiments and tests of atomic weapons. The location was not disclosed until Dec. 1 when the commission announced that the site was Eniwetok Atoll in the Marshall Islands. The 145 natives on Eniwetok were to be moved to new homes.

Principal Laboratories.—The commission in 1947 operated five principal laboratories for research in the field of atomic energy. These were: The Los Alamos laboratory near Santa Fe, N.M.; the Argonne laboratory, just outside Chicago, Ill.; the Clinton laboratories at Oak Ridge, Tenn.; the Brookhaven National laboratory under construction at Patchogue, Long Island, N.Y.; and the Knolls Atomic Power laboratory under construction at Schenectady, N.Y. In addition, large laboratories were operated under contract with the commission at Berkeley, Calif.; Ames, Ia.; Dayton, O.; and Hanford, Wash.

In pursuance of its policy of obtaining the broadest possible participation of qualified institutions in its program, the commission arranged for the operation of the Argonne National laboratory by the University of Chicago with the participation of 29 midwestern universities and research institutions.

The Brookhaven National laboratory was being operated under contract by Associated Universities, Inc., a nonprofit organization of nine eastern universities.

The commission was assisting studies being made on behalf of the army air forces by the Fairchild Engine and Airplane corporation as to the possibility of applying nuclear energy to the propulsion of aircraft. It was also assisting the navy in connection with similar studies regarding the propulsion of ships.

Medical Program.—The commission was conducting a medical program to study the dangers created by fissionable materials and to extend knowledge of the effects of radioactivity on living organisms. A grant of $100,000 was made to Western Reserve university for an investigation of the effects of radioactive substances on living cells.

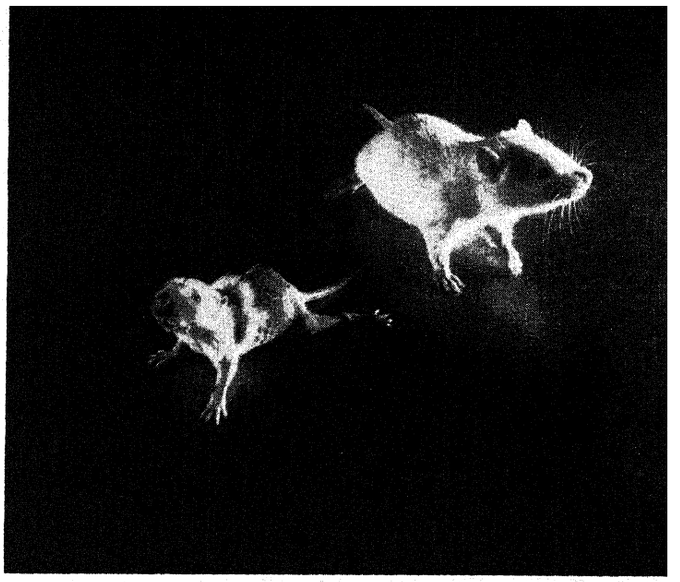
Radioactive Isotopes.—The first sale of radioactive isotopes, or radioisotopes, from the uranium pile at the Clinton laboratories at Oak Ridge, Tenn., took place on Aug. 2, 1946. On Aug. 3, 1947, the U.S. Atomic Energy commission issued a report summarizing the first year of such sales.

During the period, the laboratory made 1,092 shipments of radioisotopes to scientific and industrial research institutions in the continental U.S. and the territory of Hawaii. Approximately 100 varieties of isotopes made from 60 chemical elements were furnished to 170 institutions or research workers in 92 localities. They included, among others, isotopes of barium, calcium, carbon, chlorine, copper, gold, iron, mercury, nickel, phosphorus, platinum, silver, sodium, sulphur, tin, tungsten and zinc.

It is difficult to realize the difference which the uranium pile has made in the production of radioisotopes. For example, carbon 14 is being produced at a cost of $50 a millicurie. To manufacture that same amount with the aid of a cyclotron would cost $1,000,000.

There are two chief uses for radioisotopes at the present time. One is as a substitute for radium or X-rays for the treatment of disease, particularly cancer, goitre and leucaemia. The other is for so-called tracer experiments. Because of its radioactivity, a radioisotope can be traced through a complicated chemical reaction or an involved biological cycle.

Researches with radioisotopes covered a wide range in 1947. The University of Wisconsin, Madison, Wis., used them in investigation of the therapeutic action of drugs. At Vanderbilt university, Nashville, Tenn., Dr. Paul F. Hahn experimented with radiogold (the radioactive isotope of gold) as a treatment for chronic forms of leucaemia, lymphoma and Hodgkins' disease. Dr. George E. Burch at Tulane university, New Orleans, La., employed radiosodium in the study of congestive heart failure. At the Cedars of Lebanon hospital in Los Angeles, Dr. Myron Prinzmetal used radiophosphorus to compare the circulation of the normal heart with that in coronary occlusion. Dr. Edward H. Reinhard at Washington university, St. Louis, Mo., used radiophosphorus for the treatment of leucaemia. At the same institution, Dr. Carl V. Moore employed radioiron in the study of anaemia. Other institutions employed radioisotopes in numerous biological, chemical and metallurgical investigations. (*See* also X-RAY AND RADIOLOGY.)



RESEARCH IN RADIATION SICKNESS, using laboratory rats, was continued at Oak Ridge, Tenn., in 1947. Stunted growth in the rat on the left resulted from a dose of beta radiation which also left it half-blind and almost hairless

World-Wide Distribution.—On Sept. 3, 1947, President Truman sent a telegraphic message to the fourth annual meeting of the International Cancer Research congress in St. Louis stating that the U.S. was ready to furnish radioisotopes to scientists in foreign countries for biological and medical research. Subsequently the U.S. Atomic Energy commission issued a list of 30 radioisotopes for foreign distribution. These contained no chemical element beyond No. 83 (bismuth) in the periodic table of chemical elements.

Stable Isotopes.—On Dec. 1 the U.S. Atomic Energy commission announced the availability of more than 100 stable isotopes of 29 chemical elements for distribution to research laboratories in the U.S. These are produced at the Oak Ridge electromagnetic isotope separation plant. As the designation indicates, these isotopes are not radioactive but they are equally important for many types of researches.

Power Production.—Addressing the Economic club of Detroit on Oct. 6, Chairman Lilienthal of the U.S. Atomic Energy commission intimated that the first experimental power plant using atomic energy to operate a steam turbine-electric generator would be in operation in 1948 or 1949. However, he emphasized that many serious scientific and engineering problems would have to be solved before such power generation could be put on a commercial basis.

The production of power requires the development of a uranium pile capable of operating at high temperatures. A second important problem is the development of structural materials which will withstand both the high temperature and the intense radioactivity of the pile. Still another difficult problem is the removal of fission products from the uranium pile since these in time would absorb so many neutrons as to stop the chain reaction.

Lilienthal indicated that the probability was that a power plant would require an atomic pile enriched by the addition of

purified materials, either uranium 235 or plutonium.

Also on Oct. 6, the U.S. Atomic Energy commission announced the appointment of a board of consultants to act as an industrial advisory group. Heading this board was James W. Parker, president of the Detroit Edison Co.

The Plutonium Pile.—Dr. Norris E. Bradbury, scientific director of the Los Alamos laboratory, announced in 1947 that a plutonium pile or fast reactor had been in operation at the laboratory from Nov. 1946. Unlike the uranium pile, which employs a moderator to slow down the neutrons which sustain the chain reaction, the plutonium pile requires no moderator and, like the atomic bomb, makes use of fast neutrons. In fact this reactor may be regarded as an atomic bomb brought under control and made to release its energy slowly instead of in a fraction of a second. Dr. Bradbury stated that the plutonium pile was another step toward finding the most efficient method of utilizing atomic energy.

It is presumed that the development of the plutonium pile cost the life of Dr. Louis Slotin, who died from an overdose of radiation as the result of an accident at Los Alamos in May 1946. Dr. Slotin is understood to have separated with his bare hands some pieces of plutonium which were beginning to glow with a blue light, apparently approaching the explosive point.

Military Considerations.—The U.S. army expressed its views on the atomic bomb in 1947 in a document submitted to congress under the title of "The Effects of the Atomic Bomb on National Security (An Expression of War Department Thinking)." This report states quite frankly, "The total destruction of a nation's resources which has evolved from the development of strategic bombing has been brought to culmination by the atomic bomb. The end of an atomic war may find both victor and vanquished in a state of almost complete ruin. It follows that winning the war may well not be preserving national security."

The army held that the atomic bomb is not an all-purpose weapon but that when used to attack major military targets it is "a decision in a package." While the long-range bomber is the principal means of delivering the bomb at present, the army anticipated the development of pilotless aircraft and guided missiles suitable for this purpose.

The army believed that the existence of the bomb makes it imperative for the U.S. to build up stronger defenses of radar detection stations, interceptor fighter planes, etc. It also saw the need of military allies and advanced bases.

The report concludes, "The bomb, and the potential range of aircraft and missiles, has made the defense of the nation more difficult, more expensive, and less certain of attainment. The need of eliminating war itself has never been so vitally necessary to the national security of the U.S. and to the survival of civilization throughout the world."

The views of senior officers of the U.S. navy were set forth in a report prepared by Dr. Bernard Brodie for the legislative reference service of the Library of Congress. The navy officers believed that it would be approximately 15 years before any other nation possessed atomic bombs in quantity and that the existing U.S. active and reserve fleets appeared suitable for the kind of hostilities likely to prevail should war break out in the next 10 years. The officers regarded the bomb as a "scarce and expensive" weapon which could be delivered successfully only from advanced bases by well-protected bombing planes.

In a subsequent "critique," Dr. Brodie took the navy officers to task for regarding the atomic bomb as scarce and expensive and said that in his view a nation could afford to lose 90% of the bomber planes bearing atomic bombs by reason of the immense damage the other 10% could do.

Special Weapons Project.—On July 24, 1947, the U.S. army and navy announced the formation of an Armed Forces Special Weapons project as a joint organization to discharge all military functions relating to atomic energy. The program includes training of special personnel and "military participation in the development of atomic weapons of all types." The project was commanded by Maj. Gen. Leslie R. Groves, wartime head of the Manhattan project.

Radioactivity at Bikini.—The Bikini Atoll, scene of the 1946 atomic bomb tests, was still radioactive in the summer of 1947. Dr. William H. Hamill and Dr. Russell R. Williams, Jr., of the University of Notre Dame, reported that coconuts growing on the island of Bikini were radioactive and that fish caught in the lagoon were also radioactive. The two scientists spent five weeks on the island with a navy expedition. They regarded the island as safe for human beings for short periods.

Plight of Bikini Natives.—When Bikini Atoll was chosen for the 1946 atomic bomb tests, "King" Juda and his 165 followers were moved to Rongerik Island, 130 mi. east of Bikini. A report made to the navy in 1947 by Dr. Howard G. MacMillan stated that the natives were "destitute and unable to support themselves on the island's agriculture or fisheries." On Oct. 2, the Pacific Trusteeship authority at Pearl Harbor announced that the Bikini natives would be moved to Ujelang Island, 290 mi. southwest of Bikini and 400 mi. west of Rongerik. Ujelang is a larger island than Rongerik.

In the United Kingdom.—The British Atomic Energy act of 1946 was adopted by the house of commons on Nov. 6, 1946. It is comparable in many ways with the U.S. Atomic Energy act of 1946. However, instead of creating a commission, it lodges the control of atomic energy activities in the ministry of supply.

A uranium refining factory was located at Springfields, Lancashire, and 1,000 tons of uranium ore were imported from the Belgian Congo.

On May 19 the ministry of supply announced that "Possible use of the former explosive factory at Drigg for a purpose in connection with atomic energy is under technical examination." British newspapers said that the site, which is in West Cumberland, 250 mi. northwest of London, was being considered for the construction of a uranium pile.

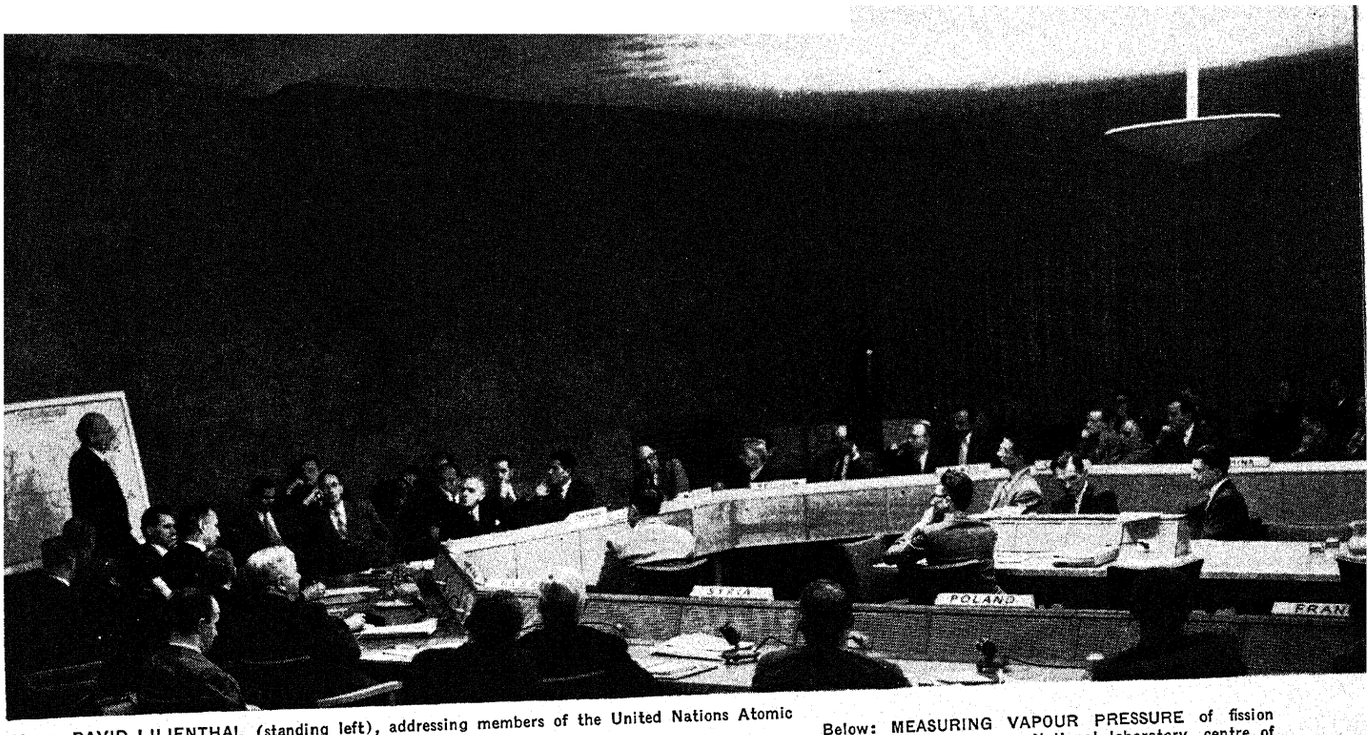
In France.—The French government created an Atomic Energy commission (Commissariat à l'Energie Atomique) of which Dr. Frederick Joliot-Curie was the head. Dr. Joliot-Curie stated that the commission intended to devote itself to the peaceful applications of atomic energy only.

He disclosed that the commission had made substantial progress in the construction of two atomic piles of medium power. A survey to find uranium ores had been started. Factories to purify uranium salts were put into operation. Laboratories were established at Fort Chatillon on the outskirts of Paris. Construction work was started on a "Center of Nuclear Studies" on the Saclay plateau 15 mi. from Paris.

In Canada.—The story of Canada's part in the wartime atomic bomb researches was disclosed more fully during 1947. Experiments with uranium, using carbon as a moderator, were begun in the laboratories of the National Research council at Ottawa in March 1940.

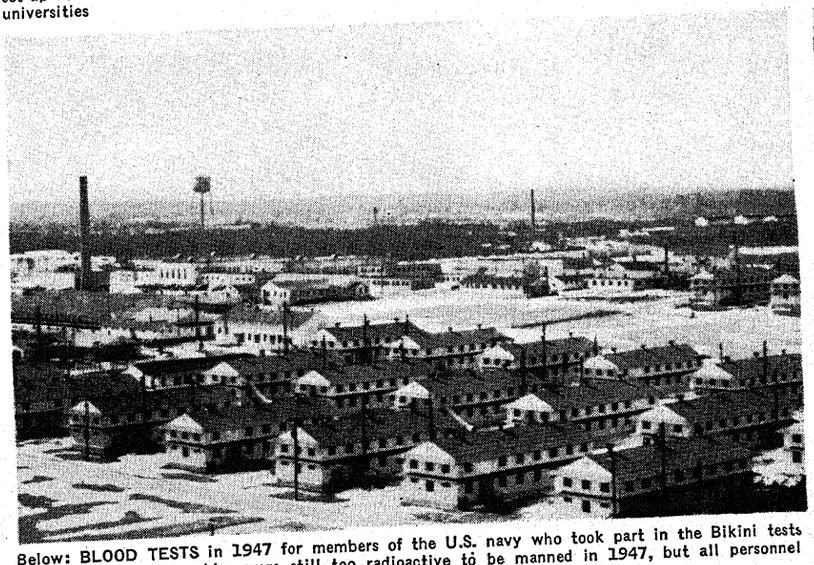
In 1942 a laboratory was established at Montreal as a joint project of the Canadian and United Kingdom governments. In 1943, following discussions with U.S. and British authorities, it was decided to build a uranium pile using heavy water as a moderator on the south bank of the Ottawa river, near Chalk river and 130 mi. west of Ottawa. Operation of the Chalk River plant was taken over by the National Research council of Canada under the direction of Dr. David Keys.

On Aug. 31, 1946, Canada established an Atomic Energy Con-

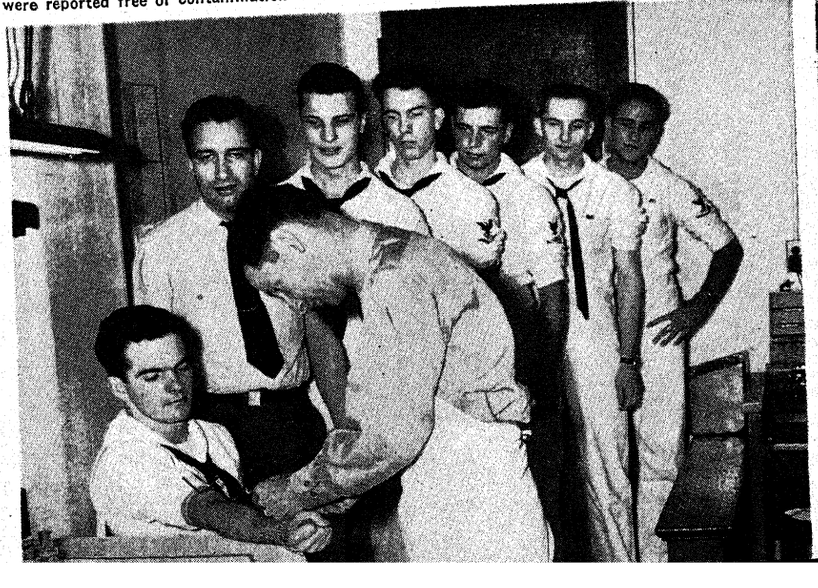


Above: DAVID LILIENTHAL (standing left), addressing members of the United Nations Atomic Energy commission at Lake Success, N.Y., in June 1947

Below: BROOKHAVEN NATIONAL LABORATORY, a huge centre for peacetime atomic research set up at Brookhaven, N.Y., in 1947. The government-financed project was operated by nine eastern universities



Below: BLOOD TESTS in 1947 for members of the U.S. navy who took part in the Bikini tests of 1946. Remaining ships were still too radioactive to be manned in 1947, but all personnel were reported free of contamination



Below: MEASURING VAPOUR PRESSURE of fission products at the Argonne National laboratory, centre of nuclear studies at Chicago, Ill. Plans were under way in 1947 to unite the project's scattered facilities on government-purchased land 26 mi. outside of Chicago



trol board to control all activities connected with atomic energy. It has powers to control the operation of the uranium mines at Great Bear lake, N.W. Terr., and the refineries at Port Hope, Ont., as well as other activities.

In the Soviet Union.—Addressing the Moscow celebration of the 30th anniversary of soviet rule on Nov. 6, 1947, Foreign Minister Molotov stated that the secret of the atomic bomb "has long ceased to exist." This statement brought wild cheers from his auditors who apparently interpreted it to mean that the Soviet Union now had the atomic bomb.

Statesmen, scientists and military experts in other countries rejected this interpretation, agreeing in general that it would take the Soviet Union from 8 to 15 years to produce atomic bombs in quantity.

Elementary Particle Physics.—Laymen who have difficulty in keeping up with the developments in nuclear physics may be surprised to learn that many leaders of the world of physics are turning to a yet newer specialty known as subnuclear physics or elementary particle physics. This branch of physics is concerned with certain aspects of the behaviour of the elementary particles comprising the universe, namely, the electron, the positron, the proton, the neutron and the meson. In particular, it is concerned with transformations in which these elementary particles change their character or are created or destroyed.

At the present moment, these researches represent an attempt to arrive at a better understanding of nature. But it is difficult to predict what their ultimate effect might be. Dr. John A. Wheeler stated that one eventual possibility is a method of releasing atomic energy which would produce from the ordinary substances all around us greater amounts of energy than uranium fission. Such a development would make it possible to manufacture atomic bombs thousands of times more powerful than those now in existence. It would change the whole aspect of the international control of atomic energy which is predicated on the fact that at present it is only necessary to control uranium and thorium.

Researches in elementary particle physics require the use of extremely high energies. It is for this reason that an effort is being made to design more powerful cyclotrons and other machines. The subject has also given an impetus to the study of cosmic ray phenomena since such high energies are encountered in the cosmic rays.

New Atom-Smashers.—More than $10,000,000 was spent in the U.S. during 1947 on new "atom-smashers." These included the familiar Van de Graaff generators, cyclotrons, betatrons and three newer devices, namely synchrotrons, synchro-cyclotrons and linear accelerators. It was estimated that the bill for these new devices would eventually reach $100,000,000. So far, a great part of the financing had come from the army and navy.

Atmospheric Radiocarbon.—Researches conducted by the Institute for Nuclear Studies of the University of Chicago and the Houdry Process corporation, made public on May 30, disclosed the existence of carbon 14, a radioactive isotope, in the atmosphere. The carbon 14 is produced by the bombardment of atmospheric nitrogen by incoming cosmic rays. Dr. Willard F. Libby and Dr. A. V. Grosse, who headed the researches, also demonstrated that this radiocarbon is a constituent of all living matter. Less than one millionth of 1% of the carbon in the human body consists of carbon 14. Nevertheless this is enough to cause 150,000 nuclear disintegrations per minute. Dr. Grosse believed that other "cosmic ray elements" would eventually be found in the atmosphere.

The Future.—Scientists feel that civilization stands at the crossroads. One path leads to an international atomic armament race which they believe certain to end in World War III and the destruction of civilization. The other path leads to the peacetime development of atomic energy with vast possibilities for the advancement of health and happiness. (*See* also CHEMISTRY; METALLURGY; PHYSICS; URANIUM.)

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Atom Smashers: *see* ATOMIC ENERGY.

Attlee, Clement Richard (1883–), British prime minister, was born in London on Jan. 3. After leaving Oxford university he worked in the East End of London, and in 1913 became a lecturer at the London School of Economics. In World War I he served in Gallipoli, Mesopotamia and France. He was elected mayor of Stepney in 1919, member of parliament for Limehouse in 1922, and in the second Labour government was chancellor of the duchy of Lancaster, and later postmaster general. He held office in the wartime coalition government, and became prime minister when the Labour party achieved a majority in July 1945.

Attlee took special responsibility for the passage of the bills through parliament which led to the transfer of power from British hands in India and Burma. He also acted as chairman of the joint committee of ministers and officials which handled the fuel crisis in February.

In Jan. 1947, he received a visit from Léon Blum, prime minister of France, and during the year also received delegations from the supreme soviet of the U.S.S.R. led by V. V. Kuznetsov (January), the parliament of Czechoslovakia (May), the executive council of the governor of Burma (January), and in June a Burmese goodwill mission.

Attlee, at the Labour party conference in May, reviewed the achievements of his government and spoke of the long-term plan to which it was pledged.

The prime minister and Mrs. Attlee visited Walcheren, Netherlands, to take part in a tree-planting ceremony observing the restoration of the island which was flooded in 1944 when R.A.F. raids blew four breaches in the dykes. Following the wedding of Princess Elizabeth to the duke of Edinburgh on Nov. 20, Attlee held meetings with William Mackenzie King, premier of Canada, Field Marshal Jan Smuts, premier of South Africa, and other empire statesmen who were in London.

Auriol, Vincent (1884–), French statesman, was born on Aug. 27 at Revel (Haute-Garonne *département*). After receiving his degree of doctor of laws at the faculty of law in Toulouse, he practised in that city. He was elected to the chamber of deputies as Socialist member for Muret in 1904, and was successively re-elected up to the collapse of France in June 1940. Auriol's first cabinet post was in Léon Blum's popular front government in 1936, when he was appointed minister of finance. He was minister of justice in the Camille Chautemps government (1937–38) and held a cabinet post in the second and short-lived Blum government in 1938. Auriol protested against the armistice of 1940 and against Marshal Henri Philippe Pétain's efforts to establish totalitarian rule, was imprisoned by Vichy authorities for several months but was later released. In Oct. 1943 he escaped to London where he joined Gen. Charles de Gaulle's movement. He became a member of the assembly set up in Paris after its liberation in Aug. 1944. In Nov. 1945 he was appointed minister of state without portfolio in the De Gaulle government. He was elected president of the French constituent assembly on Jan. 31, 1946. On Jan. 16, 1947, Auriol became the first president under

the constitution of the Fourth Republic. In April 1947 he paid an official visit to French West Africa.

Austin, Warren Robinson (1877–), U.S. statesman and politician, was born in Highgate, Vt., Nov. 12. He was graduated with a Ph.B. degree from the University of Vermont in 1899 and was admitted to the bar in 1902. He was elected to the U.S. senate on the Republican ticket in 1931 to fill out an unexpired term and was re-elected in 1934 and 1940.

Although a Republican, Austin sided with the Roosevelt administration on foreign policy. In June 1946, he was appointed U.S. representative to the U.N. security council by President Harry S. Truman. He formally succeeded to this post (vacated by Edward R. Stettinius, Jr.) in Jan. 1947 at which time he also became a member of the U.N. Atomic Energy commission. Shortly after assuming the latter post, Austin reaffirmed (Jan. 25) U.S. support of the Baruch plan for international atomic control.

On March 28, Austin told his security council colleagues that the Truman doctrine did not signify that the U.S. was forsaking the U.N. He urged the security council (June 27), to use "enforcement action" under the charter to prevent further support of Greek guerrillas by Yugoslavia, Bulgaria and Albania.

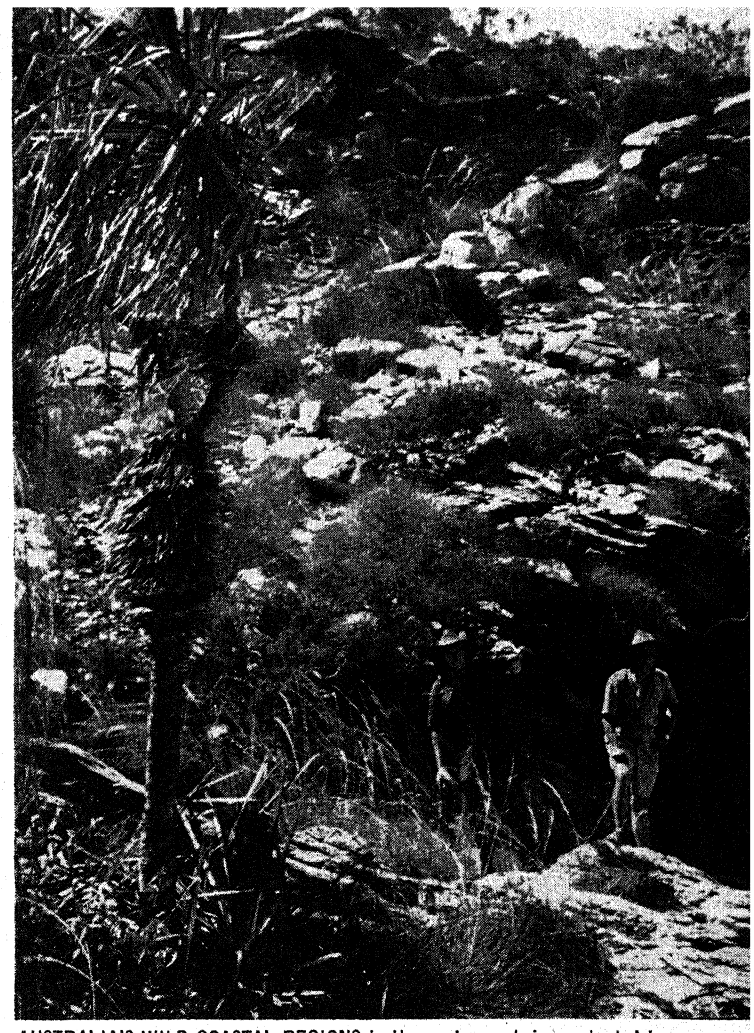
On Oct. 23, he demanded flat rejection of the Soviet resolution calling for punishment of "warmongers" and on Nov. 11, he scored abuse of the veto by the Russians and their failure to agree on atomic energy control.

Australia, Commonwealth of. A self-governing member of the British commonwealth of nations, situated in the southern hemisphere. Area: 2,974,581 sq.mi.; pop. (census June 30, 1947) 7,580,820. Chief cities (pop. June 30, 1947): Canberra (capital, 15,156); Sydney (1,484,434); Melbourne (1,226,923); Adelaide (382,604); Brisbane (402,172); Perth (272,586); Hobart (76,567); Newcastle (127,188). Language, English. Religion, Christian (census 1933: Anglican 2,565,118; Roman Catholic 1,161,455; Presbyterian 713,229; Methodist 684,022; other Christians 603,914). Ruler, King George VI. Governor general in 1947, William John McKell. Prime minister, Joseph Benedict Chifley.

History.—On Jan. 31, 1947, approval of the appointment of W. J. McKell as governor general was announced from Buckingham palace. McKell, who had been premier of New South Wales from 1941 until the date of his appointment, was the second Australian to hold the office of governor general of the commonwealth.

Following its return to power after the general elections in Sept. 1946, the Chifley government had a strenuous term of office. It encountered some difficulties with its own supporters over the proposal to ratify the Bretton Woods agreements, but these were successfully overcome in March 1947 when a bill for acceptance of the agreements was finally passed.

The political sensation of 1947 was the government's announcement that it proposed to nationalize the private trading banks. In May it was decided, under the powers given by section 48 of the Banking act, 1945, to prevent private banks from conducting the banking business of state and local governing authorities as from Aug. 1. On Aug. 13, after challenge by the Melbourne city council, the high court declared section 48 invalid. Three days later the proposal to nationalize the banks was announced by Prime Minister Chifley, and a bill to give it effect was introduced into the house of representatives on Oct. 15. While the bill provided for protection of the interests of shareholders and bank staffs, the proposal to give the Commonwealth bank a practical monopoly of banking aroused the most intense controversy. It was anticipated that the almost certain passage of the bill would be the prelude to a long battle in the courts.



AUSTRALIA'S WILD COASTAL REGIONS to the west were being recharted in 1947 as part of a royal naval project to correct the sketchy coast-line map of the huge island continent. Surveyors are shown on field assignment

Extensive amendments, under which conciliation commissioners were given very much wider powers and increased considerably in numbers, were made to the Commonwealth Arbitration act in April. The new act came into operation with a full complement of commissioners later in 1947. An act to consolidate commonwealth social services was passed in June, and a bill was in preparation at the end of the year for the purpose of establishing a comprehensive national medical service.

A commonwealth census of population and dwellings was taken on June 30, 1947. It revealed that the population had increased from 6,629,839 at the census of June 1933 to 7,580,820, or by 14.3%, compared with an increase of 22% in the shorter interval between 1921 and 1933. The immigration program sponsored by the commonwealth government officially commenced in March, but was hampered in its early stages by the shipping shortage. European and American as well as British sources were being tapped.

External Affairs.—The year was marked by the holding of two important international conferences in Canberra. At the first, which opened on Jan. 28, the six participating governments (Australia, France, Netherlands, New Zealand, United Kingdom and United States) signed an agreement establishing a South Pacific commission within the ambit of the United Nations charter. The commission would be concerned with the economic and social interests of the Melanesian and Polynesian peoples of the South Pacific region, numbering nearly 2,000,000. The sec-

ond gathering, which opened on Aug. 28, was a British Empire conference on the Japanese peace settlement. It was attended by representatives of the United Kingdom and all the dominions, including (for the first time) the new dominions of India and Pakistan, and a representative of Burma. No formal decisions were recorded, but a wide harmony of views was evident on the scope and character of the peace settlements.

An Australian delegation took a prominent part at the second session of the preparatory committee of the United Nations Conference on Trade and Employment at Geneva and at the full conference at Havana at the end of the year. The general agreement on tariffs and trade was provisionally accepted in November, and consequential adjustments in the Australian tariff were brought into operation at the same time.

Defense.—General demobilization ended in Feb. 1947. Australia's postwar defense plans were completed by the middle of 1947 and discussed with Field Marshal Viscount Montgomery of Alamein during his visit to Australia in July. The government approved a five-year program which would involve a total expenditure over the period of £A1,000,000.

Work commenced on the Guided Missiles range, which extends from Mt. Ebo in South Australia to the Indian ocean. The Guided Missiles project was vigorously advanced despite some early opposition from the Communist party.

Public Finance and Economic Affairs.—During 1947 employment rose to record levels. Seasonal conditions were greatly improved, and very high prices were received for exports, especially wool and wheat. By September the export price index was 71% above the level of June 1946 and 171% above the 1937–39 level. Industrial output made good but uneven gains, and there was a marked growth in new manufacturing activities. Fair progress was made with the housing program, but it was somewhat hampered by shortages of labour and materials.

After a protracted hearing the Commonwealth Arbitration court decided in September to reduce the standard working week under commonwealth awards from 44 to 40 hours as from Jan. 1, 1948. Major relaxations of the wage-pegging regulations were made in April and again in October, and industrial tribunals were then substantially free to vary wage rates at their own discretion.

Overseas trade for the year 1946–47 resulted in an export surplus of £A77,782,000. Exports of merchandise increased by 56% to £A306,685,000 while imports rose by 17.6% to £A228,903,000. As a result of the British sterling crisis Australia, as a member of the sterling pool, agreed to live within its overseas income in 1947–48. The astonishingly bountiful season, resulting in a record wheat crop and an excellent wool clip, together with the high prices then ruling for Australian exports, would make this easy, but the dollar position continued to cause anxiety. Heavy restrictions on imports from dollar sources were imposed in early September, and further drastic cuts were made later in the year.

In March 1947 taxation reductions were announced to operate as from July 1. Income tax and social service contribution rates were reduced and rebates for dependents increased, at an estimated cost of £A34,000,000 per annum. The only new changes made in the September budget for 1947–48 were the abolition of the wartime (company) tax, minor sales tax concessions and suspension of the gold tax.

Expenditure on defense and allied services in 1946–47 was £A129,000,000 and on postwar charges £A161,000,000. (Credits against both items reduced the net total to £A232,000,000.) The second item included a gift of £A25,000,000 to the United Kingdom as a contribution to war costs in the Pacific. Nonwar expenditure amounted to £A218,000,000. Total expenditure at £A450,000,000 exceeded total revenue by £A38,000,000, the deficit being financed wholly out of loans raised from the public. Expenditure in 1947–48 on defense and allied services was estimated at £A80,000,000, on postwar charges at £A120,000,000 (with credits of £A32,000,000), and on nonwar items at £A259,000,000 (including £A33,000,000 on civil works). The expected deficit of £A30,000,000 would be financed by public loans.

Education.—In 1945: state schools 8,447, average attendance 726,440, teachers employed 31,061; private schools 1,817, average attendance 249,024, teachers 11,799; technical schools 114, total enrolment 110,841, teachers 5,165; business colleges 109, average attendance 23,270, teachers 659; universities 7, total enrolment 15,586.

Banking and Finance.—Revenue (est. 1947–48) £A397,000,000; expenditure (est. 1947–48) £A427,000,000 (ordinary £A259,000,000; defense and postwar charges £A168,000,000). Revenue (actual 1946–47) £A412,437,000; (est. 1946–47) £A384,976,000; expenditure (actual 1946–47) ordinary £A217,734,000; defense £A232,597,000; estimated (1946–47) ordinary £A222,505,000; defense £A221,000,000. Public debt (June 30, 1947) £A2,891,032,000; notes issued (June 30, 1947) £A202,643,000; gold and sterling reserve (June 30, 1947) £A50,880,000; exchange rate £A1 = 321.8 U.S. cents.

Trade and Communications.—Overseas trade 1946–47 (merchandise): imports £A228,903,000; exports £A306,685,000. Communication and transport: roads (1944) total mileage *c.* 491,000 mi.; railways open to traffic (1947) 27,180 mi.; airways (1946–47), distance flown (internal) 24,485,000 mi., (external) 6,154,000 mi.; mails carried (internal) 941,301 lb., (external) 628,218 lb.; motor vehicle registrations (June 30, 1947): cars 550,409, commercial vehicles 376,320, cycles 86,636; wireless receiving set licences 1,771,247; telephones, number of lines, 647,846; instruments connected, 855,917.

Agriculture, Manufacturing, Mineral Production.—Production (in short tons): wool (1946–47) 491,895; wheat (1946–47) 3,517,860; oats (1946–47) 311,300; barley (1946–47) 289,925; maize (1946–47) 161,589; cane sugar (1946–47) 618,240; butter (1946–47) 160,508; cheese (1946–47) 47,150; gold (1946) 824,480 fine oz.; coal (1946) 15,551,000; pig iron (1946) 1,276,000; copper (1946) 25,378; lead (1946) 153,954; tin (1946) 2,492; zinc (1946) 85,474; silver (1946) 6,182,760 oz. Total value of production (1945–46): agricultural, pastoral and dairying £A251,679,000; mineral £A26,288,000; manufacturing £A354,479,000. Labour and employment: employment in factories (1937–39 = 1,000) (Aug. 1947) 1,533; number (Aug. 1947) 805,800; unemployment (trade union returns) (Aug. 1947) 1.1%. Total output of factories (1945–46) £A869,803,000.

(R. WN.)

Austria.

A republic of central Europe. Area: approx. 32,000 sq.mi.; pop. (1939) 6,650,000, of whom more than 90% were Roman Catholics. Chief cities (pop. 1939): Vienna (cap., 1,918,462); Graz (210,175); Linz (131,423); Salzburg (79,264); Innsbruck (80,084). President of the republic: Karl Renner; chancellor: Leopold Figl.

History.—In Jan. 1947 the Four Power talks began in London on the Austrian treaty. An Austrian delegation composed of Chancellor Figl, Foreign Minister Karl Gruber and the minister of economics, Dr. Peter Krauland, went to London to ask for full implementation of the Moscow decisions of Nov. 1943 concerning Austrian independence and the integrity of the 1938 Austrian frontiers. These talks did not lead to any definite results; the U.S.S.R. objected to the U.S. and British views on German assets in Austria, which it estimated much higher than did the western Allies. The U.S.S.R. also indicated that it would support Yugoslav territorial claims on the southern frontier districts of Carinthia, which the western powers strongly

opposed. Subsequent Four Power talks took place in April in Moscow, and again in London in October, but on neither occasion was any agreement reached on any essential points. A new invitation for the next meeting in London on Nov. 25 was addressed to Dr. Gruber, who had then a new opportunity to reiterate his country's point of view, but again there was a deadlock over the question of German assets, and no solution was reached.

The lack of any essential agreement among the Four Powers largely determined internal developments. The hopes of the Austrian government of seeing an end, or at least a reduction, of the Allied occupation in Austria, which was economically a hard burden on the country and politically an obstacle to the achievement of full national independence, came no nearer to realization. The economic situation still suffered greatly from the division of the country into four zones, as well as from the obstacles put in the way of a regular trade with Austria's eastern neighbours Hungary and Yugoslavia. At the end of 1947, the daily individual food ration of Austrians amounted to 1,600 calories, and the efforts of the federal government were directed towards an increase to 1,800 calories. The federal government also applied to the Allied control commission for repeal of Allied military law over Austrian civilians. It argued that the Allied control agreement of June 28, 1946, foresaw the transfer of certain cases to the ordinary Austrian courts; yet in two notable instances in September, on the occasion of a demonstration in Ischl against Jewish displaced persons from Hungary and Rumania, whose presence gravely increased the local food difficulties, and in the case of two policemen in lower Austria who wounded a soviet soldier, allegedly drunk and disorderly, military courts gave verdicts which Dr. Figl judged too severe, if not entirely unjust.

On the other hand, a few friendly Allied gestures caused great satisfaction. The U.S. high commissioner, General Geoffrey Keyes, ordered the cessation of telephone and telegraph censorship in the U.S. zone as from Nov. 10. Great Britain restored the state of peace with Austria on Sept. 16, and Lord Pakenham, in the name of the British government, addressed a friendly telegram to Dr. Figl on this occasion. Among other improvements, Austrian prisoners of war detained in the U.S. and British zones in Germany were repatriated in great numbers, and the repatriation of Austrian prisoners of war in the U.S.S.R. or in soviet-occupied territories also began. On the coming into force of the Italian peace treaty, normal diplomatic relations were established with Italy, and on this occasion the importance of the Austro-Italian agreement of Sept. 5, 1946, concerning the minority rights of the population of South Tyrol (which was added as annex No. 4 to the peace treaty), was officially reiterated. In a speech at Innsbruck on Sept. 21, much commented on, President Renner emphasized that Austria would never renounce her rights in the South Tyrol and developed the idea of an east-west corridor in Europe, consisting of Switzerland and Austria, adding that such a neutral corridor could have prevented the formation of the Rome-Berlin axis before 1938 and could now be a "useful bridge between east and west Europe." This speech seemed to contain the essence and the constructive outline of Austrian diplomacy. Trade with western Europe was reopened, an Anglo-Austrian chamber of commerce was constituted, and the first postwar Vienna Fair was held in September with considerable success.

In internal politics the most significant crisis came to a head at the end of August. The director of the Vienna police, Dr. Klauser, who owed his position to the support of the soviet occupation authorities, was replaced by the federal government by the Social Democrat councillor, Yoseph Holaubeck, hitherto chief of the fire services of Vienna. Other appointments aiming at strengthening the federal authority over the administration and especially the police force took place, but some of them concerning the districts in the soviet zone could not be put into effect owing to the opposition of the occupying authority.



SOME OF VIENNA'S OLDEST TREES were being cut down for firewood in 1947 to alleviate a severe coal shortage during the winter months. Workmen are shown sawing a fallen log in the park before the *Rathaus*

The political situation was still characterized by the coalition of the Social Democrats and the Christian Democratic People's party represented respectively by President Renner and Dr. Figl. (*See* also OCCUPIED AREAS, ADMINISTRATION OF.) (B. ME.)

Autobiography: *see* AMERICAN LITERATURE; etc.
Automobile: *see* AUTOMOBILE INDUSTRY; MOTOR TRANSPORTATION.
Automobile Accidents: *see* ACCIDENTS; INSURANCE.

Automobile Industry.

New records were established in the production of motor trucks, motor buses and automotive replacement parts in the U.S. in 1947, even though the output of passenger cars was surpassed by nine prewar years. Total employment and pay rolls of motor vehicle, parts and accessory manufacturing plants surpassed all previous high marks. The registrations of passenger cars, trucks and buses likewise chalked up a new high mark, as did the aggregate of vehicle miles driven and the total of special motor vehicle taxes. Motor truck production of 1,219,446 units in 1947 surpassed the preceding peak year, 1941 by 16% and 1946 by 31%.

Passenger car production, hampered by the shortage of sheet steel to a relatively greater degree than truck output, reached a total of 3,558,118 units, which was 5% lower than 1941 but 66% greater than 1946. The output of motor coaches, exclusive of school buses, equalled 18,835 units, a new high record.

Factory sales to the U.S. domestic market during 1947 were

3,297,247 passenger cars, 970,416 motor trucks and 16,383 motor coaches. Compared with factory sales to the domestic market in 1946, there occurred an increase of 64% in passenger cars, 30% in trucks and 76% in coaches.

Factory sales to foreign markets in 1947 likewise reflected gains over 1946. Passenger car exports of 260,871 gained 81%, motor truck exports of 249,030 increased 33% and motor coaches shipped abroad of 2,452 gained 201%. In the latter half of 1947 several countries imposed restrictions on importation of motor vehicles from the U.S., due to shortages in dollar balances for payments. However, the total volume of vehicle exports was not greatly affected because the world demand for motor transportation was so large that the curtailment or embargo by some countries was soon absorbed by other countries with adequate means of payment. As in the domestic market, the demand for vehicles was greater than the supply; so that the cessation of demand from certain markets was compensated by a corresponding increase in allocation of vehicles to other markets that stood ready to absorb them.

Table I.—*Motor Vehicle Factory Sales From Plants Located in United States, 1947*

	Passenger Cars	Motor Trucks	Motor Coaches	Total
Jan.	246,605	99,818	1,273	347,696
Feb.	267,015	105,042	1,303	373,360
March	301,525	118,234	1,421	421,180
April	314,765	106,984	1,650	423,399
May	284,357	96,430	1,853	382,640
June	307,124	91,620	1,628	400,372
July	279,631	97,755	1,806	379,192
Aug.	261,158	86,486	1,765	349,409
Sept.	307,942	110,720	1,608	420,270
Oct.	315,969	118,365	1,667	436,001
Nov.	305,148	87,611	1,417	394,176
Dec.	366,879	100,381	1,444	468,704
	3,558,118	1,219,446	18,835	4,796,399

Source: Automobile Manufacturers Association.

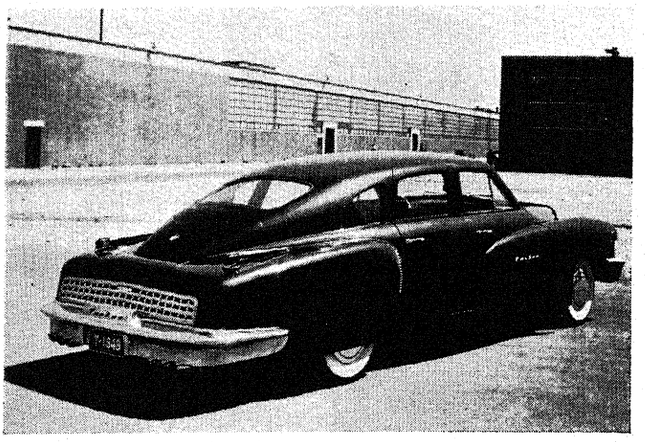
Table II.—*Factory Sales to U.S. Domestic and Export Markets, 1947*

	Passenger Cars		Motor Trucks		Motor Coaches	
	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
Jan.	226,695	19,910	77,434	22,384	1,115	158
Feb.	245,081	21,934	83,276	21,766	1,090	213
March	280,018	21,507	92,082	26,152	1,272	149
April	291,953	22,812	83,515	23,469	1,465	185
May	261,240	23,117	75,696	20,734	1,599	254
June	284,576	22,548	73,613	18,007	1,409	219
July	257,881	21,750	78,444	19,311	1,694	112
Aug.	240,358	20,800	66,382	20,104	1,570	195
Sept.	285,590	22,352	89,724	20,996	1,413	195
Oct.	295,099	20,870	94,307	24,058	1,527	140
Nov.	284,730	20,418	71,161	16,450	1,142	275
Dec.	344,026	22,853	84,782	15,599	1,087	357
	3,297,247	260,871	970,416	249,030	16,383	2,452

Source: Automobile Manufacturers Association.

The trend in demand for heavier or larger trucks as measured by gross vehicle weight, is reflected in the figures for 1947 as compared with 1946, shown in Table III. In 1947 factory sales of trucks with a g.v.w. rating of 16,000 lb. and over comprised 9% of total compared with 6.7% in 1946. Although comparable classifications of truck factory sales were not available in prewar years because manufacturers then rated trucks on a carrying-capacity basis, truck factory sales in 1940 with a rated capacity of 2½ tons and over, roughly comparable with the present grouping above 16,000 lb. g.v.w., represented only 4.9% of total factory sales that year.

The record demand for replacement parts continued throughout the year 1947, when an aggregate of $2,352,000,000 worth of parts was produced, surpassing the prior record year 1946 by 34% and the highest prewar year 1941 by 227%. When production of new cars, trucks and buses was either sharply curtailed or entirely discontinued at the beginning of 1942, owners of motor vehicles began the practice of maintaining their vehicles in better condition by replacing worn out or broken parts, with the result that the total volume of replacement parts produced kept on increasing throughout the war period. Since production of new civilian vehicles could not catch up with the tremendous accumulated demand accruing during the war period, owners of old cars continued the practice of repairing their vehicles until they could purchase new ones. The demand for new vehicles continued to surpass the supply by a very wide margin, so that the demand for replacement parts for the old vehicles in use continued unabated.



THE REAR-ENGINED TUCKER '48, which was previewed in Chicago, Ill., during the summer of 1947

Table III.—*Motor Truck Factory Sales by Gross Vehicle Weight* From Plants Located in United States*

	1946 (1st 11 Mo.)		1947 (1st 11 Mo.)	
G. V. W. in lb.	Units	Per Cent	Units	Per Cent
5,000 and less	299,804	36.4	341,641	30.5
5,001 to 10,000	74,846	9.1	165,170	14.7
10,001 to 14,000	232,399	28.3	249,324	22.3
14,001 to 16,000	160,665	19.5	262,196	23.5
16,001 to 19,500	21,254	2.6	37,277	3.3
19,501 to 26,000	21,998	2.6	39,109	3.5
26,001 and over	12,178	1.5	24,348	2.2
Total	823,144	100.0	1,119,065	100.0

*Gross vehicle weight includes weight of the truck and the maximum load.

Due to the hundreds of thousands of different kinds of parts used in the production of the various annual models for the previous 15 years and other complications, there were no figures available on the physical number of units produced but it was possible to obtain approximate figures on the aggregate dollar volume of replacement parts and accessories sold at wholesale prices in the industry by months, as well as annual totals:

Table IV.—*Wholesale Value of Automotive Replacement Parts and Accessories Sales to U.S. Domestic Market*

(In thousands of dollars)

	1941	1946	1947
Jan.	$51,337	$127,252	$181,119
Feb.	51,548	131,824	201,061
March	52,104	141,749	194,672
April	43,061	108,620	178,324
May	54,603	146,115	212,623
June	67,171	130,411	175,731
July	56,704	118,871	184,101
Aug.	72,249	175,003	256,836
Sept.	74,019	145,877	198,352
Oct.	72,960	195,722	
Nov.	70,519	150,221	570,000*
Dec.	51,937	181,252	
Total	$718,212	$1,752,917	$2,352,819

Source: Automobile Manufacturers Association.
*Includes October, November and December.

Employment in the production of motor vehicles and parts and other products produced by motor vehicle and parts factories during 1947 was 19% higher than the average for 1946 and 37% higher than the average for 1941. The average number of production workers in the year 1947 was 786,000, as compared with 661,000 in 1946 and 570,000 in 1941. When

salaried workers are added to the total production workers, average employment in 1947 was approximately 965,000 as compared with 819,000 in 1946 and 654,000 in 1941.

Table V.—*Employment in Motor Vehicle and Parts Manufacturing Industry*
(Number of Production Workers—in thousands)

	1941	1946	1947
Jan.	559	431	755
Feb.	569	430	791
March	579	464	798
April	586	646	807
May	597	675	751
June	604	693	789
July	570	725	785
Aug.	497	755	772
Sept.	560	788	798
Oct.	583	774	795
Nov.	592	778	796*
Dec.	544	774	796*
Average	570	661	786

*Estimated by A.M.A.
Source: Bureau of labour statistics.

Average weekly pay rolls of production workers in the industry during 1947 varied from a low of $40,000,000 in January to $47,682,000 in Oct. 1947, the latest figures available. The October average weekly pay roll was more than double the average pay roll in 1941 and 45% higher than the average weekly pay roll in 1946. The aggregate pay roll for production workers in the motor vehicle and parts industry in 1947 was approximately $2,300,000,000, as compared with $1,713,000,000 in 1946 and $1,346,000,000 in 1941.

Registrations.—According to preliminary figures issued by the U.S. Public Roads administration, the total registrations of passenger cars at the end of 1947 were 30,545,000, as compared with 28,100,188 at the end of 1946 and 29,418,313 at the end of 1941, which was the peak year prior to 1947. The number of cars in use increased 9% over 1946 and 3.5% over 1941.

Motor truck registrations at the end of 1947 were estimated at 6,492,000, compared with 5,725,692 at the end of 1946 and 4,876,054 at the end of 1941. The 1947 figures reflected an increase of 13% over 1946 and 34% over 1941. The total number of buses registered was estimated at 127,405, as against 119,937 in 1946 and 88,800 in 1941. This showed an increase of 6% over 1946 and 44% over 1941.

Total registrations of motor vehicles in the U.S. as compiled by the U.S. Public Roads administration are shown in Table VI.

Table VI.—*Registrations of Motor Vehicles in the United States*

	Passenger Cars*	Trucks	Total
1941	29,507,113	4,876,054	34,383,167
1942	27,974,156	4,608,086	32,582,242
1943	26,019,432	4,480,176	30,499,608
1944	25,572,849	4,513,340	30,086,189
1945	25,803,687	4,834,742	30,638,429
1946	28,220,125	5,725,692	33,945,817
1947†	30,672,405	6,492,000	37,164,405

*Includes buses. †Estimated.

Motor vehicle owners paid out more taxes in 1947 for the purchase of new vehicles and the operation of their vehicles than in any previous year in the history of the industry. They paid a total of $2,914,000,000, consisting of $602,000,000 in state registration fees, $1,178,000,000 in state gasoline taxes, $1,039,000,000 in federal excise taxes on purchases of new vehicles and parts and gasoline and lubricating oil, and $95,000,000 in tolls and local taxes. During 1946, which was the highest previous total for motor vehicle owners' special taxes, an aggregate of $2,507,000,000 was paid by the highway users. In 1941, $2,147,000,000 in special motor vehicle taxes was paid by highway users.

The increase in tax collections from motor vehicle users in 1947 was due to two factors, (a) the increased registration of motor vehicles, and (b) an increase in the aggregate vehicle miles travelled, which set a new high mark of 370,000,000,000 vehicle miles, as compared with 333,400,000,000 vehicle miles in 1941.

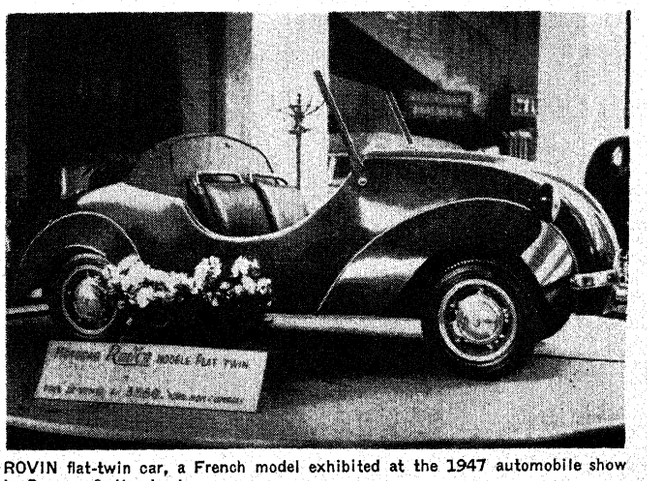
Instalment credit outstanding at the end of Oct. 1947 amounted to $1,050,000,000, as compared with $544,000,000 at the end of 1946, $227,000,000 at the end of 1945, $200,000,000 at the end of 1944, $175,000,000 at the end of 1943, $482,000,000 at the end of 1942, and $1,942,000,000 at the end of 1941, which was the peak reached in prewar years. It will be noted that the total automobile instalment credit outstanding at the end of Oct. 1947, the latest available figure, was only 54% of the 1941 total.

Due to the pressures of higher manufacturing costs, wholesale prices of new passenger cars and new trucks continued to increase in 1947. Higher wage rates granted because of increased cost of living, not only for workers in the motor vehicle factories but also for workers in plants supplying raw materials and finished and semifinished parts, caused prices of materials, parts and services purchased by motor vehicle factories to increase at approximately the same rate as in the products produced by motor vehicle plants. According to the price indexes compiled by the U.S. bureau of labour statistics on a monthly basis, the prices of new passenger cars sold in October were 12% higher than in Oct. 1946, and 43% higher than in Dec. 1941. Prices of new trucks sold in October were 12% higher than in Oct. 1946 and 42% higher than in Dec. 1941.

A survey issued by R. L. Polk and Company at the beginning of 1947 giving data as of July 1, 1946, showed the average age of passenger cars in use on July 1, 1946, to be nine years. This compares with an average age of 7.3 years as of July 1, 1944, and 5.5 years of age on July 1, 1941. Data for prior years indicate that the weighted average age of all vehicles in use maintained itself around 5.5 years of age.

A survey completed by the Automobile Manufacturers association in 1947 indicated that 8,200,000 persons were directly or indirectly employed in highway transportation industries. Of these, 1,741,000 were employed in the manufacture of motor vehicles, parts and accessories, tires, batteries and raw materials used in their manufacture, approximately 1,310,000 were employed in the sales and servicing of motor vehicles and parts, 4,753,000 individuals were employed as truck drivers or in the operation of trucking concerns, 203,400 were employed as bus drivers or in the operation of bus transportation companies, while 191,300 were employed in construction and maintenance of federal and state highways, not including construction and maintenance of local roads and streets. This figure of 8,200,000 represents one out of each seven persons gainfully employed in the U.S.

Canada.—Production of passenger cars in Canada during 1947 totalled 164,822 units, as compared with 91,871 in 1946. 1947 was exceeded only by the years 1929 when 203,307 passen-



ROVIN flat-twin car, a French model exhibited at the 1947 automobile show in Geneva, Switzerland

Table VII.—*Factory Shipments from Plants Located in Canada*

Passenger Cars

1947	Domestic Market	Export	Total
Jan.*	8,073	3,343	11,416
Feb.*	9,012	4,538	13,550
March*	9,176	4,751	13,927
April*	9,684	3,567	13,251
May	10,062	2,838	12,900
June	11,445	3,020	14,465
July	11,352	2,745	14,097
Aug.	8,755	1,534	10,289
Sept.	12,522	3,099	15,621
Oct.	12,652	3,510	16,162
Nov.	12,932	3,212	16,144
Dec.†	10,400	2,600	13,000
Year 1947	126,065	38,757	164,822

*Production. †Estimated by A.M.A.

Motor Trucks

Jan.*	4,519	3,048	7,567
Feb.*	4,531	2,666	7,197
March*	5,225	2,602	7,827
April*	5,938	3,166	9,104
May	5,246	3,460	8,706
June	4,439	2,160	6,599
July	5,377	2,366	7,743
Aug.	4,246	1,051	5,297
Sept.	6,123	2,381	8,504
Oct.	6,918	2,326	9,244
Nov.	4,418	2,593	7,011
Dec.†	3,700	2,000	5,700
Year 1947	60,680	29,819	90,499

*Production. †Estimated by A.M.A.

Note: The above table excludes motor coaches or buses from both the passenger car and motor truck sections. In addition to the motor trucks and passenger cars produced and exported as shown above, Canadian plants produced an estimated 863 buses for the Canadian domestic market and 33 units for export, or a combined total of 896 buses.

ger cars were produced, 1928 with 197,848, and 1926 when 166,887 units were turned out.

Of the 164,822 units produced in 1947, 38,757 were produced for export. Nearly 23% of the units produced were produced for export.

More motor trucks were produced in Canada in 1947, with 90,499 units, than in any peacetime year in the history of the industry. Of this total, 29,819 were produced for shipment to other countries. This was 33% of the production. During the war a greater number of military trucks were produced than the 90,499 turned out in 1947.

Monthly production for Canadian domestic market and for exports are shown for passenger cars and trucks separately in Table VII.

No estimates were available on total registrations in Canada at the end of 1947, but the total registrations of passenger cars at the end of 1946 were 1,234,006 and motor trucks 371,294, or a combined total of 1,605,300.

Great Britain.—Production of motor vehicles for the full calendar year 1947 was not available on an estimated basis, and hence figures for the first ten months of the year are shown in Table VIII.

Table VIII.—*Motor Vehicle Production and Exports in Great Britain*

Production	Passenger Cars	Commercial Vehicles	Total
First 10 mo. 1947	238,365	124,801	363,166
First 10 mo. 1946	166,311	113,310	279,621
Exports			
First 10 mo. 1947	124,341	39,354	163,695
First 10 mo. 1946	76,221	39,598	115,819
Per Cent Exported			
First 10 mo. 1947	52.1	31.5	45.0
First 10 mo. 1946	45.9	35.0	41.5

Production of passenger cars in Great Britain during the first ten months of 1947 increased 44% over the corresponding period of 1946, while exports of passenger cars gained 63% during the same period. Motor truck production in the first ten months of 1947 gained only 10% over the previous year, while exports of trucks actually showed a slight decline.

The proportion of passenger cars exported in 1947 was 52.1% of total production, as compared with 45.9% in 1946. The 31.5% of truck production exported represented a decrease from 35.0% trucks exported in 1946. (*See* also BUSINESS REVIEW.)

(O. P. P.)

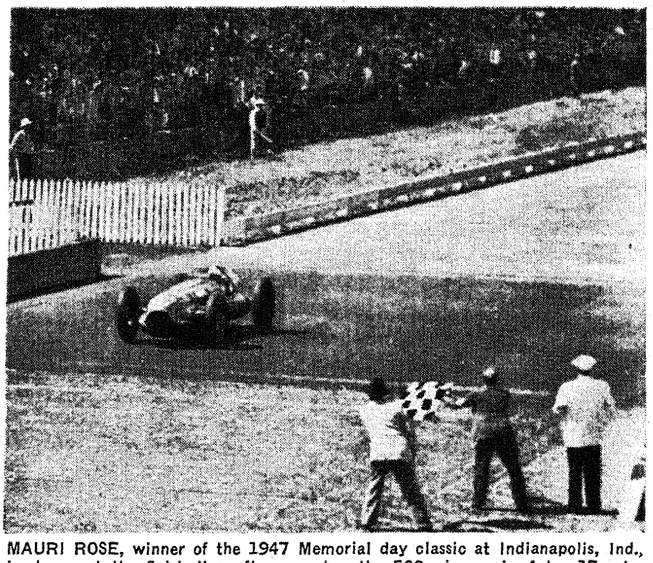
Automobile Insurance: *see* INSURANCE.

Automobile Racing. Mauri Rose, veteran speed-race auto driver from Chicago, Ill., won the annual 500-mi. Indianapolis speedway classic, driving a Blue Crown Sparkplug Special, in 4 hr. 17 min. 52.17 sec. Bill Holland, of Bridgeport, Conn., in the same racing equipment, was second in 4 hr. 18 min. 24.29 sec. Rose averaged 116.338 m.p.h. while Holland's speed was 116.097 m.p.h. Third place was captured by Ted Horn of Paterson, N.J., driving a Bennett Brothers Special.

The classic also resulted in the death of Shorty Cantlon of Indianapolis, Ind., who crashed into a wall.

Rose made a spectacular triumph, drawing up from 14th place to battle for more than 100 mi. with Holland; 50 mi. of this nip-and-tuck struggle kept the decision constantly in the balance.

A crowd of 168,000 persons saw the Indianapolis classic.



MAURI ROSE, winner of the 1947 Memorial day classic at Indianapolis, Ind., is shown at the finish line after covering the 500-mi. run in 4 hr. 17 min. 52.17 sec.

The Atlantic states ten-mile championship at Kingsbridge armory in New York city was won by Ed Schaeffer of Floral Park, L.I. Charles Miller of Linden, N.J., was second in this midget event. Jeep Colkitt of Paterson, N.J., was third.

The American Automobile Association George Robson memorial 100-mi. auto race was won for the second straight year by Tony Bettenhausen of Tinley Park, Ill. He drove a Belanger Special powered by a four-cylinder Offenhauser engine. His time was 1 hr. 14 min. 56.54 sec. He bettered his own 1946 time by three minutes. Ted Horn was second, half a lap off the pace. Charles Van Acker of South Bend, Ind., was third.

(T. J. D.)

Aviation, Civil. Scheduled Air Transport.—International carriers, with approximately 500,000 employees and 2,000 aircraft, were operating about 500,000 mi. of routes during 1947. For the year ending June 30, 934,799 passengers entered U.S. territory by air and approximately one-third of all visitors to Britain during 1947 arrived by aircraft. Between January and June, 80,108 persons moved on the 3,361 flights linking New York and Europe. Sleeper planes appeared on Atlantic routes for the first time after World War II, and

additional all-cargo flights indicated the growing importance of cargo.

At the close of its first year of operation on July 31, British European Airways' routes covered some 17,035 mi. During that period, B.E.A. in all services operated 35,933 flights 7,399,206 aeroplane miles, carried 269,678 passengers 73,689,920 passenger miles, 2,670,800 lb. of freight and 2,239,600 lb. of mail. In addition, B.E.A. participated in air transportation through partial ownership of air lines in Cyprus, Gibraltar, Greece, Eire and Italy. Plans for a separate air cargo division were abandoned, but all-cargo planes were put into operation and exclusive mail-freight flights were begun to the continent. Remaining priorities were abolished on nearly all routes.

British South American Airways inaugurated service to the west coast of South America and awaited U.S. approval of a Miami-Jamaica route. In its first year of operation ending June 30, B.S.A.A. carried 8,865 passengers, and flew 687,684 mail ton miles and 1,338,202 freight ton miles.

British Overseas Airways corporation supplemented its Atlantic services with its first commercial operation between England and Canada and began the first commercial service to Ceylon from the west. B.O.A.C.'s latest report, covering the year ending March 31, showed total traffic of 129,928 passengers, 276,000,000 passenger miles, and 3,598,384 freight ton miles.

Of the three British air lines, only B.S.A.A. claimed profitable operations; B.E.A. and B.O.A.C. reported heavy losses. Government financial restrictions on pleasure travel outside the British Isles imposed Oct. 1 were a further blow to B.E.A.

U.S. international air routes increased from 175,488 mi. to 178,768 mi. Service was inaugurated over many routes previously authorized and increased on routes already operating. Pan American Airways inaugurated service on its around-the-world route and to South Africa; Northwest Airlines began operations between the U.S. and Asia; Trans World extended its Atlantic route to Bombay; and United Air Lines started California-Hawaii service.

International U.S. air lines carried an estimated 1,500,000 passengers, an increase of 44% over 1946. Freight and express ton miles increased from 15,092,127 to approximately 39,312,300, and revenue passenger miles rose some 70% to nearly 1,900,000,000. The international air fleet grew from 150 to 168 planes. Passenger fatalities per 100,000,000 passenger miles dropped from 3.5 to 1.1.

Comparable growth was registered by other international carriers. The routes of Air France became the most extensive in the world except for those of Pan American. New services linked France with the French West Indies and Shanghai, China, and joined French possessions in the Indian ocean with Africa. S.A.B.E.N.A. (Société Anonyme Belge d'Exploitation de la Navigation Aérienne), the Belgian company, began North Atlantic service, bringing the total number of operators linking Europe and the Americas to 13.

Swissair and China National Aviation corporation received authority to operate from their respective countries to the U.S. and planned early inauguration of service. Australian National Airways, as contractor for the government-controlled British Commonwealth Pacific Airlines, began scheduled service connecting Australia and New Zealand with the U.S. Iberia, the Spanish air line, joined operators across the South Atlantic; Philippine Air Lines extended its service to the U.S. and China; Peruvian International Airways spread from New York to Chile. Countries in the Russian orbit also expanded their international services, a few extending to western Europe. Czechoslovakian Airlines (Ceskoslovenske Aerolinie) reached London and Finnish Air Lines (Aero O/Y) began service to Stockholm.

In internal operations, B.E.A. began domestic service, nearly completing nationalization of scheduled British services. Elsewhere in Europe, services were increased. Russia claimed the largest network of internal routes in the world, but lack of reliable information made appraisal of Russian operations impossible.

Australian internal services had their biggest year, with cargo showing the greatest increase. Although Trans-Australia Airlines, the government air line, displayed rapid growth, it still was receiving a smaller share of traffic, both on the basis of total operations and of services over competitive routes, than its largest privately-owned competitor. In Australia, as in the U.S. and Canada, passenger fares were increased, but fares in the three countries remained among the lowest in the world.

Table I.—*Selected Statistics for Australian Air Carriers** (Twelve months ending Sept. 30)

	1947	1946
Miles flown	25,704,023	17,542,425
Passengers carried	951,275	556,707
Passenger miles flown	408,946,193	242,883,852
Mail (ton miles)	623,023	862,701
Freight (ton miles)	7,388,594	2,982,810
Passenger load factor (%)	65.5	78.1

Source: Australian Department of Civil Aviation.
*Includes all regular internal air transport services.

Growth was likewise registered by Canada's internal operators. Trans-Canada Air Lines added more than 1,200 mi. of routes and shortened its transcontinental operation with a cut-off across the U.S. T.C.A. in domestic services carried an estimated 440,000 passengers, 2,500,000 lb. of mail, and 1,500,000 lb. of cargo. Despite increased revenues, greater expenses resulted in financial losses for the year. Canadian Pacific Air Lines began withdrawing from "bush" operations in line with government policy favouring reservation of such services for small operators. However, its regular feeder operations showed traffic gains and new services were begun.

Table II.—*Selected Statistics for Canadian Air Carriers** (Eight months ending Aug. 31)

	1947	1946
Passengers carried	490,597	409,480
Passenger miles flown	159,752,678	131,375,688
Mail (ton miles)	983,860	982,012
Goods (ton miles)	2,317,074	1,457,821

Source: Dominion Bureau of Statistics; Air Transport Board.
*Includes all operations of scheduled and nonscheduled carriers.

Additional authorizations, consisting primarily of service to smaller localities and new competitive routes between points already served, raised total U.S. domestic route mileage from 84,358 to more than 110,000. Feeder authorizations increased from about 11,500 mi. to nearly 21,000 mi. Approximately half of the feeder carriers had begun operations. An entirely new type of service was authorized with Civil Aeronautics board certification of Air Commuting, Inc., to operate a commuter's service between outlying communities and seaplane bases on the East river near lower Manhattan in New York city.

Revenue passengers carried by U.S. domestic lines rose approximately 7.7% to more than 13,000,000 and revenue passenger miles totalled an estimated 6,284,759,000, a gain of 5.6%. Feeder operators were judged to have accounted for about 246,000 revenue passengers and 49,000,000 revenue passenger miles of the total. Mail dropped a little less than 1% to approximately 32,750,000 ton miles. Aircraft utilized in domestic services grew from 659 to 793, and available seat miles were up 28% to nearly 10,000,000,000. The revenue passenger load factor decreased from 78% to an estimated 64%.

The most outstanding growth in certificated air-line traffic was in cargo transportation. Air express increased 26% to about 30,000,000 ton miles. Air freight showed an even more startling growth. Sharp reductions in rates, additional all-cargo planes, and greater emphasis on cargo development raised air freight to



THE "REYNOLDS BOMBSHELL," piloted by Capt. William P. Odom, as it landed at La Guardia field, N.Y., on April 16, 1947, after setting an unofficial round-the-world speed record of 78 hr. 55 min. 58 sec.

Table III.—*Selected Traffic Statistics for U.S. Domestic Scheduled Air Carriers

(Twelve months ending Sept. 30)

	1947	1946
Revenue miles flown	314,298,492	282,800,657
Revenue passenger miles	6,102,407,000	5,324,278,000
Mail (ton miles)	32,318,245	38,903,942
Express (ton miles)	28,834,639	19,313,528
Freight (ton miles)	27,360,128	8,403,807
Revenue passenger load factor (%)	67.72	83.45

Source: U.S. Civil Aeronautics board.
*Includes the 16 domestic trunk line carriers but does not include scheduled feeder carriers.

nearly 41,000,000 ton miles, a growth of 111% over 1946.

The certificated carriers joined in activating Air Cargo, Inc., as their co-operative ground-service organization for freight, published a consolidated tariff showing rates for all lines, set up a consolidated air freight terminal at Detroit, Mich., and began working out arrangements with motor carriers to tap traffic at off-air-line points.

Table IV.—*Selected Revenue Statistics for U.S. Domestic Scheduled Air Carriers

(Twelve months ending Sept. 30)

	1947	1946
Operating Revenue:		
Passenger	$297,243,726	$247,695,565
Mail	23,232,944	21,462,840
Express	11,270,148	7,594,955
Freight	7,011,333	2,523,234
All other	7,431,509	4,446,964
Total	$346,189,660	$283,723,558
Operating expenses	366,417,334	278,351,760
Net operating income	20,227,674†	5,371,798

Source: U.S. Civil Aeronautics Board.
*Includes the 16 domestic trunk line carriers but does not include scheduled feeder carriers.
†Denotes deficit.

Notwithstanding the heaviest traffic and greatest gross revenues ever experienced, conditions such as lower load factors, expensive financing of large new equipment, and generally increased costs resulted in net operating losses for the first 11 months of approximately $15,000,000. While only five fatal crashes occurred on certificated routes, the greater number of passengers killed raised the passenger fatality rate, according to CAA estimates, from 1.2 to 3.4 per 100,000,000 passenger miles flown.

Noncertificated and Charter Services.—CAB action establishing two classes of noncertificated carriers clarified the status of the U.S. operators commonly known as nonscheduled carriers. The first class, designated as noncertificated air cargo carriers, was authorized to engage in scheduled, common-carrier transportation of property only. The second, termed irregular air carriers, was permitted to transport persons and property in services not involving regularity of routes or schedules. However, foreign air transportation of passengers by the latter class was prohibited. Indicating the scope of noncertificated operations was a Civil Aeronautics administration report that on Oct. 1 approximately 2,000 noncertificated firms operating 4,439 planes and employing 8,488 pilots had received approval required by the safety regulations and that about 200 new applications were being received each month.

Despite intensified development of cargo services by the certificated lines, noncertificated operators retained their position as the largest carriers of freight. Like the certificated air lines, noncertificated carriers registered substantial gains; 6 of the largest among the 14 companies in this class reported 35,514,000 ton miles for the first 10 months of 1947 as against 26,321,000 ton miles for all of 1946. Rates of these carriers dropped as low as 12 cents a ton mile, and the number of aircraft owned in the large transport category exceeded 50.

British charter operators also had their biggest year. By summer, the British Air Charter association, at the close of its first year, had some 40 members. To maintain high standards of service, the association promulgated its own safety requirements, with which all members were required to comply.

Skyways, Ltd., reported to be the largest charter operator in Europe, with an organization of about 1,600 employees and a large fleet of transport planes, during a single week in October operated 59 flights approximately 71,000 aeroplane miles. The charter division of Airwork, Ltd., another large operator, in September flew 55,320 aircraft miles and 1,075,555 passenger miles. London Aero Motor Services, Ltd., reportedly the largest European freight carrier, and Sky Taxi's of South Africa jointly created a charter concern with operating companies in England, Africa and Australia.

Nonscheduled carriers were equally active throughout the remainder of the world. In Canada, during the first eight months, nonscheduled operators carried 72,945 passengers, flew 6,139,273 passenger miles and 527,931 freight ton miles. Revenues for the same period rose from $885,588 in 1946 to $2,680,181 in 1947.

Private and Industrial Flying.—British private flying suffered a setback when foreign pleasure flying became impossible and later when gasoline rations were withdrawn from pleasure flying and reduced for private flying in connection with business. The government-appointed Special Advisory Committee on Private Flying, one of several groups which studied the exist-

ing problems during the year, called for financial grants to aero clubs, interest-free loans to finance plane production, and for the government to make airfields available to the clubs. Australia and South Africa continued aero club subsidies; New Zealand presented aircraft to its clubs, approved plans for club training of Air Training corps (ATC) cadets, and authorized the clubs to engage in commercial activities as subcontractors to the national air line.

Under the impetus of the G.I. training program, the number of licensed pilots in the U.S. continued to grow. Approximately 200,000 student pilot permits were issued and certificated pilots rose from 400,000 to some 455,000. Aircraft certificated increased from 81,002 to approximately 95,000. Government-sponsored training was a major source of income for aviation training schools, and most private flying was still instructional in nature. However, the use of planes by farmers and business men in their work became an increasingly important type of private flying. Indicating the unflagging efforts to increase the utility of the private plane was the designation by the CAA of Skyway Number One, a route between Los Angeles, Calif., and Washington, D.C., to be marked by cities and states along the way.

In industrial flying there was an extension of activities similar to those of the preceding year. An incomplete CAA survey revealed that in the U.S. there were 188 firms in crop dusting, 84 in seeding from the air, 58 in towing gliders, 37 in towing signs, 19 in making aerial photographs, 51 in patrolling power lines, 34 in patrolling pipe lines, 155 in shooting coyotes, and 12 in spraying for mosquito control. The use of aircraft in pest control showed particular promise because of the plane's ability to reach inaccessible places and to cover large areas quickly.

Government and International Co-operation.—Following ratification of the permanent Chicago convention by 26 nations, the permanent International Civil Aviation organization (I.C.A.O.) came into being and held its first general assembly meeting. The transition from a provisional organization (P.I.C.A.O.) to I.C.A.O., however, was marked by little visible change. To qualify for affiliation with the United Nations organization, I.C.A.O. expelled Spain. Renewed attempts to reach accord on a multilateral agreement governing reciprocal aviation rights among nations failed in disagreement over the question of "fifth freedom" traffic. However, many new bilateral agreements were negotiated.

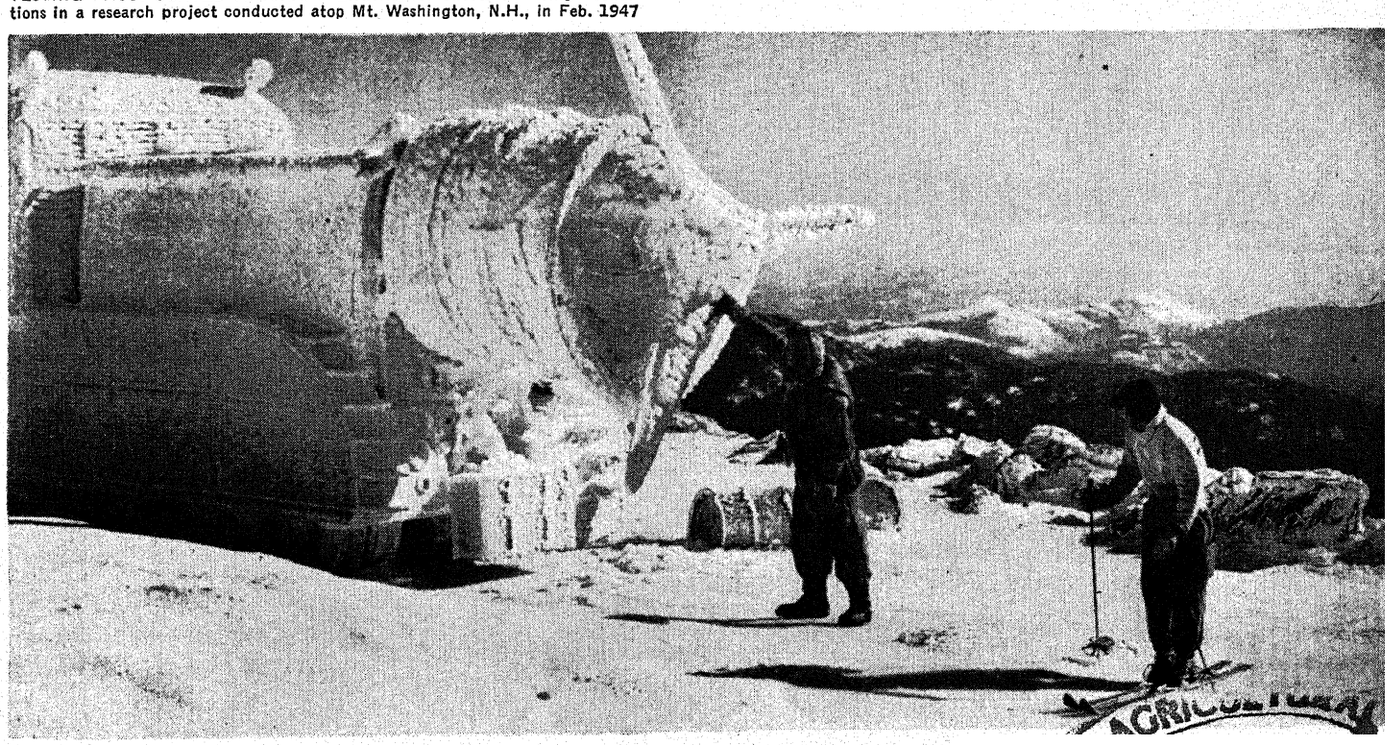
The International Air Transport association, comprised of about 70 international air carriers, held its third general meeting in Brazil. Action included approval of an air travel plan for international transportation on credit, agreement to maintain international fares at existing levels for the time being, establishment of a uniform rate structure for international services, and further standardization of traffic procedures.

Britain enacted a new Air Navigation bill ratifying the Chicago convention and giving broad powers to the ministry of civil aviation. An Air Transport Advisory council was established to consider public complaints and representations respecting the three government-owned air lines. The British post office announced substantial reductions in air mail postage rates to all countries outside Europe, and by agreement between the European postal authorities and air carriers, surcharge was removed from all European air mail.

In Canada, delegates of nine British commonwealth nations met at the second Commonwealth Air Transport council. The battle between the government and private operators in Australia, begun the preceding year when the government-owned Trans-Australia Airlines initiated operations in competition with private companies, increased in intensity. Major issues were competitive fares, charges for government-owned airways and airport facilities, and methods of allocating gasoline under rationing. A new law authorizing T.A.A. to operate intrastate services caused further disagreement. New Zealand completed nationalization of its scheduled services, and South Africa, with trunk lines already government-operated, authorized operations by privately owned feeder companies.

A series of serious accidents in the U.S. focused attention on safety matters. Congress conducted safety investigations and the president appointed a Special Board of Inquiry on Air Safety. Subsequently, the president established an Air Policy commission to study and make recommendations on broad questions of aviation policy. A congressional Aviation Policy

TESTING FROST-COATED AIRCRAFT ENGINE for effects of "icing" conditions in a research project conducted atop Mt. Washington, N.H., in Feb. 1947



board was also created to study the needs of the aircraft manufacturing industry.

Much work of the CAA was directed to pressing the national airport program and continuing efforts to improve navigational facilities and traffic control. Several projects such as studies in methods of air-line pilot selection, and development of cross-wind landing gears and noiseless planes were in progress under CAA sponsorship. The CAB began an investigation into the reasonableness of air-line cargo rates and had under consideration a proposed regulation authorizing the operation of air-freight forwarders. For the second time in its existence, the CAB approved the sale of an air-line route with the transfer of Western Air Lines' Denver-Los Angeles route to United Air Lines. Among the safety activities were new regulations imposing higher standards of fire prevention and detection, and providing for temperature accountability in determining maximum take-off weights under varying atmospheric conditions.

Helicopters.—Following post office department experiments, the CAB issued Los Angeles Airways a temporary certificate for scheduled helicopter cargo and mail service primarily to test distribution of air mail from the Los Angeles airport to approximately 30 nearby communities. Using Sikorsky S-51's, operation over a major portion of the routes was begun by the end of the year.

For a time, the Skyway corporation conducted helicopter passenger and cargo shuttle service between downtown Boston and the airport, but discontinued service, reportedly because of unprofitable payloads and management difficulties. The first CAB authorization of scheduled helicopter passenger service came with issuance of a temporary certificate to the Yellow Cab company of Cleveland, O., for passenger and cargo operations between the airport and downtown Cleveland, and between the airport and Euclid, O., with a stop in a residential suburb.

Several charter companies were reported and the helicopter was put to a variety of uses in industrial flying. Reflecting the growing importance of helicopters was CAB issuance of revised air traffic rules with specific provisions for helicopter operation. In England, B.E.A. established a helicopter unit and began experimental operations with Sikorsky S-51 and Bell 47 machines.

Aids to Navigation.—After the winter of 1946–47, the flying public became alarmed over the number of accidents and exasperated by schedule cancellations, en route groundings and late departures and arrivals. These same conditions contributed substantially to air-line financial losses.

Adequate air traffic control, meteorological services and radio or radar navigation systems were conceded to be essential to efficient and safe operation of modern air transportation. Necessary navigation aids were classified as approach and landing, short-distance and long-distance aids. Selection of the most suitable systems for postwar civil flying was difficult. Wartime military systems, adapted to specific objectives and theatres, had been added to a diverse collection of prewar developments. The choice was limited by the cost of installation and maintenance, and the amount of equipment which could be economically carried by an aeroplane and efficiently operated by its aircrew.

Two of the most prominent instrument landing systems were instrument landing system (ILS) and ground controlled approach (GCA). ILS was a radio system in which the information necessary for making a blind approach was given on an indicator in the aircraft. In GCA, ground personnel followed the planes on radar scopes and relayed continuous instructions for landing to the pilot by radio. In 1946, ILS was chosen by P.I.C.A.O. as the standard for international airports.

Most major British and continental European airports, being international in character, planned to install ILS. In 1947, however, no such ideal standardization existed. SBA (standard beam approach), based on a prewar European system, was adopted for interim use in some places. London, in addition to GCA, ILS, and SBA had BABS (Beam Approach Beacon System), another wartime radar landing system. Use of the ILS system in the U.S. began in midsummer. By the end of the year the CAA had authorized 12 air lines to use 42 of the 52 ILS systems installed.

Because no instrument landing system permitted completely blind landings, fog dispersal or high intensity lights or both to improve visibility near the ground were considered necessary adjuncts. Research on Fido (Fog, Intensive, Dispersal of), a British war-developed system of fog dispersal, continued at Arcata Landing Aids Experiment station in California. Although high fuel consumption caused abandonment of Fido at London during the fuel shortage, CAA permission for its first U.S. commercial use was granted a scheduled feeder line. In view of the limitations of each landing system, a pattern widely held to be desirable for airports was ILS accompanied by GCA, in case of ILS failure and for aircraft not equipped for ILS, plus fog dispersal or high intensity lights or both.

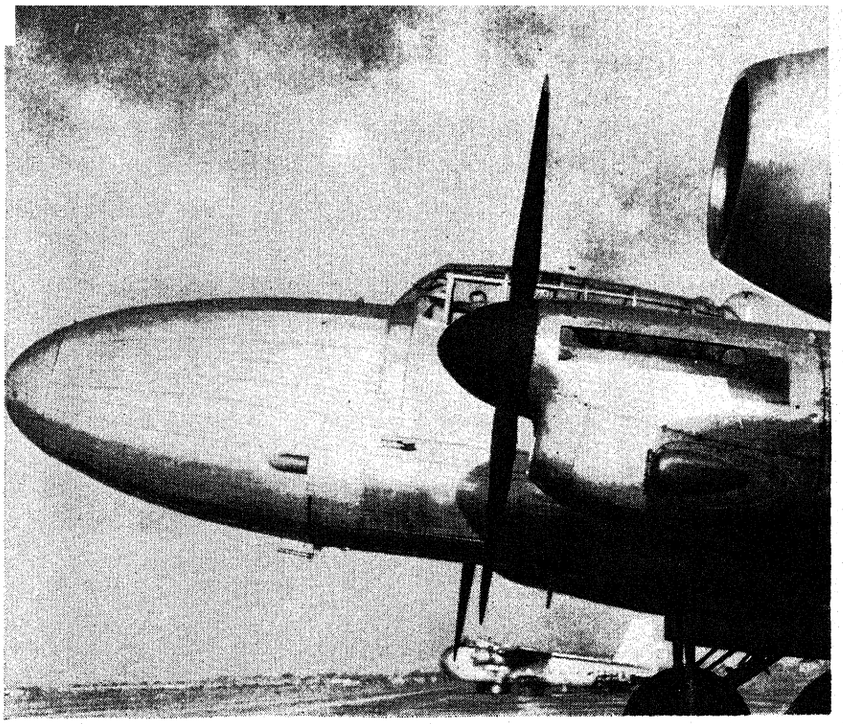
Wartime Gee radar and omnidirectional ranges were favoured as short-range navigation aids. In parts of Britain and Europe, Gee, installed during the war, was in use and plans were made for completing coverage of the United Kingdom and extending it in European countries. In the U.S., despite reduced funds, progress was made in CAA installation of very high frequency (VHF) omnidirectional ranges to cover the country. There was considerable disagreement on the relative merits of this type in comparison with radar beacon navigation, the latter being highly regarded by the military for its purposes. The first transcontinental radar airway was established as a joint navy-A.A.F.-coast guard project.

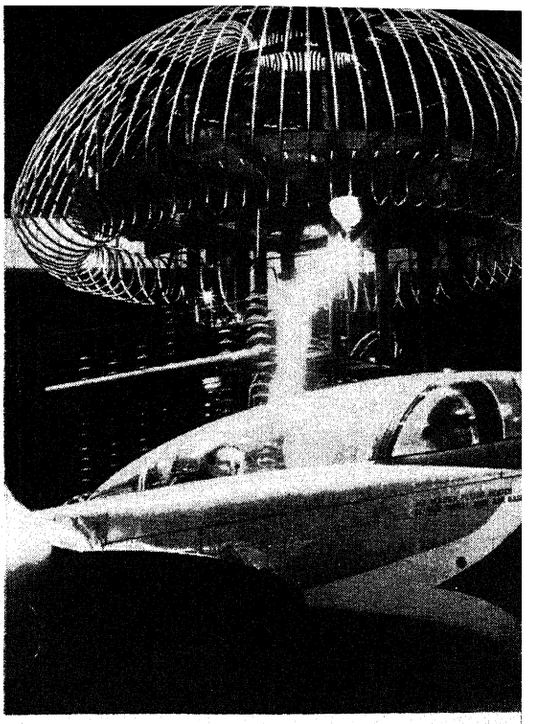
U.S. Loran and British Consul, wartime developments, were well-known long-distance navigation aids. Low-frequency Loran, employing the same principles as standard Loran, was being studied. The LF Loran was expected to cover 1,500–2,000 mi., day or night, over land or sea, whereas standard Loran's maximum range over sea was 850 mi. by day and 1,600 by night, with performance over land poor.

Air-borne radar to detect high ground, turbulent clouds and other planes received its share of attention. A CAB order required that by early 1948 all scheduled transport aircraft be equipped with an absolute terrain proximity indicator. Radio altimeters and radar terrain clearance indicators were approved types.

In Britain, since the small size of the country made uniformity imperative, a unified control service, staffed by the royal air force, royal navy and civilian controllers was planned; and a system of area control was adopted. Approach and airport control was to be established at all permanent civil airfields. In the U.S., although a system of airways traffic control had been continuously augmented after its establishment in 1936, heavier aircraft movements necessitated further expansion and improvement, especially at congested airports. Ground radar surveillance sets were being studied by the CAA as traffic control aids and GCA was being explored for its potentialities in traffic control as well as in instrument landings.

Again in the interest of uniformity and high standards, I.C.A.O. approved a set of codes for supplying weather data for international services. Six of the 13 Atlantic weather ships, called for by a P.I.C.A.O. agreement in 1946, had been placed in operation by the end of the year. (*See* also AIRPORTS AND FLYING FIELDS; AIRCRAFT MANUFACTURE; AVIATION, MILITARY; CIVIL AERONAUTICS ADMINISTRATION; DISASTERS; PETROLEUM; POST OFFICE.) (G. M. M.)

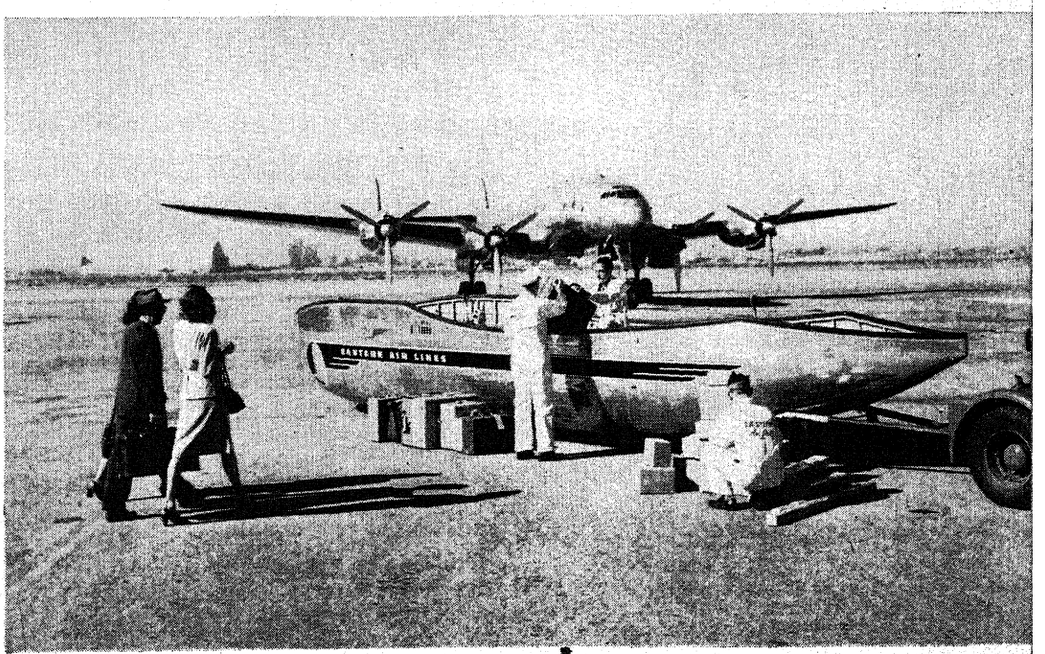




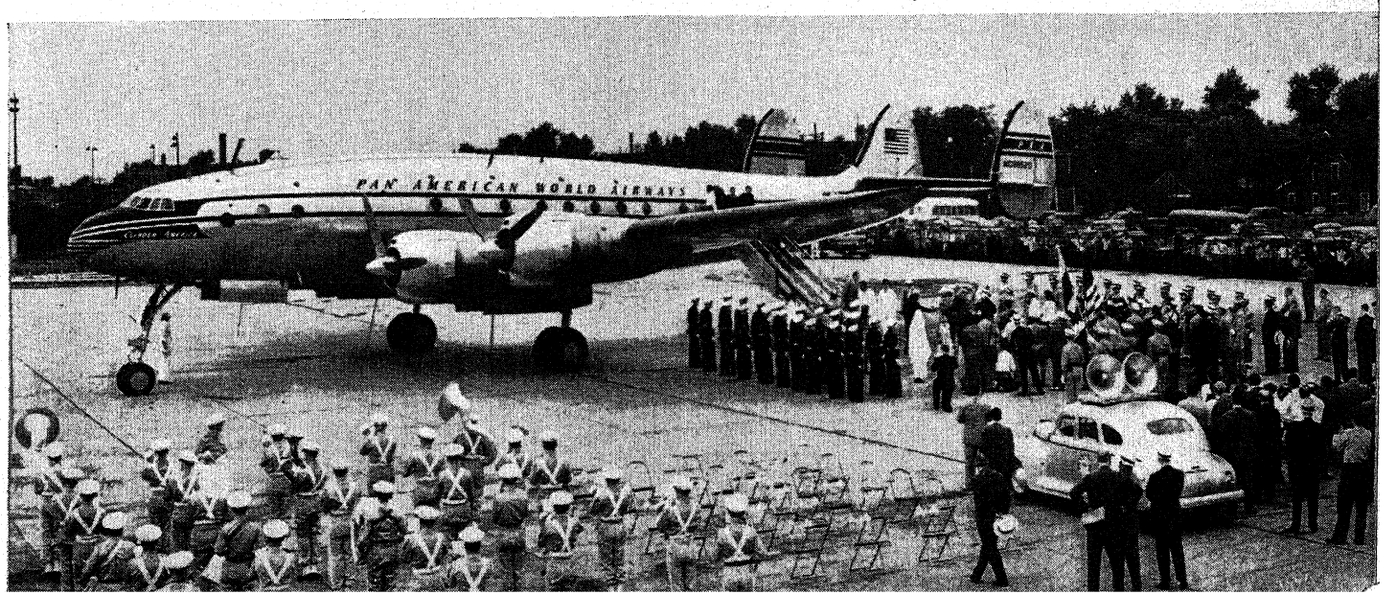
Above, left: NENE LANCASTRIAN, British jet airliner, and the first of its kind in the world, was first flown in 1946 and still being tested in 1947. It was powered by two piston engines and two turbo-jet engines

Above, right: NATURAL LIGHTNING simulated by a high-voltage generator as part of U.S. army-navy investigations of lightning hazards to aircraft. Research on this problem was being carried out in Dayton, Ohio, during 1947

Right: THE SPEEDPAK, external cargo carrier introduced in 1947, which added a 4-ton baggage capacity to Lockheed Constellation transports. It could be raised and locked to the underside of the plane in 2 min. and released in the same time, thus speeding the handling of baggage during intermediate stops



Below: CEREMONIES inaugurating the first round-the-world passenger plane service, being held at La Guardia field on June 30, 1947. The Constellation "Clipper America" is shown after completing its 22,219 mi. global circuit



Aviation, Military.

United States Air Force.—The U.S. air force (succeeding the army air forces) was established Sept. 18, 1947, as an autonomous armed service. Thus, under provisions of the National Security act of July 26, 1947, United States military aviation now enjoys a status co-equal and co-ordinate with that of the army and the navy in the national military establishment, and the increasingly important role of air power in United States national defense is given legal recognition.

The department of the air force was designed as a streamline organization, to bring the methods of business efficiency to the administration of the modern air force that must provide an instantly ready instrument of national air security. In the reorganized air force headquarters the old style military general staff was replaced by staff sections for (1) personnel and administration, (2) operations, and (3) matériel. Regrouping of functions placed intelligence as well as training and requirements and plans and operations under the deputy chief of staff for operations. The designation of an additional deputy chief of staff as (4) air comptroller to administer the principles of cost control and management control indicated the increased emphasis placed on economy and on budget and fiscal matters.

The division of the air force in the United States into three combat commands and five supporting commands was retained from the army air forces organization, as was the tactical structure of the combat groups. The group, however, and not the squadron is the lowest unit to perform both tactical and administrative functions, and a wing, organized as a mobile, self-supporting organization, was introduced at the next higher echelon.

The U.S. air force security program, which called for 70 regular air force groups plus air national guard units and air reserve groups as civilian components, was temporarily modified in accordance with budget considerations to 55 combat groups and 17 specialized squadrons on Jan. 1, 1948.

Of the 401,000 regular personnel and 15,000 aircraft required for the fullest realization of the 70-group program, the U.S. air force had, on Jan. 1, 1948, approximately 335,000 personnel and less than 10,000 aircraft, more than half of which were in storage. An aviation career program for high school graduates and a reopened aviation cadet program were inaugurated to supplement normal recruitment.

The completion, during 1947, of the surplus property disposal program left the air force with few surplus planes. The continuing modernization of the U.S. air force requires, however, replacement of obsolescent planes with planes of new types, at a rate of approximately 25% annually. The extensive research and development sponsored or developed by the air force was designed to provide it with the best aircraft and weapons. Research in guided missiles, trans-sonic speed and jet and rocket propulsion was being pursued. An air industrial preparedness program was inaugurated to ensure the procurement of new aircraft required and also to maintain the aviation industry as a healthy nucleus, readily and rapidly expansible in time of emergency.

Aircraft introduced in 1947 were the B-47, the latest jet bomber, which, because of its sweptback wings and the placement of its six engines, represented the most radical departure in design of any air force bomber to date; the B-48, the first six-engine jet bomber flown; the B-49, an eight-engine jet version of the B-35 flying wing heavy bomber of 1946; the B-50, a new and greatly improved version of the wartime B-29, which it exceeds in range, speed and load; and the B-45 and B-46, four-engine jet bombers. The first four are medium bombers; the last two are light.

The single-engine, single-seat, sweptback P-86 and the four-engine P-87 were new jet fighter aircraft. The XC-97, a cargo version of the wartime B-29 (now classified as a medium bomber); the XC-99, a cargo version of the heavy bomber B-36, and the world's largest land-based plane; the XF-11, a photo reconnaissance plane; and the XR-10 and XR-12, helicopters, were other new aircraft first flown or announced in 1947.

One of the most important announcements made by the air force in 1947 concerned the climatic hangar at Eglin field (near Valparaiso, Fla.) designed to test aircraft and equipment under all types and extremes of weather conditions, at a central testing site. Also important were announcements of flights by Alaska-based squadrons which determined that there are three north magnetic poles instead of one as previously believed, and which also showed that the U.S. air force could operate aircraft and equipment efficiently in the polar regions, during any season of the year. The outstanding aviation event of 1947 was the flight, Sept. 21–22, of an air force C-54 with preset, push-button control (not to be confused with radio control) from Stephensville, Newfoundland, to Brize Norton, near London, England, in 10 hr. and 15 min. Although a full crew was aboard, they served as observers only, and all details of the flight were accomplished by the automatic radio-guided control of a "mechanical brain."

(C. Sz.)

United States Navy.—Naval aviation moved ahead in a year marked by rapid development in naval aircraft, particularly in the field of jet propulsion. The resulting speeds established new marks in the world's record book.

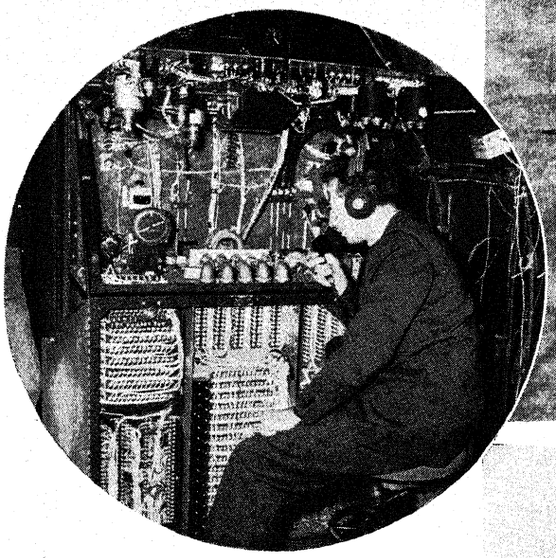
Highlights in the record-breaking flights of the navy included those of Commander Turner F. Caldwell, Jr., U.S.N., and Major Marion E. Carl, U.S.M.C. Piloting the Douglas Skystreak at 640.7 m.p.h., Commander Caldwell broke the world's speed record on Aug. 20, 1947, at Muroc Dry lake, Calif. Five days later, flying the same Skystreak over the course, Major Carl broke the record again at 650.6 m.p.h.

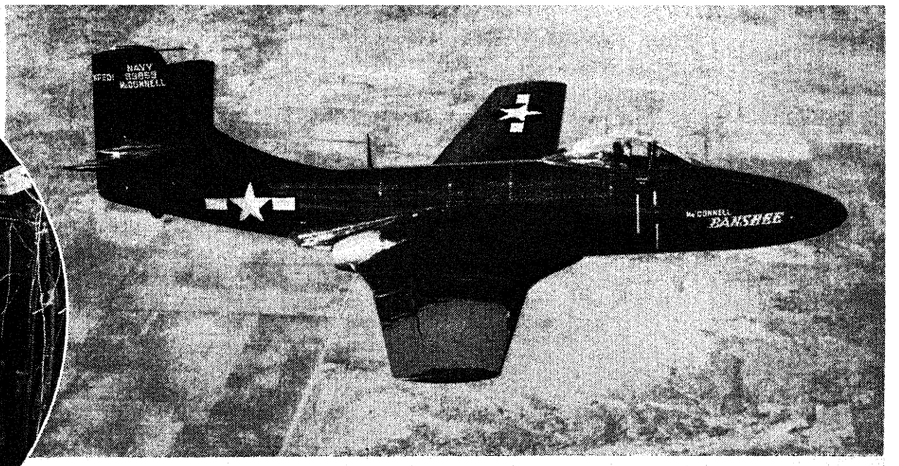
Operational employment of jet propelled aircraft kept pace with its technical development with the organization of the navy's first jet fighter squadrons. During 1947 two navy and one marine jet squadrons were formed and equipped with Phantoms and North American FJ-1s. New planes that spelled increased power for naval aviation were of many types. Aircraft driven by a combination of two power plants were the XF2R-1, the Ryan-built "Dark Shark Fireball," and the XFR-4. The shark-nosed XF2R-1, first turbo-prop aircraft in the navy, set what was believed to be an altitude record for that type when it topped 39,000 ft. It climbed to 10,000 ft. in less than 2 min.

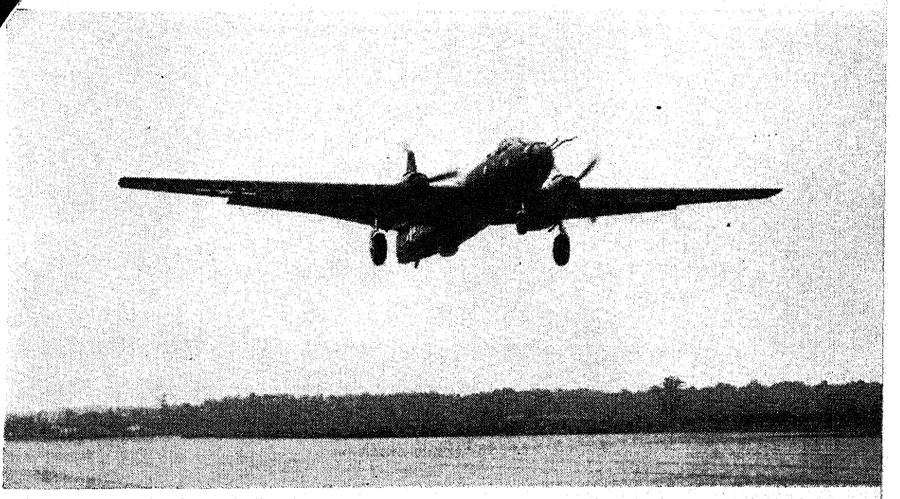
The newest addition to the navy's line-up of all-jet fighters was the Grumman XF9F-1 Panther. With a speed well over the 600 m.p.h. mark, this new fighter seemed destined to be one of the navy's outstanding carrier-based fighters. In addition to the XF9F-1 Panther, navy all-jet fighters included FH-1 Phantom, F2H-1 Banshee, the FJ-1 and the F6U Pirate. The F2H-1, built by McDonnell, was powered by two turbo-jet engines installed in the wing roots which gave it a speed of more than 600 m.p.h. In contrast to the Banshee, the FJ-1, developed by North American and the F6U-1, built by Chance Vought, are powered by single turbo-jet engines.

In attack planes the AM-1 Mauler, a carrier-based torpedo plane built by Glenn Martin, and the AD-1 Skyraider built by Douglas, both powered by conventional engines, were rapidly replacing the TBF Avenger and the SB2C Helldiver in the fleet. Several squadrons were using the AD-1. Still other new planes were the XP4M-1 Mercator, Martin's long range patrol plane, powered with two jet and two conventional engines, and the PBM-5A, the world's largest amphibian.

Helicopters were rapidly gaining favour, and the navy was using such craft aboard carriers for various purposes, particularly transportation between vessels and air-sea rescue. The







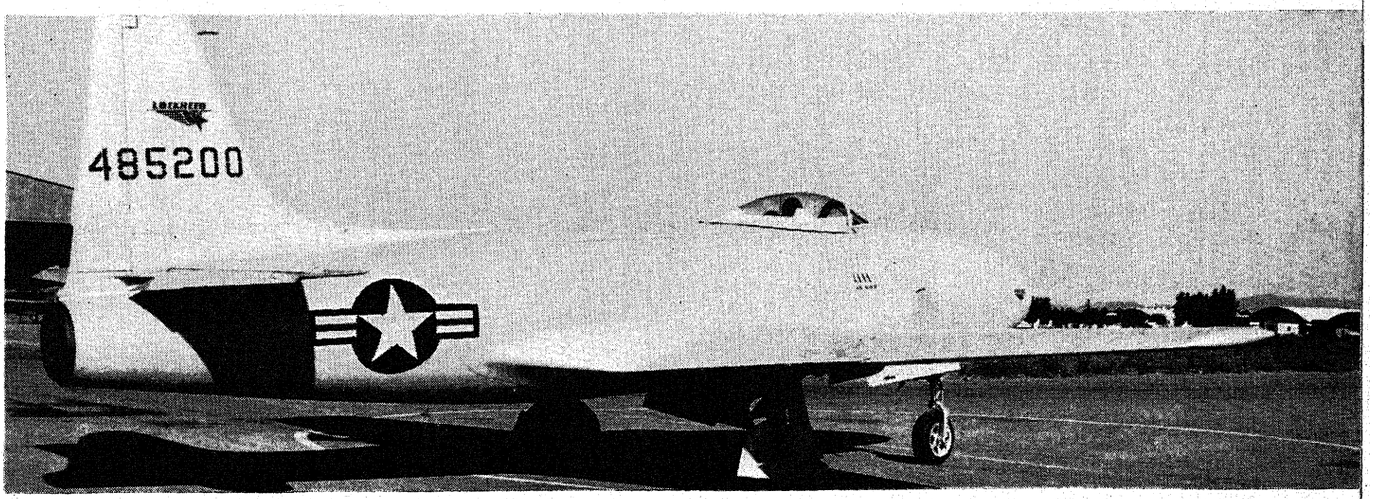
Above, left: AUTOMATIC CONTROL PANEL of the U.S.A.F. C-54 Skymaster which completed the first pilotless transatlantic flight in aviation history on Sept. 22, 1947, when it transported 14 men from Newfoundland to England in 10 hr. 15 min.

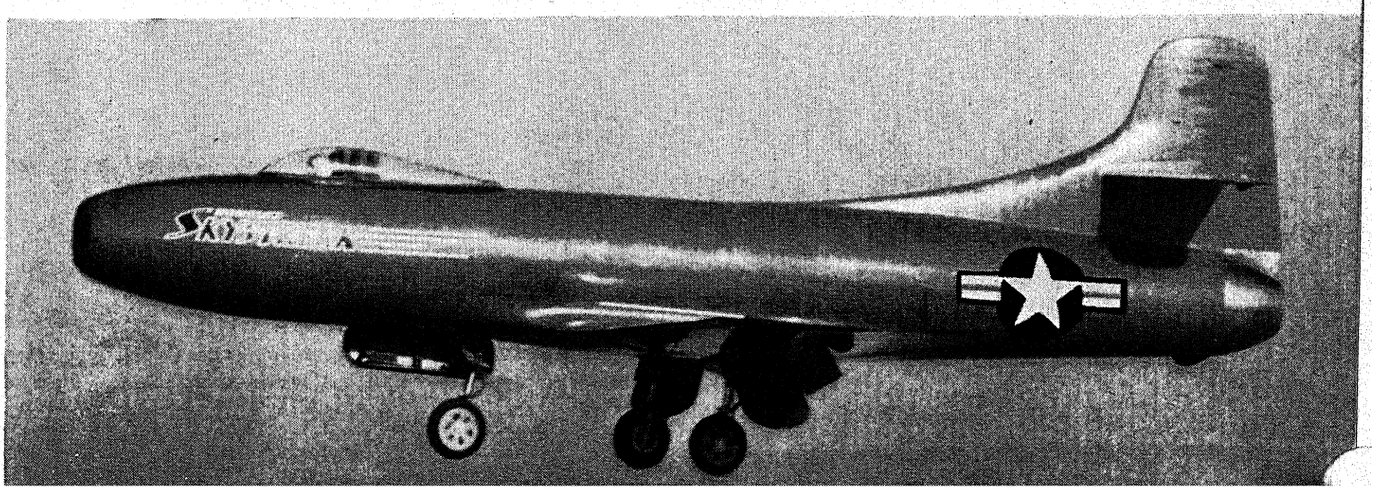
Above, right: McDONNELL BANSHEE, U.S. navy, carrier-based jet fighter plane test flown in May 1947

Right: MARTIN XP4M-1 Mercator, U.S. navy four-engine patrol bomber with a maximum range of more than 3,000 mi., which was first flown in 1947

Below: LOCKHEED P-80R Shooting Star, U.S. army jet plane which returned the world speed record to the U.S. after 24 years, flying at 623.8 m.p.h. on June 19, 1947

Bottom: DOUGLAS D-558 Skystreak, U.S. navy jet-powered research plane designed to hold a pilot and 500 lb. of recording instruments, which broke all world speed records on Aug. 25, 1947, flying at 650.6 m.p.h.





Sikorsky HO3S-1 was used in Operation "Highjump" in the antarctic in the winter of 1946–47. Two new helicopters made their debut in 1947, the XHJS and the XHRP. Known as the Flying Banana, the XHRP features a counter-rotating rotor on both ends. The first marine helicopter squadron was formed during 1947 and was equipped with Flying Bananas.

Foreshadowing things to come was the experimental firing of the V-2 rocket from the carrier "Midway," demonstrating the versatility of the flattops and opening a wide field of new effort in naval warfare of the future.

The navy in 1947 had 8,000 planes in operation, including fleet, training and reserve. To support these operating aircraft, approximately 7,000 planes were in storage, pool and overhaul activities. During the year, the navy trained 1,800 pilots and 15,000 technicians. Supporting the regular forces of the naval aeronautical organization was the air reserve, which more than doubled in size after Oct. 1946. There were at the end of 1947 45,000 officers and men in the navy and marine corps air reserve, of which 20,000 were participating in regular hours of navy-based activity. The goal for 1948 was 40,000 in the organized program.

(*See* also NAVIES OF THE WORLD.) (D. B. D.)

Air Forces—The World.—For the air forces of the world, 1947 was definitely a transition year. After the end of active warfare in 1945 and the shrinkages and readjustments of 1946, a certain amount of technological progress was to be noted in most countries in 1947. In practically all countries which retained any of their military establishments (with the possible exception of the U.S.S.R.) production of new military aircraft reached the lowest levels since the mid-1930s, but research and development projects were extremely active. Factories everywhere were busy turning out the prototypes of the new and faster fighters and bombers which were displacing the machines that were in use at the end of World War II.

The most active development centred around new types of power plants. Jets, turbo-jets, turbo-propellers and rocket engines of many shapes and sizes were tested both on the ground and in the air. There is little doubt but that most of the high performance military aircraft of the future, under whatever flag, will be powered with one or another of such engines.



THE "BETTY JO," U.S. army P-82, which made a record nonstop flight from Hawaii to New York city in 14 hr. 33 min. Lt. Col. R. E. Thacker, pilot, and Lt. J. M. Ard, co-pilot, are shown on their return to New York, Feb. 28, 1947

Not that the reciprocating engine-driven propeller combination which was the conventional power plant throughout World War II, was due to disappear entirely. Because of the high fuel consumption of the turbine types it was probable that the older forms of power plants would remain in use for some years for long-range bombardment, transport and reconnaissance aircraft. This condition would probably exist until some form of atomic-energy propulsion was developed, but that was something for the next 10 to 25 years. In the latter connection one can only repeat a remark that was made at the close of 1946: "It would be dangerous to predict that aircraft of the future will *not* be atomic-powered. For the present, however, the practical military application of atom-splitting remains in the field of the weapon and not the carrier."

Guided Missiles.—Although little information was published on progress during 1947 in guided-missiles design and development in various parts of the world, it can be asserted with assurance that intensive work was in process in every country that supports any military program. The greatest question resolved around Russian activity in this field. It was well-known that the U.S.S.R. had been exploiting to the full the technical information and the scientific personnel that came out of the Russian-occupied zone of Germany. Rumours of great activity persisted, but what was actually going on in the way of research and development and in the testing of actual missiles deep in the Siberian steppes was entirely unknown. With the international political situation as delicately balanced as it was at the close of 1947, it is safe to say that any announcements that were made during the year of new developments in the guided-missile field related to equipment that had long been outmoded. (*See* also MUNITIONS OF WAR.)

Piloted Aircraft.—The complexion of all air forces in the world changed radically in 1947 as more and more service squadrons were equipped with postwar designs. In actual numbers, the older forms still predominated, but it was obvious that the experimental and test stage was well behind for many jet fighters and jet bombers. The trend which was noted in 1946 of reclassifying wartime, combat types as "trainers" continued in 1947. The standard 400-m.p.h. fighters of 1945 had become the transitional trainers for the 600-m.p.h. jet fighters of 1947–48.

In the paragraphs following, a brief survey is set out of the new aircraft and engines which appeared in countries outside the U.S. for which information was available. From a study of these newer types in comparison with those which appeared in 1946, some indication is to be had of the trends of the world's military aircraft as disclosed in 1947.

Great Britain.—Immediately following the close of World War II the British air ministry announced that further development of military types for reciprocal engines would be abandoned. During the following years the British actively pursued their announced policy. Throughout 1945 and 1946 a number of jet-propelled prototypes were flown and, in fact, a number of jet-fighter squadrons were activated, but 1947 saw the disclosure of a great many new types which had been started under the new program. A number of these are described below.

New British Jet Aircraft.—The Hawker N.7/46 fighter is a low-wing type without sweepback, powered by a Rolls-Royce Nene II turbo-jet. Top speed was expected to be more than 600 m.p.h. The engine was reported to be barely audible at 300 knots from within the cockpit.

The Saunders-Roe S.R./A1, first flying boat fighter, is powered by two Metropolitan Vickers Beryl axial-flow turbo-jets, each developing 3,850-lb. jet thrust at 7,750 r.p.m. Top speed was "probably more than 500 m.p.h."

Developed both as a land-based and carrier-based fighter, the Vickers-Armstrongs (Supermarine) Attacker (E10/44), was in

small-scale production. Maximum speed at sea level was 590 m.p.h. It is powered by a Rolls-Royce Nene II turbo-jet.

Extensive flight tests during 1947 with the A.W.52G all-wing glider provided aerodynamic data for the Armstrong-Whitworth A.W.52 flying wing powered by two Rolls-Royce Nene II turbo-jets. Design features include sweptback laminar flow wings of 90-ft. span, boundary layer suction control, thermal de-icing and a pressurized cabin.

The De Havilland tailless D.H. 108, of composite construction, is powered by the new De Havilland MR.III turbo-jet. Problems of sweptback wing design were to be investigated with it, and data obtained from tests were to be applied to the projected D.H. 106, a 75,000-lb. transatlantic air liner.

First flown with a Bristol Mercury engine, the Balliol MR.I advanced trainer of Boulton-Paul Aircraft, Ltd., was to be powered eventually by an Armstrong-Siddeley Mamba or Rolls-Royce Dart turbo-prop.

Miscellaneous Types.—The Westland Wyvern T.F.1 torpedo attack bomber and fighter was described as "a real slugger." It weighed 22,000 lb. and had a maximum speed of 455 m.p.h., powered by the new Rolls-Royce Eagle 24-cylinder, 3,500-h.p. sleeve-valve engine, driving Rotol counter-rotating propellers. Typical armament included four 20-mm. guns, one 20-in. torpedo and one 2,000-lb. bomb or eight 60-lb. rocket projectiles.

The Blackburn S.28/43 Firecrest had a more powerful engine than its predecessor, the Firebrand, and differed widely in other respects. It is a smaller aeroplane in general with a slightly higher wing loading. Its Bristol Centaurus 59 engine produces 2,825 h.p. at take-off, using methanol-water injection. The S.28/43 has a "gull wing" look caused by the dihedral of the outer two-thirds of its wings. Its wings fold in three sections.

The Avro Shackleton was ordered in quantity for the coastal command. It was reported heavier than the Avro Lincoln, and powered by four Rolls-Royce Griffon engines driving counter-rotating propellers.

The Fairey Operational Trainer was developed from the Firefly I, long-range naval reconnaissance fighter.

Two new observation and liaison aircraft appeared during the year. The Heston Aircraft Co., Ltd., A.2/45 has twin booms, a pusher propeller, and is powered by one De Havilland Gipsy Queen 33 engine. It carries a crew of two. The Scottish Aviation observation and liaison aircraft derives from the civil Prestwick Pioneer of that company.

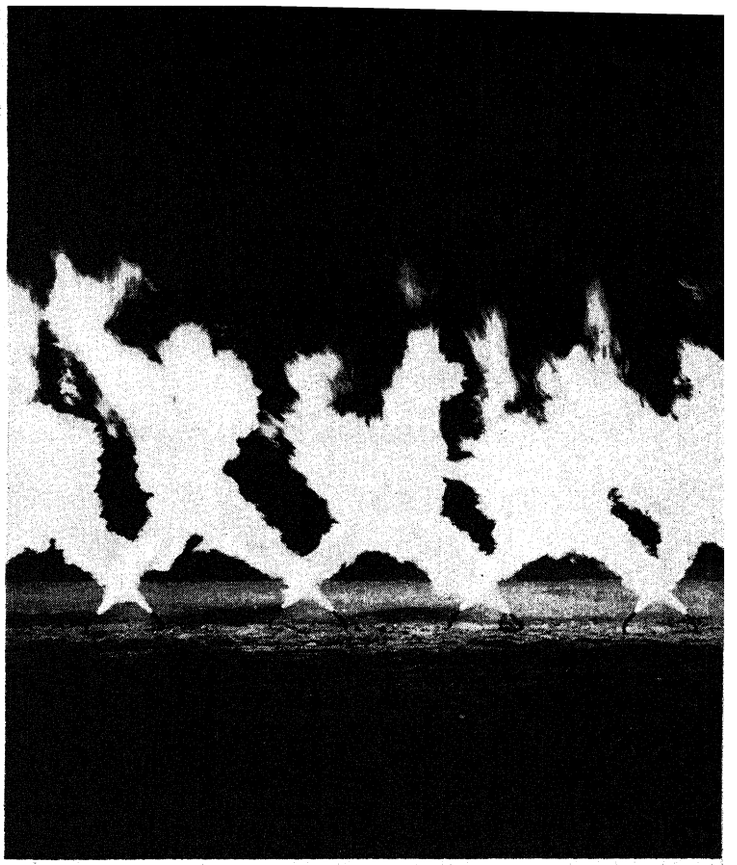
British Jet Engines.—The greatest development during the year in the gas turbine field was in turbo-props (gas turbines driving propellers). The Napier Naiad was a newcomer in the field in the 1,600-h.p. range.

The Bristol Phoebus was reported to be an experimental type expected to be used in the development of the Proteus turbo-prop for the Bristol 167 (Brabazon I) and the Saunders Roe S.R.45 transports.

Roy Fedden, Ltd., developed a turbo-prop of about 1,400 h.p. for use in short- and medium-range two- or four-engine transports, but work on this engine was discontinued in the summer of 1947.

The Rolls-Royce Dart of 1,000 h.p. was mentioned as a possible power plant for several advanced trainers, usually as an alternate of the Armstrong-Siddeley Mamba I. The experimental Rolls-Royce Trent, flown many hours in the Gloster Meteor, is an adaptation of the Derwent turbo-jet redesigned to drive a propeller.

Two other new gas turbine power plants, the De Havilland H.3 and the Power Jets 250, were reported but no details were available. The De Havilland Goblin III was developed for installation in the third version of the D.H. 108, supersonic research aeroplane.



Fido (Fog, Intensive, Dispersal Of), a joint army-navy-CAA research project in progress at Arcata, Calif., in 1947. Fido was expected to supplement automatic landing aids guiding pilots to a field by clearing the runway itself to allow the pilot to complete his landing in safety

Research with gas turbines included flight testing of such large four-engine aeroplanes as the Lancastrian with turbo-jets in the two outboard nacelles. This "flying test-bed" was used for the Armstrong-Siddeley ASX, the Rolls-Royce Nene and, in 1947, the De Havilland Ghost, first flown on July 31.

Bristol Theseus turbo-props were flown in the two outboard nacelles of the Lincoln. The Armstrong-Siddeley Mamba turbo-prop and also the Napier Naiad were being installed in a Lincoln for testing. An Armstrong Siddeley Python-powered Lancaster was reported flying. In these installations, turbo-props were reported installed in the outboard positions only. In the case of the Python Lancaster, each Python drives two four-blade counter-rotating propellers.

The first public appearance of the Gloster Meteor powered by the experimental Rolls-Royce Trent turbo-prop was made at the Derby International Air rally, June 21, 1947.

Turbo-jets	Jet thrust (lb.)	R.p.m.	Dry weight (lb.)
Armstrong-Siddeley ASX	2,600	8,000	1,900
De Havilland Ghost II	5,000	10,000	2,011
De Havilland Goblin II	3,000	10,200	1,573
De Havilland Goblin III	3,300	10,750	1,573
Metropolitan-Vickers F.2/4A Beryl	3,850	7,750	1,550
Metropolitan-Vickers F.3 (duct fan)	4,600	7,390	2,200
Metropolitan-Vickers F.5 (open fan)	4,710	7,700	2,200
Rolls-Royce Derwent I	2,000	16,600	920
Rolls-Royce Derwent V	3,600	14,700	1,280
Rolls-Royce Nene I	4,500	12,000	1,640
Rolls-Royce Nene II	5,000	12,300	1,640

Turbo-props	Shaft H.p.			
Armstrong-Siddeley Mamba I	1,010	320	14,500	750
Armstrong-Siddeley Mamba II	(under development)			
Armstrong-Siddeley Python I	3,670	1,150	8,000	3,150
Armstrong-Siddeley Python II	(under development)			
Bristol Phoebus	(under development)			
Bristol Theseus II	2,180	600	8,200	1,860
Bristol Theseus 21	1,950	500	8,200	2,310
Bristol Proteus I	3,500	1,100	...	...
Fedden	1,305	312	...	750
Napier Naiad	1,590	241	18,250	1,095
Rolls-Royce Clyde I	3,600	1,200	6,000	2,500
Rolls-Royce Dart	1,000	325	...	...
Rolls-Royce Trent (Experimental)	750	992	...	...

Sources: *Flight* (England); *Jane's All the World's Aircraft*; *Wilkinson's Aircraft Engines of the World.*

The published characteristics of British turbo-jet and turbo-prop engines of 1947 are given in the table.

France.—During 1945 and 1946 French aviation groped its way out of the period of wartime occupation and disruption.

By the end of 1947, however, a considerable degree of substantial progress was in evidence. Not only were the manufacturing plants beginning to turn out production types, but more important, French research establishments were being reactivated and, in spite of severely strained economic conditions, some new ones were being built. The large wind tunnel installations at Chalais-Meudon were again in operation. These tunnels are all in a low-speed category, but are still useful for testing aircraft in the subsonic ranges. A new installation of supersonic wind tunnels was reported to be located deep in the French Alps where electric power is cheap and abundant. Also, in Toulouse, a new aeronautic research establishment was opened at which new wind tunnels and a towing basin were being installed. There also, extensive laboratories were already in service for type-testing of aircraft components and for basic research on aircraft materials.

The postwar French aircraft industry has been re-established along substantially the same lines as the prewar industry. It was nationalized in 1937–38 and operates under four overriding government-owned and -controlled corporations generally abbreviated as S.N.C.A. (Société Nationale de Constructions Aeronautiques) du Nord, S.N.C.A. du Centre, S.N.C.A. du Sud-Est and S.N.C.A. du Sud-Ouest.

In 1946 it was possible to report that the French were experimenting with the design and development of jet engines of their own, meanwhile building a few experimental aircraft around German-built turbo-jet engines. Although in 1947 some German-built (and even some British-built) turbo-jets were still reported as installed in French-designed aircraft, several French-designed power plants of the newer type appeared to be nearing production stages.

French Turbo-jets and Turbo-props.—The Ateliers Aeronautique Richenbach ATAR 101 turbo-jet was being developed by Voisin, and built by S.N.E.C.M.A. (Société Nationale d'Etude et de Construction de Moteurs d'Aviation), the nationalized French engine factory. It was derived from the German BMW turbo-jet. Fifty were ordered to start, and 15 per month was the production goal.

The Rateau A-65 (SRA-1) turbo-jet was reported running successfully on test-bed for several months. This unit was planned for use in the S.N.C.A de Sud-Ouest S.O. 6000 experimental jet plane.

The Compagnie Electro-Mécanique of Lyons produced the TGA-1 bis turbo-prop, planned for test flying in an S.N.C.A. de Sud-Ouest S.O. 161 Languedoc, probably in the two outboard nacelles.

French Service Types.—Projected military designs included the S.N.C.A. de Sud-Est S.E. 580 single-seat fighter, powered by a 2,500-h.p. Hispano-Suiza 24-cylinder liquid-cooled engine; the S.N.C.A. de Sud-Ouest S.O. 177, reconnaissance version of the S.O. 175 (Bloch) reconnaissance bomber, powered by two Hispano-Suiza 12-cylinder engines; and the S.N.C.A. de Sud-Ouest S.O. 8000, a long-range fighter. S.N.C.A. de Sud-Est had also the S.E. 2000, a 4-engine 50-passenger monoplane under development.

A new name in the French aircraft industry is the Société Générale de Mécanique, Aviation (Société Matra), developing an interesting fighter, the Matra R-75. It is a twin-boom monoplane, with two Mathis engines driving a single-pusher propeller. It has no ailerons and obtains lateral control by differential control of the elevators. Flaps are fitted on the entire trailing edge of the wings.

The Arsenal V.B. 10C-1 went into production in 1947. It is adaptable as a day or night fighter at medium and high altitudes, a fighter-bomber and a photo-reconnaissance aircraft. Its two Hispano-Suiza 12Z liquid-cooled engines are mounted in tandem in the fuselage and coupled through a Vernisse-type drive to two Ratier, three-blade counter-rotating, coaxial propellers. Its armament consists of four 20-mm. cannon and six 0.50-in. machine guns in the wing. In addition, two 1,100-lb. bombs may be carried in wing racks, or eight 60-lb. rocket projectiles. The VB-10 has been called the most complicated aircraft in the world in its experimental version.

The first prototype of the S.N.C.A. du Centre NC 1070 carrier-based torpedo dive bomber was flown late in 1947. It has folding wings, and is a double tail plane. Two Gnôme and Rhône 14R radial engines, of 1,600 h.p. each, supply power for a maximum speed of 359 m.p.h. at 22,637 ft.

The S.N.C.A. du Nord 1500 Noréclair, a torpedo bomber, was first flown in Aug. 1947. It is powered by two Gnôme and Rhône 14R 25 radials.

The Dessault D. 315 (previously Bloch) two-engine ambulance aeroplane is a version of the feeder-liner Dessault D.303, powered by 580-h.p., S.N.E.C.M.A. Renault 12 S.00 in-line engines.

The S.N.C.A. du Nord 1400 Noroit reconnaissance flying boat was scheduled for production late in 1947. Twenty-six were to be produced for the French navy at Sartrouville. Two Gnôme and Rhône 14R 25 radials of 1,675 h.p. each furnish power for a maximum speed of 216 m.p.h. It carries a crew of seven.

French Jet Projects.—One of the most interesting and original projects is the Bréguet Leduc 0.10. It is an all-metal, midwing monoplane with tricycle landing gear, using a pulse jet unit similar to that in the V-1 flying bomb. As this engine gives little power at low speeds, the Leduc 0.10 is mounted on pylons on a S.N.C.A. de Sud-Est S.E. 161 Languedoc 4-engine aircraft from which it is released at about 16,000 ft. Maximum speed was expected to be in the 600-mi. range.

Other Research Types.—The NC 3021 Belphagor of the S.N.-C.A. du Centre, is a low-wing monoplane intended for research at high altitudes. It can be fitted for meteorological, aerodynamic, electrical and cosmic ray research. A Daimler-Benz DB610A liquid-cooled 24-cylinder engine of 2,950 h.p. is installed. It was developed from the Farman 1000 of 1932, and the NC 3020 version flown in 1946.

The Bréguet 482, powered by two Hispano-Suiza 12Z liquid-cooled engines in underslung nacelles, is a research monoplane which made its first flight late in 1947.

The Voisin M.P. 1000 canard ("tail-first") type was planned for an estimated maximum speed of 646 m.p.h. A Voisin 2,000-h.p. liquid-cooled 42-cylinder 6-row radial engine drives 2 large diameter 5-blade tractor propellers.

Passenger and Freight Aircraft.—Largest of the projected French transports was the 140-ton S.N.C.A. Sud-Est S.E. 1200 eight-engined flying boat. A flying model was under construction, to be powered by four Renault 6 Q engines of 240 h.p. each. Span of the model is 72 ft., and the gross weight is 14,100 lb.

The Bréguet 761 transport, adaptable to a wide variety of military and commercial uses, progressed to its final stages of assembly. Four Gnôme and Rhône 14R engines were installed. Its gross weight was 92,593 lb.

The first prototype of the Bréguet 731 four-engine flying boat was flown at Biscarosse Sept. 2, 1947. It is the commercial development of the Bréguet 730 military reconnaissance flying boat of 1939.

The French Armament Ministry placed a large order for the S.N.C.A. du Nord Castel Mauboussin CM 10 high-wing freight gliders. Disposable load of the glider is 8,820 lb., and the freight capacity is 1,130 cu.ft.

The S.N.C.A. du Sud-Est S.E. 2010, a transatlantic 72-ton liner, was being assembled at Toulouse, 25 having been ordered by Air France. Four Pratt & Whitney R4360 Wasp Majors were installed but possibly French engines would be used later.

French Helicopters.—The French have long been pioneers in the helicopter field. In 1947 further progress was reported.

S.N.C.A. du Sud-Est reported successful test flights of the S.E. 3000 helicopter, a twin rotating five-blade type patterned after the German Focke-Wulf. A later model, the S.E. 3100, was also under active devel-

opment. This is a much larger machine with an all-up weight of more than 14,000 lb. Professor Henrich Focke (Germany) was reported as assisting in these designs.

The S.N.C.A. du Sud-Ouest jet-driven helicopter S.O. 1100 (Ariel) was said to have flown in mid-1947. It was a novelty in that the rotor was driven by small jets at the blade tips and the whole machine was propelled forward by an orthodox pusher propeller.

Russia.—Very little was known on aviation activities in the U.S.S.R. —at least outside of military intelligence files. It was thought that several B-29s of the 20th air force made forced landings on Russian territory during the operations against Japan. It was generally assumed (and sometimes stated positively) that the Russians had built and flown replicas of the U.S. Superfortress.

It was known that Russian designers had been active in turbo-jet engine development. They not only secured many examples of German jet engines but they also captured a number of well-known German designers of such engines. Russian jet-powered fighters and bombers had been observed in flight. Published reports stated that at least six new types of jet aircraft were observed in a demonstration over Moscow in Aug. 1947.

A British source described a twin-jet Russian aircraft designed by S. Lavochkin. This machine, a midwing monoplane with cockpit well forward, was said to be powered by two German-built BMW 003A turbo-jet units mounted underneath the fuselage.

Another report from the same source indicated that an improved version of the German Messerschmitt Me 262 twin-jet fighter was in production in considerable numbers in the U.S.S.R.

Probably the most reliable information regarding soviet aviation activities concerns transport types. Photographs and some descriptions were published of the IL-12 and the IL-18, similar in design to the U.S.-built DC-3 and DC-4, respectively. The civil version of IL-12 is powered with two 1,600-h.p. engines. Its payload is reported at 6,600 lb., cruising speed of 197.5 m.p.h. and a range of 1,250 mi. is claimed. The aeroplane differs from the DC-3 in that it has a tricycle landing gear.

The IL-18, of general DC-4 configuration, differs from it in many details. The nose section, for example, is more nearly like the Boeing C-97. The fuselage appears to have a greater fineness ratio than the DC-4 and the tail surfaces are more highly tapered. Its four engines are M-89s, 14-cylinder radials, which stem back to the French Gnôme and Rhône 14-cylinder designs. These engines are reported as equipped with direct fuel injection and are rated at 1,300 h.p. each for take-off and 1,140 h.p. at 19,700 ft. The machine would be considered as under-powered by U.S. standards.

There were various estimates as to the strength of the Russian military air establishment. It was publicly stated by a high ranking U.S. air force officer that the Russian air forces possessed in 1947 at least 40,000 usable aircraft. The U.S.S.R. production rates in that year were estimated to be of the order of 20,000 aircraft a year. Exact figures, however, were lacking.

Other Countries.—Although most of the aeronautical activity of the world is in the hands of the few countries discussed above, a revival of aerial activity throughout some of the smaller nations was noted in 1947. Below, without any claim for exhaustive treatment, is a scatter of aeronautical notes from various sources.

Argentina reported a first test flight in Aug. 1947 of a single-seat jet fighter, the Cordoba Pulque Arrow, powered with Rolls-Royce Derwent R5. It was developed by the Aero institute at Cordoba. The Argentine air force also converted six Bristol-type 170 transports for troop carrier purposes.

Belgium ordered 20 Stampe et Vertongen SV-4B biplanes to replace the British De Havilland Tigermoths as standard air force trainers.

Brazil was starting its aviation industry by developing a series of low-powered trainer, ambulance and liaison aircraft built by the Compania Aeronautica Paulista of São Paulo.

Canada was developing a new trainer, the De Havilland (Canada) Chipmunk. Avro of Canada had under development an axial-flow turbo-jet power unit for military and civil use and also a design for a long-range fighter for the royal Canadian air force.

Italy, one of the most active countries in aeronautics before World War II, was slowly reviving its aircraft industry. Savoia-Marchetti was said to have a 20-passenger transport design, powered by two 12-cylinder in-line Isotta Fraschini Delta RC41 III engines. This aeroplane was also intended as a freight transport. Caproni reported an all-metal midwing monoplane for five passengers with two pusher propellers. Breda-Zappata was developing a 55-passenger transport, the BZ-308, powered with four British Bristol Centaurus engines. Fiat, long in the reciprocating engine field, was reported to have active research and development underway in gas turbines and turbo-jet categories.

Netherlands.—The Fokker company was stated to have been revived and to have begun construction of two- and three-place bombing and navigational trainers.

Spain was reported to be producing 100 two-seat trainers and 70 target-towing aircraft.

Sweden was modernizing its air force by the addition of jet fighters. The air force purchased a number of British-built Vampires and British-built turbo-jet units, chiefly the De Havilland Goblin II. Svenska Aeroplan A.B. of Linköping had developed the J21R fighter around the Goblin engine. This machine was in production during 1947 for the Swedish Air Forces. The SAAB factories, it may be noted, were completely underground. (*See* also AIRCRAFT MANUFACTURE; AIRPORTS AND FLYING FIELDS; AVIATION, CIVIL; CIVIL AERONAUTICS ADMINISTRATION; GLIDING; MUNITIONS OF WAR; WORLD WAR II.) (S. P. J.)

Avocados: *see* FRUIT.

Azores, The: *see* PORTUGAL.

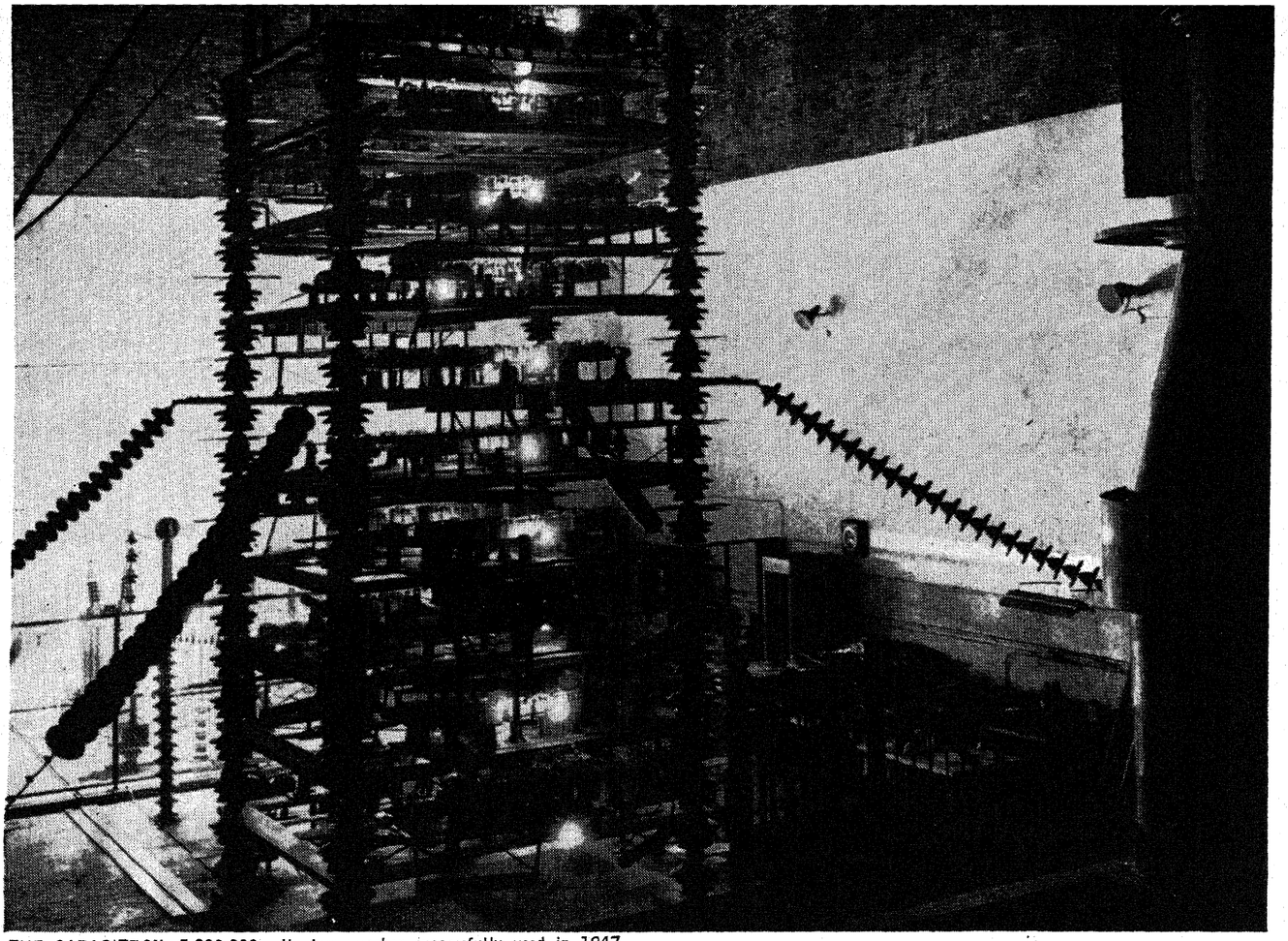
Bacon. The decline in U.S. hog slaughter in 1947 was reflected in proportionately reduced output of bacon. Sliced bacon produced under federal inspection in 1947 amounted to about 500,000,000 lb. compared with 522,918,000 lb. in 1946 and 549,857,000 lb. in the record year of 1944. The inspected bacon represented only about half the total, however, and about 19% of the total dressed weight of hogs is usually classed as bacon. By this method of estimating, the total output of 1947 was about 1,500,000,000 lb., compared with 2,100,000,000 lb. in 1946. The retail price of bacon continued high throughout the year, ranging from 70 cents to 95 cents per pound. The supply in retail markets was more evenly distributed than in former years, but larger exports helped to hold retail prices at high levels. (*See* also HOGS; MEAT.) (J. C. Ms.)

Bacteriology. During July 1947 the first postwar assembly of the International Congress for Microbiology was held in Copenhagen, Denmark. There, for the first time since the third congress in New York in 1939, microbiologists of all countries renewed acquaintances and exchanged news and scientific data. The register of contributors included about 320 names. The fields of microbiology covered were general, antibiotics, medical and veterinary, viruses, soil, water, dairy, food, serology, variation and mutation, plant diseases and industrial.

M. Frobisher and E. I. Parsons of Baltimore, Md., discussed immunization of rabbits with the endotoxins of avirulent diphtheria bacilli which resulted in complete resistance to doses of live virulent strains always fatal in normal rabbits. J. W. McLeod of Leeds, England, described increases of incidence of diphtheria and concurrent spread of gravis-type infections, especially in immunized persons, in various countries of Europe and in England. An important contribution to knowledge of spread of brucellosis was made by H. C. Bendixen and E. Blom of Copenhagen, who showed that artificial insemination of cows could transmit the disease from infected bulls, the organisms being demonstrated in semen. Encouraging data on vaccination of animals against brucellosis were presented by G. Schmidt of Berne, Switzerland, and by A. W. Stableforth of Weybridge, England.

Further work was reported in 1947 by R. J. Dubos and associates on the use of liquid media containing a wetting agent ("Tween-80") and a serum albumin fraction (V) for the cultivation of tubercle bacilli. The albumin acts mainly to detoxify oleic acid present as an impurity in "Tween-80." Other data in this field were presented at a national Sigma Xi lecture at the Johns Hopkins university. It was shown that mice could be used effectively in the study of tuberculous infection if the bacilli grown in the fluid medium were injected intravenously or intracerebrally or fed to the mice. A method of diagnosis with sputum was indicated. The bacilli were found to grow in the chick-embryo yolk sac. Such material, or a mixture of sterile yolk and bacilli, produced rapid and extensive disease in mice. Pigmented strains of mice were generally found more susceptible than albino mice. Concomitant inoculations with subinfective doses of pneumotropic viruses and small doses of tubercle bacilli, even when weeks apart, were found to produce rapid and extensive development of tuberculosis in the mice.

In the field of public health, work on the communicable disease centre, a new division of the U.S. public health service, organized primarily for service and aid to laboratories doing public health work, and with headquarters in Atlanta, Ga., progressed rapidly. The construction of provisional bacteriological and serological laboratories, in addition to the already-functioning parasitological laboratories, was brought nearly to completion at Lawson General hospital, Atlanta, Ga. Plans for a new mycology branch were completed, and the well-developed laboratories for virus studies located at Montgomery, Ala., carried out several important projects. A laboratory of the tuberculosis



THE CAPACITRON, 5,000,000-volt atom-smasher successfully used in 1947 for preserving fresh foods. Bacteria and enzymes in substances placed under its electron beam were killed and spoilage prevented

control division of the public health service also began to function regularly at Lawson hospital in connection with the communicable disease centre.

New publications on the flagella of bacteria were of particular interest since it was stated that bacteria move only because they are helicoidal in structure and that flagella, long regarded as the organs of bacterial locomotion, are merely filaments of capsular or slime layer which wriggle passively because of the motion of the bacteria. If confirmed, this was a revolutionary finding. (*See* also EPIDEMICS.)

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Badminton. After a four-year lapse because of war emergencies, badminton returned to national competition in 1947. The nationals, held at Los Angeles, Calif., and the first national junior championships, held at Baltimore, Md., established the 1947 national rankings as follows:

Men's singles: David G. Freeman, Pasadena, Calif.; Carl Loveday, Montclair, N.J.; Marten Mendez, San Diego, Calif.; Barney McCay, Alhambra, Calif.

Men's doubles: David G. Freeman and Web Kimball, Pasadena, Calif.; Robert Williams, Buffalo, N.Y., and Clinton Stephens, Baltimore, Md.; Carl Loveday, Montclair, N.J., and Richard Yeager, New Rochelle, N.Y.; Leroy Erickson, Pasadena, and Barney McCay, Alhambra, Calif.

Women's singles: Ethel Marshall, Buffalo, N.Y.; Janet Wright, San Francisco, Calif.; Thelma Scovil, San Francisco; Patricia Stephens, Baltimore, Md.

Women's doubles: Janet Wright and Thelma Scovil, San Francisco; Elizabeth Anselm and Shirley Blanchet, San Francisco; Helen Ough, Oakland, Calif., and Zoe Yeager, New Rochelle, N.Y.; Patricia Stephens, Baltimore, Md., and Helen Gibson, Buffalo, N.Y.

Mixed doubles: Wynn Rogers, Glendale, Calif., and Virginia Hill, Burbank, Calif.; Mr. and Mrs. Clinton Stephens, Baltimore, Md.; David Freeman and Helen Tibbetts, Pasadena; Leroy Erikson and Loma Smith, Pasadena.

Veterans' doubles: Hulet Smith and Lewis Rulison, Pasadena; Chips Aurand and Ray Wihelm, Los Angeles; Gene Elms and Earl Pound, Los Angeles; Everett Oliver and E. F. Tackaberry, Los Angeles.

Boys' singles: Ted Moehlmann, Jr., University City, Mo.; Wilbur W. Bullen, Jr., Waban, Mass.; Allen Hardin, Atlanta, Ga.; William K. Kellogg III, Glencoe, Ill.

Girls' singles: Barbara J. Scarlett, Baltimore, Md.; Jean Harvey, Baltimore; Clarke Lowndes, Baltimore; Susan Devlin, Baltimore.

Carl Loveday of Montclair, N.J., beaten by Freeman in the national final, 15–8, 15–8, dominated lesser tournaments in the east. He won the New Jersey state and Buffalo Invitational and dominated the Middle Atlantic doubles.

In the most important sectional tournament of the season—

the California state—Freeman warmed up to his U.S. title reign with victories in the men's singles and doubles and mixed doubles. John Samis of Vancouver, B.C., won the Canadian championship, while Stanley Cutts of Toronto, Ont., again proved his superiority over Doug Grant of Montreal, Que., with a 15–11, 15–12 conquest in their annual challenge match for the professional title. (M. P. W.)

Bahamas. An archipelago of islands, cays and rocks outside the Gulf of Mexico, lying between 21° and 27° north latitude and 72° and 81° west longitude. Administered as a British colony from 1787. Capital: Nassau (on the island of New Providence). Area: 4,400 sq.mi.; pop. (1943 census): 68,846, of which the island of New Providence accounted for 29,391. Language: English; religion: predominantly Christian. The constitution provides for a governor appointed by the British crown and advised by an executive council of 9 members, as well as for a legislative council of 9 (nominated by the crown) and for a house of representatives composed of 29 members elected from 15 districts. Governor (appointed in 1945): Sir William Lindsay Murphy.

History.—There was an important constitutional development in the Bahamas during the year 1947. The General Assembly Elections act, passed by the local legislature in Aug. 1946, came into force in 1947. It provided that voting at elections for the house of representatives should thereafter be by secret ballot, not only in the island of New Providence (where the practice already existed) but also in all the out islands of the colony. Another important measure taken during the year was the setting-up of a labour advisory board. There were also developments in the local mining industry. The arrangement, inaugurated in the later stages of World War II, for employing a contingent of Bahaman labour in the United States remained in operation during the year. The Bahamas did not participate in the conference held in Jamaica in Sept. 1947 to consider the question of the closer association of West Indian territories. The colony, like Bermuda, lies outside the province of the comptroller for development and welfare in the West Indies and his organization.

Finance and Trade.—The legal tender is British sterling currency, though United States currency is also generally used in the colony. Revenue (1946) £591,000; expenditure £868,000. Imports (1946) £2,841,000; exports £399,000. Public debt (1945) £245,000. The Bahamas are almost the only territory in the British colonial empire where agricultural products are of less importance than marine products in the economic life of the community. Fish are abundant and are caught in large quantities for local consumption, but sponges are the only marine product that is exported to any considerable extent. Lumber and tomatoes are other articles of export. (J. E. Sh.)

Bahrein Islands: *see* British Empire.
Ballet: *see* Dance.
Ballroom Dancing: *see* Dance.
Baltic States: *see* Estonia; Latvia; Lithuania.

Baltimore. The metropolis of Maryland, and the seventh largest city in the United States according to the federal census of 1940, had a population of 859,100, of whom 692,705 were white and 166,395 (19.4%) were nonwhite, mainly Negro. As of April 1947, the bureau of the census estimated the civilian population at 940,000 for the city and at 1,306,000 for the Baltimore metropolitan district. Land area of the city, 78.72 sq.mi.; inland water area, 6.9 sq.mi. Thomas D'Alesandro, Jr., Democrat, was elected mayor in May 1947, for a four-year term, succeeding Theodore R. McKeldin, Republican. Budget appropriations for 1948 totalled $83,451,250, an increase of 16.9% over the 1947 budget. The city tax rate for 1948 was $2.85 per $100 of assessed valuation (state rate, additional 10 cents). The gross funded debt as of Nov. 30, 1947, was $181,860,000; the net debt was $140,603,264 (not including income accrued to sinking funds). Percentage of net debt to taxable basis (excluding self-supporting debt) was 4.61%; taxable basis, $1,963,729,194.

There were 77,638 white students and 37,167 Negro students, ranging from prekindergarten through teachers' college, enrolled during the school year 1946–47; total, 114,805. The actual enrolment on Sept. 30, 1947, was 72,495 white students and 35,336 Negro students; total 107,831. Dr. William H. Lemmel was superintendent of public instruction in 1947. The department of education is administered as a unit apart from the school system of the rest of the state.

Exports for the first eight months of 1947 totalled 9,668,000 long tons, an increase of 54.5% over the similar 1946 period; imports were 5,054,000 long tons, an increase of 61%. Total vessel entrances in the eight months were 1,368 ships of 5,511,000 net registered tons, an increase of 44.6% in number and 52% in tonnage over 1946.

Production was at a relatively high level in such leading local industries as iron and steel, apparel, chemicals and fertilizers, automobile assembly, meat packing, electrical goods (including radios) and can manufacturing. But a five-month strike at the shipyards reduced shipbuilding activity and an adjustment to postwar demands curtailed aircraft output. Employment in the Baltimore metropolitan area was estimated by the Employment Security board at 498,700 in the latter part of 1947, an increase of 12,500 over 1946 and a new postwar peak. On June 30, 1947, resources of Baltimore's banks totalled $1,446,475,265, representing approximately 70% of the bank resources of all Maryland. (J. S. A.)

Bananas: *see* Fruit.
Bankers Association, American: *see* Societies and Associations.

Bank for International Settlements. The final act of the United Nations Monetary and Financial conference, held at Bretton Woods, N.H., July 1944, recommended the earliest possible liquidation of the Bank for International Settlements of Basle, Switzerland, founded in 1930 to handle German reparations payments under the Hague agreements of 1930. In 1947 it became clear that this recommendation would not be followed. The 17th annual report of the bank, published in June 1947, recorded that by letters exchanged in April 1947 co-operation between the bank and the International Bank for Reconstruction and Development, Washington, D.C., had been established in Europe.

According to this same report, the bank's assets, as of March 31, 1947, amounted to 499,138,672 Swiss (gold) francs (against 451,357,502 Swiss francs on March 31, 1946). Of this total, 16.6% was held in gold bars and coins. Cash and sight funds at interest amounted to 9,640,187 Swiss francs (1.9% of assets); bills and acceptances, time funds at interest and sundry bills and investments to 115,153,562 Swiss francs (23.1%). But the largest part of the assets, 291,160,279 Swiss francs (58.3%) still consisted of "funds invested in Germany in application of the provisions of the Hague agreements." In the absence of a final settlement of German affairs the real value of these claims and their recoverability from the debtors (the German treasury, railway administration, postal administration, etc.) were problematic. Against these assets, the liabilities included long-term deposits received in application of the provisions of the Hague

agreements amounting to 228,909,375 Swiss francs, of which 76,303,125 Swiss francs represented the deposit of the German government and 152,606,250 Swiss francs the deposits of the creditor governments. The liabilities side also included a general reserve of 19,870,280 Swiss francs and a contingency reserve of 97,619,239 Swiss francs; short-term and sight deposits, 27,739,777 Swiss francs (of which 18,100,000 were in gold) and the paid-up capital of 125,000,000 Swiss francs (one-quarter of the authorized capital).

The net profit in 1946–47 amounted to 692,787 Swiss francs (against a loss of 616,581 Swiss francs in 1945–46), which was transferred to a special suspense account. The report stated that there had been a progressive revival of activity and an increase in volume of business during the financial year 1946–47.

After the resignation of Camille Gutt in 1946, the chairmanship of the bank passed to Maurice Frère, governor of the National Bank of Belgium, with Sir Otto Niemeyer, a director of the Bank of England, as vice-chairman. Roger Auboin (French) continued as general manager. (R. P. S.)

Banking. Loan expansion, retirement of marketable public debt from a treasury surplus and firming of interest rates featured banking developments in the United States during 1947.

From Dec. 31, 1946, through the end of Nov. 1947, total loans of all commercial banks rose by about $6,600,000,000. Holdings of government securities declined $4,700,000,000, and holdings of other securities rose $800,000,000. Total loans and investments declined in the first half of the year but rose in the second half to show an increase for the first 11 months of 1947 of $2,700,000,000.

By the end of Nov. 1947 total loans of all commercial banks amounted to $37,700,000,000, exceeding the previous record high in 1929. Moreover, by the end of the year total loans comprised one-third of total loans and investments of all commercial banks, as compared with slightly more than one-fifth at the end of 1945.

Loan expansion at commercial banks centred in the fields of commercial and industrial loans, real estate loans and consumer loans. During the first half of the year, total loans at all insured commercial banks rose to $2,520,000,000. There were increases of $750,000,000 in commercial and industrial loans, $1,100,000,000 in real estate loans and $860,000,000 in consumer loans. Loan expansion proceeded at an accelerated rate during the second half of the year. The increase in commercial and industrial loans at weekly reporting member banks in leading cities of the United States was $3,300,000,000 during the entire year.

The total money supply—demand deposits adjusted, United States government deposits, time deposits and currency outside banks—declined from $167,100,000,000 at the end of Dec. 1946 to $165,000,000,000 at the end of May, but rose to $169,700,000,000 by the end of October.

The volume of bank debits rose to a high level in 1947, and the rate of turnover of demand deposits continued the increase which began in 1946 after a decline that extended from 1929.

During the year the total gross public debt was reduced by $2,200,000,000 to $256,900,000,000 on Dec. 31, 1947. Total marketable obligations were reduced by $10,900,000,000, the major portion of which was in certificates of indebtedness. Nonmarketable public issues outstanding rose $3,000,000,000, reflecting sales of U.S. savings bonds in excess of redemptions and the sale of the nonmarketable 2½% investment issue of treasury bonds in September. Special issues increased $4,400,000,000. Special notes payable to the International Bank for Reconstruction and Development and the International Monetary fund, on which no interest is paid, increased $1,300,000,000. While the retirement of marketable securities in 1947 was substantially less than in 1946, the 1947 retirement was chiefly from a surplus of tax receipts over cash expenditures and cash sales of nonmarketable securities. This was in contrast to the previous year when retirement of marketable securities was made possible chiefly by drawing down large accumulated war-loan deposits in commercial banks.

Corporate security issues for new capital reached the high figure during 1947 of about $4,500,000,000, reflecting needs for funds to finance record business expenditures on plant and equipment. The 1947 total compares with the 1946 figure of $3,500,000,000, the peak in the 1930s of $1,225,000,000 in 1937 and the record high of $8,000,000,000 in 1929, which included, however, large offerings of securities by holding companies and investment trusts. Bond issues constituted about three-fourths of corporate flotations for new capital during the year, and stocks about one-fourth. Flotations of preferred stocks declined reflecting pronounced weakness in the market for these issues as interest rates firmed. Unsettled capital market conditions in the fourth quarter of the year lowered the amount of refunding issues but had little apparent effect on the amount of corporate issues for new capital. It is estimated that in the fourth quarter of the year about one-third of the securities offered were sold directly to the issuers' security holders, and another third were sold privately to life-insurance companies and other large investors. More than half of new capital issues were for public utility and petroleum companies. Corporate security issues for refunding came to about $1,400,000,000 during 1947, less than in any of the three preceding years.

Security issues of state and local governments during 1947 amounted to $2,200,000,000, a new all-time high record. Almost all of these issues were for new capital rather than for refunding. The 1947 total exceeded by more than 50% the previous record high of $1,510,000,000 in 1927. The large amount of financing by state and local governments during the year reflected state bonuses to veterans and a large volume of state and local construction projects, and was achieved notwithstanding a sharp curtailment of new offerings in the final quarter of the year because of unsettled capital market conditions.

Total consumer credit outstanding rose to more than $12,000,000,000 by the end of Oct. 1947, surpassing the previous record high of more than $10,000,000,000 late in 1941. Large increases appeared in the amount outstanding of instalment sale credit, instalment loans and single-payment loans. At the same time, however, automobile sale credit, which amounted to about $1,000,000,000 at the end of Oct. 1947, was far less than previous peak levels.

Firming of interest rates during the second half of the year was a notable development in banking. Several factors together brought about this development. The cumulative effect of treasury and federal reserve actions lessened the margin between short-term and long-term yields on government securities and removed much buying pressure from the longer-term part of the market. These actions included retirement of bank-held debt, particularly that held by the federal reserve banks, from the current treasury surplus of cash receipts over expenditures, the increase in the treasury bill rate from .375% to about .95%, and the increase in the rate on one-year certificates from .875% to 1.125%. Between April and September the treasury investment accounts made net market sales of $1,800,000,000 of marketable treasury bonds, and in September the public sale of $870,000,000 of the nonmarketable investment series bonds added further to the available supply of treasury bonds. Of basic importance, however, in bringing about a decline in bond prices and higher yields were the huge private demands for

funds—from business enterprises through both loans and security issues, from state and local governments, from consumers and from those buying or building homes.

By the end of December the yield to call on the longest bank-restricted treasury bond was 2.48%, as compared with a low during the year of 2.26%. Corporate bond yields increased more sharply than government bond yields, and municipal bond yields increased even more during the year than did corporate bond yields. The yield on high-grade municipal bonds at the end of the year exceeded the yield on long-term bank-restricted treasury bonds. (*See* also BUSINESS REVIEW; CONSUMER CREDIT; LAW; PRICE ADMINISTRATION, OFFICE OF.) (J. K. L.)

Mutual Savings Banks.—The total number of mutual savings banks in the United States increased to 533 in 1947 through the conversion of 2 building and loan associations into savings banks. The opening of 19 new branch offices during the year brought the total number of branches in operation to 170.

Deposits grew from $16,224,970,861 on July 1, 1946, to $17,415,253,222 on July 1, 1947, a net gain of $1,190,282,361 or 7.3%. In the year ended July 1, 1946, the net gain in deposits was $1,846,557,661 or 12.8%. Assets increased from $18,028,676,696 on July 1, 1946, to $19,363,391,557 on July 1, 1947, a net gain of $1,334,714,861 or 7.4%. In the previous year the net gain was $2,075,343,084 or 13.0%. Surplus increased $121,189,094 to a total of $1,861,962,163 or 10.7% of deposits. The total number of open accounts on July 1, 1947, was 18,177,018, a net gain of 740,844 accounts. The net gain for the previous year was 710,441 accounts. In the 10-year period 1936–46 the gain in deposits was $6,799,929,847 or 67.9%, and the gain in accounts 3,361,736 or 23.3%.

A new type of U.S. government bond, similar to the Series G savings bond, bearing interest at 2½% and designated Investment Series A-1965, was made available in Sept. 1947 to institutional investors holding savings, insurance, pension and similar funds. Savings banks bought at issue $125,260,000 of these bonds.

The first issue of bonds of the International Bank for Reconstruction and Development came on the market in July 1947. These were legal for purchase by savings banks in nine states.

Many banks invested in new corporate issues, which were offered in substantial volume for the first time after 1941. They also actively sought mortgage loans but the supply of corporate bond and mortgage investments was not sufficient to absorb available funds. However, new mortgage loans made during the year, including Federal Housing administration insured loans, Veterans' administration insured loans and conventional loans, increased the total mortgage portfolios of all mutual savings banks to $4,600,000,000. This amount was in excess of the total amount held after the end of 1942 when the great expansion of government bond holdings in savings bank portfolios began. A growing volume of partial payments on principal as a result of the general adoption of the amortized mortgage and of voluntary pay-offs of entire mortgages added to the difficulty of increasing the total mortgage-loan investments.

High construction costs prevented the savings banks in New York state from carrying out all the commitments for the building of savings bank-owned moderate-priced rental housing which were in contemplation at the end of 1946. Parkway Village in Queens county, a garden-type apartment project accommodating 687 families, on which construction was started in 1946, was opened for occupancy in July 1947. This development, costing $11,700,000, was financed by 20 savings banks as a joint venture. Construction of University Park, a development in Rochester, N.Y., to house 184 families at an estimated cost of $1,660,000, was begun in 1947.

Only one other state, Massachusetts, had given savings banks the right to build housing projects, and to undertake improvement of urban blighted areas through redevelopment. Participation in these undertakings was made subject to such regulations as the commissioner of banks deemed desirable.

Savings Bank Life Insurance.—There were 243 mutual savings banks selling life insurance at the end of Oct. 1947, an increase of 9 banks during the year. These included three new agency banks in Connecticut, two new agency banks in Massachusetts, two new issuing and two new agency banks in New York. At the close of business on Oct. 31, 1947, there were $9,309,762 of insurance in force in Connecticut representing 9,714 policies; $320,836,136 of insurance in force in Massachusetts representing 350,884 policies and $109,037,817 of insurance in force in New York representing 87,389 policies, or a grand total of $439,183,715 and 447,987 policies. Legislation resulting from the Guertin study was passed in New York and Massachusetts in 1947. The Guertin study was initiated by the National Association of Insurance Commissioners in 1939 under the chairmanship of Alfred N. Guertin, actuary of the New Jersey insurance department, to study the need for a new mortality table and related topics. The law in New York made it mandatory for savings banks in that state to use the new Commissioners Standard Ordinary Mortality table, compiled in 1941 by a group of state insurance supervisory officials, as a base for determining insurance premium rates after Jan. 1, 1948. The law in Massachusetts made it mandatory for old-line life-insurance companies but optional with savings banks. The Commissioners Standard Ordinary Mortality table was made permissive for use by Connecticut savings banks on and after Jan. 1, 1945, but had not been officially adopted at the close of 1947.

PICKETING IN THE RAIN, members of the C.I.O. Financial Employees guild are shown outside the main branch of the Brooklyn Trust Co. in New York city. Employees of the bank and its 24 branches struck in July 1947, demanding a 30% wage increase



Trustee Savings Banks in Great Britain.—The total funds of the trustee savings banks in Great Britain increased £80,168,898 in the year ended Nov. 20, 1946. The financial position on that date, as compared with the previous year, was as follows:

	1945 £	1946 £
Cash balances due to depositors:		
Ordinary department	488,526,684	557,695,768
Special investment department	114,553,313	112,621,758
Government stock held for depositors	71,736,297	83,058,049
Total balances	674,816,294	753,375,575
Combined surplus funds	15,744,335	17,353,952
	690,560,629	770,729,527

Deposits continued to increase during 1947 though at a slower rate than in the year 1946.

In the ordinary department there were 4,061,520 active accounts on Nov. 20, 1946, an increase of 201,061 in the year ended that date; in the special investment department there were 329,592 accounts, a decrease of 8,811 in the preceding year, and in the government stock department the number of stockholders increased by 13,588 to 252,906.

On Nov. 20, 1946, there were 87 trustee savings banks with 811 offices, an increase of 41 in the number of offices during 1946.

Possibilities for the extension of the system were improved by the provisions of an act passed in Feb. 1947, which empowered trustee savings banks to make advances for the extension or formation of other such banks. (*See* also BANK FOR INTERNATIONAL SETTLEMENTS; BANK OF ENGLAND.) (HE. BR.)

Bank of England.

Following the coming into force of the provisions of the Anglo-American loan agreement, the Bank of England as agent of the United Kingdom government took part in negotiations during the first half of the year 1947 for carrying out the terms of clause 10 of the agreement, dealing with the accumulated sterling balances. These involved long and intricate discussions with the governments and central banks who were holders of large sterling balances which had accrued during World War II. Agreement was reached with most of the countries concerned—some of the settlements being necessarily of a temporary nature—and the ground was thus prepared for carrying out one of the most discussed conditions of the loan agreement, which required the United Kingdom, within one year of the signing of the agreement, *i.e.*, by July 15, 1947, to make sterling accruing from current transactions freely available for current payments in any currency area. In order to facilitate these payments, the Bank of England announced in February the introduction of a system of "transferable accounts" and by July 15 "convertibility" arrangements with most countries were in force. The large drawings on the U.S. loan, particularly during July and early August, which Great Britain was forced to make in order to carry out its obligations under these arrangements, however, made it obvious that the loan would be exhausted within three months, and on Aug. 20 the chancellor of the exchequer announced that the United Kingdom was suspending "convertibility" so far as the dollar area was concerned. Consequently, it became necessary to resume negotiations in the light of these changed conditions with the various countries outside the sterling area.

The figures in the table are the principal changes shown by the bank return during the first nine months of the year.

It will be noted that, because of the stability of the note circulation throughout the period, no change in the fiduciary issue was necessitated, the last increase having taken place in Dec. 1946.

An outcome of the transfer of the Bank of England to public ownership in March 1946 was the publication by the bank in April 1947 of an annual report—the first in the 253 years of its existence. (H. CY.)

Bank of England, 1947

(£ million)

	Jan. 8	April 9	July 9	Oct. 8	Dec. 10
Issue Department:					
Notes in circulation	1,402	1,403	1,404	1,374	1,353
Fiduciary issue	1,450	1,450	1,450	1,450	1,450
Banking Department:					
Public deposits	14	9	9	12	19
Bankers' deposits	314	290	293	288	294
Other deposits	60	102	96	92	93
Government securities	321	336	328	303	291
Discounts and advances	18	18	22	10	16
Other securities	18	17	18	19	19
Reserve	49	48	49	78	98

Bankruptcy: *see* SECURITIES AND EXCHANGE COMMISSION.
Banks: *see* BANKING.

Baptist Church.

The Baptist World alliance, comprising Baptists of all lands, met in its seventh congress in Copenhagen, Denmark, July 29 to Aug. 3, 1947. Purely advisory and with no authority over the churches, this meeting, like its predecessors, was held for inspirational purposes and to discuss themes of common concern to Baptists of all lands. Five thousand delegates attended. Former enemy nations were represented; racial antipathies, had there ever been such, were forgotten, and recognition of common human conditions and needs prevailed which alone, these people believed, could make for peace.

According to reports of the congress, many Baptists were still living in the displaced persons camps of the continent. Some 600 Estonian Baptists were refugees in Sweden and another 100 were in Germany. Yet, with religious freedom prevailing in those nations, Baptist work was successfully carried on. Estonian Baptists in Sweden baptized 38 new members.

In Denmark, there were 34 Baptist churches with 6,427 members. In Finland, the Swedish-speaking Baptists had 29 churches in 1947 with a total membership of about 2,000; the Finnish-speaking Baptists had 16 churches with a membership of 1,000. Each had established a publishing house, young people's organizations, Sunday schools and missionary societies.

In Norway there were 62 churches with a membership of 7,446, and Sunday schools with 4,162 children and 345 teachers. Sweden reported 607 churches with a membership of more than 49,000; Great Britain 385,933 members in 3,247 churches. From other European countries, some with less democratic heritage, came representatives from Yugoslavia, Rumania, Portugal, Spain, Italy, U.S.S.R. and Lithuania. In fact, according to congress records, Baptists were to be found in every nation of the continent. From Asia came delegates of Burma, India, China and the Philippines. Though distance made attendance difficult, Africa and Australia had their spokesmen. Rev. C. J. Tinsley from the latter country was the congress moderator.

The Southern Baptists of the United States, with a total membership of 6,709,305, and more than 26,000 churches, had the largest representation. The Northern Baptists reported a membership of 1,468,043 and 7,603 churches. The two National Baptist conventions (Negro) had 24,600 churches and a membership of 4,073,252. Canada reported 1,214 churches with 139,405 members.

Dr. C. O. Johnson, pastor of the Third Baptist church, St. Louis, Mo., was elected president of the Baptist World congress, to serve until the meeting of the next congress, invitations for which were received from China, Canada, United States and South America. The headquarters of the alliance were moved in 1947 from London, its seat since 1905, to Washington, D.C. Baptists of the world numbered well over 14,500,000 church members in 1947. (*See* also CHURCH MEMBERSHIP.) (R. E. E. H.)

Bar Association, American: *see* SOCIETIES AND ASSOCIATIONS.

Barbados. The most easterly of the Caribbean islands. British colony; in continuous British occupation from early in the 17th century. One of the most densely populated areas in the world. Area: 166 sq.mi.; pop. (1946 census) 192,841, mainly of African descent. Capital and chief port: Bridgetown (pop. 13,345). Language: English; religion: Christian (about 70% Anglican; the number of Roman Catholics is comparatively small). Executive authority is vested in a governor (appointed by the British crown) assisted by an executive council and, in certain matters, by an executive committee. The legislature consists of the governor, a legislative council of 10 members appointed by the crown and a house of assembly of 24 members (2 for each parish in the colony and 5 for the capital) elected for a period of two years. Governor: Sir Hilary Blood.

History.—A ten-year development plan drawn by the Barbados government was under consideration in London during the year 1947. The plan contemplated a total expenditure of £3,400,000, toward which it was estimated that the colony itself would be in a position to make a substantial contribution both from surplus balances and from revenue. Surplus balances stood at £1,087,000 in June 1947. The plan aimed at an all-round improvement of social services and in particular at the reorganization of the education and health services of the colony. Housing was another problem calling for urgent attention. On the agricultural side, the program aimed at developing an intensive system of mixed farming on the basis of animal husbandry and with special reference to peasant holdings. By these means it was hoped to lessen the dependence of the colony on sugar and to stimulate an increase in animal (including dairy) products which was badly needed for improving the nutrition of the people. The Barbados plan was submitted to the secretary of state in April 1947. It received his general approval after examination by the colonial economic and development council.

Finance and Trade.—The monetary unit is the pound sterling, tied to the pound in the United Kingdom. Government accounts are kept in sterling, commercial accounts in West Indian dollars bearing a fixed relation to the British pound. Revenue (1946) £1,289,000; expenditure £1,086,000. Imports £4,992,000; exports £3,142,000. The agricultural practice of Barbados is entirely based on the sugar cane, the products of which represented, before World War II, no less than 97% of the domestic exports of the island. Almost the whole island is dependent, directly or indirectly, upon sugar. (J. E. SH.)

Barium Minerals. The major producers of barium minerals are the United States, Great Britain and Germany, with small amounts coming from Canada, India, France and Korea.

United States.—Data on the production of barite in the United States are shown in the table below.

U.S. Production of Barite, 1940-46

(In thousands of short tons)

	1940	1941	1942	1943	1944	1945	1946
Production, crude	390.5	483.4	449.9	429.3	515.1	692.3	725.2
Sales, crude	409.4	503.2	429.5	420.3	518.6	696.1	724.4
Imports	7.4	0.5	4.7	—	67.9	56.9	44.7
Consumption	404.3	490.8	449.4	453.7	595.6	720.9	722.1
Used for							
Chemicals	66.6	93.0	104.2	99.1	100.9	99.2	102.4
Lithopone	136.9	154.0	144.8	129.5	134.6	139.3	154.2
Ground barite	200.9	243.8	200.4	225.2	360.0	482.4	465.5
Well drilling	138.1	154.8	117.4	144.5	277.8	407.9	372.6

Instead of declining, the production of barite increased after the close of World War II, partly to cover increased consumption and partly to offset decreased imports.

In addition to the imports of barite shown, there are small imports of witherite and even larger amounts of lithopone and barium chemicals.

Canada.—There was a marked increase in Canadian production during the past few years, much of which was exported to Trinidad and South America for use in oil-well drilling. Production increased from 114,387 short tons in 1944 to 139,589 tons in 1945, but declined to 120,419 tons in 1946. Production in 1947 was 133,099 tons. (G. A. Ro.)

Barley. The U.S. barley crop was estimated at 279,182,000 bu. in 1947 compared with 262,258,000 bu. harvested in 1946 and an average of 287,360,000 bu. during 1936–45. Acreage was increased about 6% to 11,082,000, compared with 10,411,000 in 1946 and a 1936–45 average of 12,407,000. The yield was 25.5 bu. per acre, slightly higher than in 1946.

U.S. Barley Production by Leading States, 1947, 1946 and 10-year Average, 1936–45*

(In thousands of bushels)

State	1947	1946	10-yr. Average	State	1947	1946	10-yr. Average
North Dakota	50,358	45,680	38,287	Michigan	3,450	5,037	5,023
California	43,260	46,066	34,436	Maryland	2,618	2,174	1,748
South Dakota	31,504	30,294	29,752	Texas	2,520	2,610	3,913
Minnesota	25,838	21,257	38,915	Virginia	2,478	2,272	1,726
Montana	17,940	17,550	8,485	New York	2,184	3,648	3,084
Colorado	16,940	13,936	13,474	Oklahoma	2,160	1,820	5,682
Idaho	11,625	9,345	9,139	Tennessee	1,617	1,640	1,404
Oregon	11,147	9,452	6,574	Missouri	1,449	1,260	2,677
Nebraska	10,274	11,529	20,768	Kentucky	1,325	1,250	1,531
Kansas	6,380	5,022	12,051	North Carolina	980	825	598
Wisconsin	5,962	4,650	16,032	Iowa	799	410	6,988
Utah	5,076	4,860	4,625	Nevada	740	680	590
Wyoming	4,712	4,500	2,683	Arizona	702	600	489
Pennsylvania	4,059	3,942	3,140	Illinois	656	624	2,862
Arizona	3,842	2,975	1,533	South Carolina	624	546	325
Washington	3,640	3,375	5,731	Indiana	520	600	1,164

*All other states less than 500,000 bu. in 1947.

The price of barley at the beginning of 1947 averaged $1.36 per bushel to growers and then advanced steadily with other grains to $1.61 in August and $2.00 in December. Demand for barley as livestock feed left only a small carry-over of 56,000,000 bu. on July 1, 1947.

World production of barley in 1947 was estimated at 2,220,000,000 bu., slightly higher than in 1946 and approaching the prewar (1935–39) average of 2,363,000,000 bu. The total for Europe was also above that of 1946 but below the prewar level. Good crops were reported in Denmark, Finland and Spain. The United Kingdom crop was twice that of prewar years but less than in 1945 or 1946. China was approaching a prewar level with 317,000,000 bu. (J. C. Ms.)

Basalt: *see* STONE.

Baseball. On the morning of Wednesday, April 9, 1947, Albert B. (Happy) Chandler, commissioner of baseball, announced that he had suspended Leo Ernest (The Lip) Durocher, manager of the Brooklyn Dodgers of the National league, from "participating in professional baseball for the 1947 season." This drastic action was unprecedented in the major leagues.

The commissioner's statement on the suspension was specific only in stating the punishment had been meted out as a result of the accumulation of unpleasant incidents which he considered detrimental to baseball, and concluded by imposing an edict of silence on all parties to the controversy.

Durocher's "sentence" was the highlight of a baseball year that saw the spectacular departure of Col. Leland Stanford (Larry) MacPhail from the presidency and part ownership of the New York Yankees on the very day his team won the world's championship by beating the Dodgers; the fining and suspension by Chandler of Leslie O'Connor, general manager of the Chicago White Sox, for signing a high school ball player,

then defying the commissioner; the sale of the St. Louis Cardinals' empire by Samuel Breadon to former Postmaster General Robert E. Hannegan; the signing of Jackie Roosevelt Robinson, first Negro ever accepted openly in organized baseball, by the Brooklyn club—and finally, the reappointment of Durocher as the Dodger manager by President Branch Rickey, announced on Saturday, Dec. 6.

It was MacPhail who set in motion the chain of events that led to Durocher's banishment. On March 8 and 9 the Dodgers and Yankees played exhibition games in Havana, Cuba, and Rickey and Durocher allegedly charged that two gamblers occupied the MacPhail box in Grand stadium as the Yankee president's guests, with Rickey quoted as saying "apparently there are rules for Durocher and other rules for the rest of baseball."

On March 15 MacPhail wrote to the commissioner asking investigation and redress for these statements, as well as others appearing in a column signed by Durocher in the *Brooklyn Daily Eagle,* which was "ghost-written" by Harold Parrott, the Dodgers' road secretary.

Out of two hearings called by the commissioner, at Sarasota, Fla., March 24, and at St. Petersburg, Fla., March 28, came the Durocher suspension, fines of $2,000 each against the Yankee and Dodger baseball clubs, a 30-day suspension for Charles (Chuck) Dressen, coach who had quit the Dodgers to work for MacPhail, and a $500 fine against Parrott, along with an order to cease writing the Durocher column.

Rickey, stunned by the loss of his 1947 manager only six days in advance of the season's opening, first offered the vacant post to Joseph V. McCarthy, former Yankee manager. McCarthy refused, the season opened with the Dodgers in temporary charge of Clyde Sukeforth, coach, and two days later Rickey's old friend, Burton Edward Shotton, hurriedly summoned from his Bartow, Fla., home, became the Brooklyn pilot.

Shotton led the Dodgers to a pennant and to the limit in the world series before losing it, thereby stirring vast conjecture as to whether he would be reappointed or Durocher returned to his job.

The conjecture ended with Rickey's Dec. 6 announcement, Shotton accepting a post as overseer of all minor league managers in the Brooklyn farm system.

MacPhail, who had been tremendously successful with the Yankees after taking over in 1945, made a highly dramatic announcement of his resignation, choosing the big moment in the Yankee clubhouse when the final putout of the seventh game made the Yankees world champions.

"That's it!" he shouted. "I quit right now!"

Dan Topping and Del Webb, MacPhail's partners, announced that they had purchased MacPhail's stock and that Topping would become president of the club. On Oct. 17 MacPhail came back to the city and issued a long statement, the chief points of which were that he had received $2,000,000 for his stock and that the deal for its purchase had been agreed upon by his two partners and himself on Sept. 18. MacPhail's contract as a high-salaried executive, which had three years to run, was abrogated by mutual agreement.

Leslie O'Connor, general manager of the Chicago White Sox and for 24 years the right-hand man of K. M. Landis when the judge was baseball's tsar, had signed a young player from a high school not affiliated with the National Federation of State High Schools. The commissioner previously had issued a bulletin that, despite the rule specifying only federation youths, he would interpret it as applying to any and all high school players.

With the idea of making it a test case and claiming the commissioner could not alter baseball rules thus, O'Connor signed the player. When Chandler find him $500, then suspended O'Connor and his club because the fine wasn't paid, O'Connor threatened to go into the civil courts.

The big bombshell failed to explode, however, when O'Connor's employers failed to back him and agreed to pay the fine. O'Connor subsided and offered his resignation, which was not accepted, and he returned to his post, later also being re-elected as a member of baseball's executive council which is headed by the commissioner.

Breadon's sale of the Cardinals to a syndicate headed by Hannegan for a reported price of $3,500,000 for the St. Louis club and all its minor-league holdings was announced in St. Louis on Nov. 25. The physical property included ball parks and teams in Columbus, O., American association; Rochester, N.Y., International league, and Houston, Texas, league. The organization also owned 14 other clubs in the lower minor classifications.

Hannegan, with a controlling interest, became president, with Fred M. Saigh, Jr., St. Louis attorney and real estate man, and chief associate in the purchase, becoming vice-president and treasurer.

Breadon, who was more than 70 years old, thus ended a 27-year operation of the club which had been increasingly successful. His Cardinal teams, beginning in 1926, brought him nine pennants and six world championships, and in 1946 and 1947 more than 1,000,000 paid attendance.

Jackie Robinson, Negro second baseman, became a full-fledged Dodger on April 10, Rickey announcing the purchase of Jackie's contract from the Montreal Royals the day following Durocher's suspension and five days before the National league pennant race began. Robinson was transferred to first base and there proved himself a real major leaguer. His hitting, base stealing and general all around play became a big factor in the Dodgers winning the pennant.

Rumbles of opposition among players throughout the National league were heard long before Robinson's elevation, with a players' strike among the St. Louis Cardinals reported to have been in process of planning. Unexpected publicity killed this idea, if indeed it had been seriously contemplated, and Robinson played against all National league teams with unpleasant incidents at a minimum and none of them serious.

Later the Cleveland American league club, owned by Bill Veeck, signed Larry Doby, a Negro, and the St. Louis Browns signed two others. But none was of major league calibre. Near mid-September Rickey signed a second Negro, a pitcher from Memphis named Dan Bankhead, who had yet to demonstrate major league ability when the season ended.

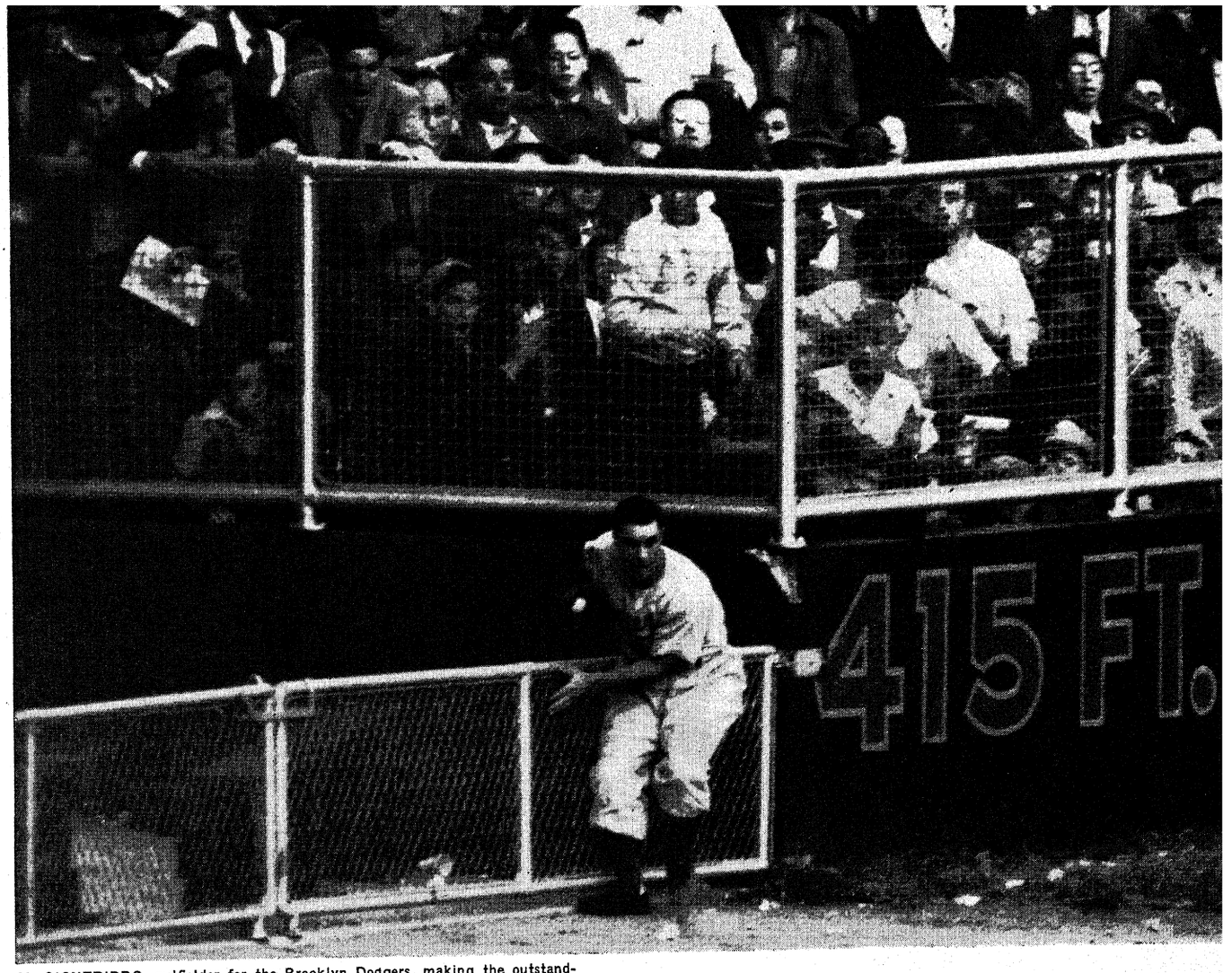
It was an all-time banner year for organized baseball at the box office, both majors and minors achieving new high marks, the combined total—all official figures—being 60,148,795.

For the first time in major league history the National league reached an eight-figure total—10,388,470—six clubs going over the 1,000,000 mark and five of them setting records. Two of the three American league clubs that topped 1,000,000 also set records in attendance.

The minor leagues' total attendance of 40,274,256 was more than 7,500,000 over the 1946 figure, and the latter had been almost double the previous high mark, indicating that baseball prosperity was not just a postwar boom but had acquired something resembling permanence.

A comparison of major league attendances for 1945–47 may be found in Table I on page 112.

Ownership, Personnel Changes.—There were no other major league ownership shifts, apart from the Cardinal sale and Yankee change engendered by MacPhail's departure, but two important minor league purchases were made. The New York Giants bought the Minneapolis club of the American association and the Brooklyn Dodgers acquired the St. Paul club of the same league, thus extending into their farm systems the



AL GIONFRIDDO, outfielder for the Brooklyn Dodgers, making the outstanding catch which saved the sixth game of the 1947 world series for his team and made a seventh deciding game necessary

torrid National league rivalry that had existed for years.

There were four major league managerial changes, the one of top interest being the appointment of Joe McCarthy as field manager of the Boston American league club to succeed Joe Cronin, the latter moving up as the club's general manager. It was "Marse Joe's" third major league managerial post in two leagues, having first piloted the Chicago Cubs, winning a pennant there in 1929. In 14 seasons as manager of the New York Yankees he won eight flags and seven world series. McCarthy was in retirement on his farm at East Amherst, N.Y., in 1947. Announcement of his appointment was made in New York on Sept. 29, the day before the world series opened.

Billy Meyer, for years a successful minor league manager, was picked to manage the Pittsburgh Pirates, of the National league, succeeding Billy Herman, who was let go by the Pittsburgh management after one season's effort which brought negligible results, his team finishing in a tie for last place with the Philadelphia club.

Herold (Muddy) Ruel similarly was dropped by the St. Louis Browns, of the American league, and James Wren (Zack) Taylor, former major league catcher, was named for the post. Taylor, a coach for the Browns, had acted as manager for a few weeks of the 1946 season after Luke Sewell had been dismissed.

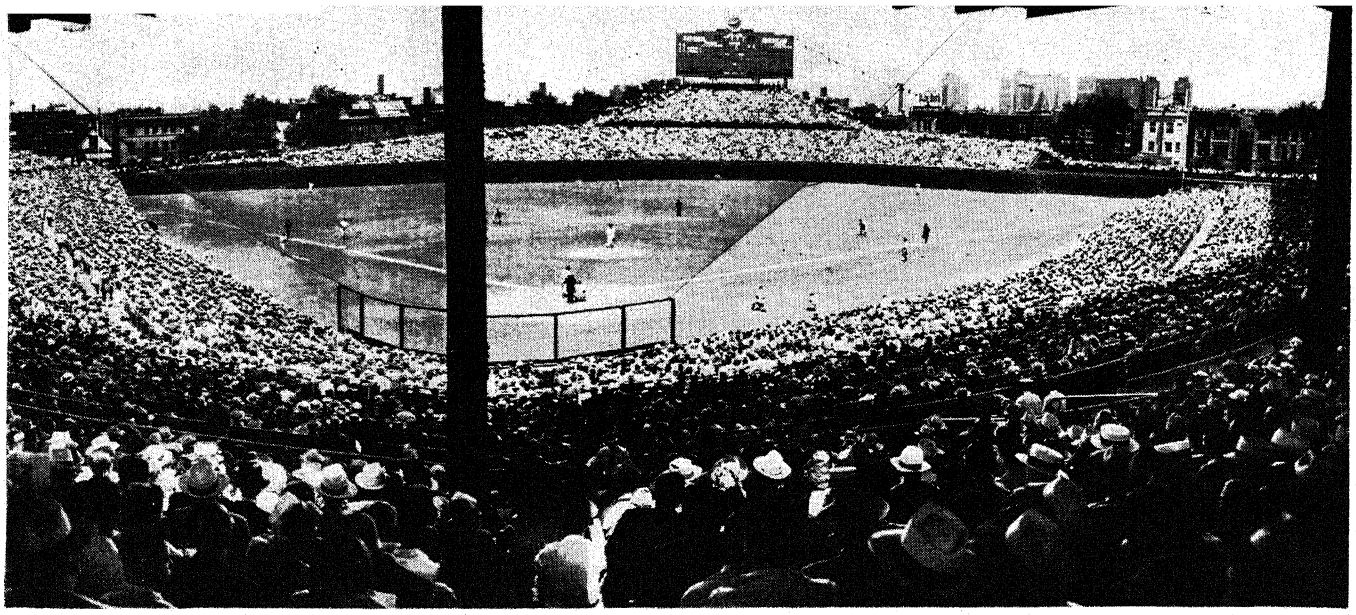
The fourth new manager was Joe Kuhel, veteran first baseman, who was named by president-owner Clark Griffith to direct the Washington American leaguers for 1948. Kuhel succeeded Oscar Bluege, who remained in the organization in an official capacity.

Two former major league stars won minor league managerial posts. Dick Bartell, who piloted Sacramento in the Pacific Coast league in 1947, was named to succeed Meyer at Kansas City in the American association, while Stanley Hack, for years ace third baseman of the Chicago Cubs, drew the Des Moines (Iowa) club of the Western association.

Henry (Hank) Greenberg, home-run hitter of the Detroit Tigers, was sold by that club early in the year to the Pittsburgh Pirates, where he drew a fabulous salary—estimated at $75,000—for the 1947 season. Shortly after the pennant race ended Greenberg was unconditionally released and early in December underwent surgery for the removal of a bone spur from his right elbow, a condition which had hampered his playing. His future in baseball was in doubt as the year ended.

Outstanding player deals were the trading of Fred (Dixie) Walker, an idol of Brooklyn fans for nine years, to the Pittsburgh Pirates on Dec. 10, and the mass sale of its star players by the St. Louis Browns, most of them to the Boston Red Sox. On Nov. 17 Vernon Stephens, shortstop, and Jack Kramer, right-handed pitcher, went to the Sox for a reported $310,000 and several unnoted players. The following day $65,000 more Boston money went to St. Louis for Ellis Kinder, another talented pitcher, and Billy Hitchcock, infielder. The Browns then turned to Cleveland, that club giving them another bundle of cash for Bob Muncrief, capable right-handed pitcher, and Walter Judnich, hard-hitting outfielder.

These sales brought a protest from Dan Topping, Yankee



ALL-STAR GAME at Wrigley field, Chicago, where more than 40,000 spectators jammed the bleachers on July 8, 1947, to watch the American league team defeat the National league players 2 to 1

president, that the Browns, who had finished deep in the American league cellar, were making it a league of only seven clubs. William C. DeWitt, Browns' general manager, stoutly defended the sales, pointing out that since the Browns had finished in last place with star players, they could not do any worse with other, and younger, players.

Another Browns' star, second baseman Johnny Berardino, was dealt to the Washington club but the deal was cancelled by mutual consent when Berardino announced he would quit baseball to fulfil a seven-year contract as a motion picture actor. Later Berardino was traded to Cleveland for outfielder George Metkovich and $60,000—and the Browns were richer by approximately $500,000, although poorer in playing talent.

Edward Grant Barrow, the man who had directed the Yankee baseball empire for so many years until MacPhail took over the top job, resigned as chairman of the board of directors on Jan. 8, ending a lifetime association with baseball.

"The Third Major League."—A proposal, long and enthusiastically backed by Clarence (Pants) Rowland, president of the Triple A Pacific Coast league, to give that league major league status was given the thumbs down treatment by the American and National leagues in their joint meeting in New York on Dec. 11. The majors' answer was to the effect that the Pacific coast loop could not qualify, on the seating capacity of its ball parks, the calibre of its play or on any other count, in fact, for such status.

A second proposal from Rowland and his league officials, giving his league a classification above Triple A in order to take players of the loop out of the present draft by which major league clubs acquire certain minor league players for a set price of $10,000, raising that draft price to $25,000 and extending the time limit of player retention to six years instead of four, also was turned down.

Commissioner Chandler had favoured a plan to expand the two major leagues to ten clubs each instead of eight, the idea, of course, being to bring the California cities of Los Angeles, San Francisco, Oakland and Hollywood into the majors. The commissioner, however, did not bring his plan before the joint meeting. It was understood the National league had voted unanimously for such a move but the American league voted five to two against, with Cleveland abstaining.

Players' Pension Plan.—Plans for the players' pension were practically completed early in the year by a special major league committee headed by Commissioner Chandler and aided by insurance experts. The plan demanded that $675,000 annually be put into the retirement fund. The pension eligibility age was lifted from 45 to 50 years, eligibility requirement was made ten years of service in the major leagues and the maximum collection $100 monthly.

Players would pay in yearly sums ranging from $45.45 the first year, $90.90 the second, to $454.75 the tenth year, the latter amount the maximum. After paying in $2,500, players' annual contributions would be reduced to $250 each.

The clubs were to supply 80% of the fund, each owner paying in $250 annually for each player, and would also make other contributions. Radio receipts from the world series, $175,000, and the net profit from the All-Star game would go into the fund. The committee ruled that if less than 60% of the personnel of any club failed to sign up for annual contributions, such club's players could not share in pension benefits. It was also made clear that unless 75% of major league players contributed, the pension setup could not work.

Since the world series' radio income was permanently allocated to the fund, club owners would be forced to make financial guarantees to world series' players. The owners previously had voted that the players' pool in any series must amount to at least $250,000. If it was less—and it had been—the owners must make up the deficit.

Mexican Invasion Ended.—The spending spree of the Mexican league under the aegis of Jorge Pasquel, during which numerous players from the major leagues jumped to that loop and were banned from organized baseball for five years, came to an

Table I.—*Major League Attendance Figures, 1947, 1946 and 1945*

	1947	1946	1945
NATIONAL LEAGUE			
Brooklyn	1,807,526*	1,796,155	1,064,668
New York	1,600,793*	1,234,733	1,038,195
Chicago	1,364,039	1,342,970	1,037,026
Pittsburgh	1,283,531*	759,117	623,398
Boston	1,277,361*	987,109	410,146
St. Louis	1,247,913*	1,063,203	594,207
Philadelphia	907,332	1,045,245	310,389
Cincinnati	899,975	717,751	294,790
Total	10,388,470*	8,946,283	5,372,819
AMERICAN LEAGUE			
New York	2,178,937	2,262,512	881,845
Cleveland	1,521,978*	1,057,289	558,182
Boston	1,427,315*	1,416,944	603,794
Detroit	1,398,593	1,722,590	1,280,341
Philadelphia	911,966	621,793	462,631
Chicago	876,948	983,403	657,981
Washington	850,758	1,027,216	652,660
St. Louis	320,474	526,435	482,986
Total	9,486,069	9,621,182	5,580,420
Grand Total	19,874,539	†18,567,465	10,953,239

*New all-time high.
†Gain of approximately 6.6% over 1946 attendance total.

end during 1947. With Alejandro Aguilar Reyes returning as high commissioner of Liga Mexicana—a post he held for 17 years until 1942—the league adopted a new policy of building up "beisbol" by cultivating native talent. Thus the Mexican raids disappeared along with the baseball union—but not before U.S. players had improved their lot as a result of these twin threats to baseball's peace of mind.

The Pennant Races.—In 1947 the rejuvenated New York Yankees, under their new manager, Stanley (Bucky) Harris, and the Dodgers, directed by Shotton, took the respective league flags.

From the start of the American league campaign the Yankees never were more than two or three games off the pace, which was set early by the Detroit Tigers, and on Saturday, June 21, Harris' men took a doubleheader from the Tigers at the Yankee stadium to attain first place by one and a half games.

They held the lead, gradually increasing it until the season's end, at which time they were 12 games in front of the second place Tigers, with the Red Sox finishing third, 14 games from the top. The Red Sox, in fact, reached the top only once—on June 19, when they were two games ahead of New York and Detroit. Ten days later the Yankees began a winning streak that extended to 19 games—the season's longest in the majors, tying an American League mark—before it was broken in Detroit in a twilight game when Freddy Hutchinson, big right-handed pitcher, shut them out for the Tigers, 8-0. During this remarkable victory skein, six pitchers turned in 11 complete games, including 4 by Allie Reynolds.

On Monday, Sept. 15, the Yankees clinched the pennant while sitting idly in their clubhouse because of rain. The Red Sox supplied the clincher by losing the first game of a doubleheader in Boston to the Chicago White Sox. Thereafter the New Yorkers merely played out their schedule.

One surprising angle of the race was the early season showing of the Philadelphia Athletics, under baseball's "Grand Old Man," Cornelius McGillicuddy (Connie Mack). Connie had his boys in the first division during most of June and on June 19—the one day that found the Red Sox at the top—the Athletics were only two and one-half games out of first place. However, they finished fifth, 19 games off the pace.

The National league, as usual, developed another "dog-fight" for the flag during the first half of the campaign, five different clubs occupying first place at various times. Oddly enough, the world champion St. Louis Cardinals, picked by a majority of observers to repeat as pennant winners, were not even first division contenders until late June.

Hampered by injuries and illnesses, especially the appendicitis attack suffered by Stanley Musial, star first baseman, 1946 batting champion and his league's most valuable player, the Red Birds got off to a sad start and didn't even emerge from the league cellar until June 10. Then their drive upward was too late to lift them higher than second place, which position they clinched on Sept. 25.

Meanwhile the Pittsburgh Pirates, the Boston Braves, the Chicago Cubs and the Brooklyn Dodgers were involved in the battle for first place. The Pirates, who eventually wound up in a tie for the cellar, were on top for the first six days of the season. Thereafter they began a steady descent and the fighting was left to the Dodgers, Braves and Cubs.

The Dodgers achieved the top for the first time on April 26, remaining there until May 9; then the Cubs, Giants and Braves alternated in taking the lead, the latter two clubs holding it for a week each, at different times. On July 2 the Dodgers hit the top again, lost the lead by two percentage points to the Braves on July 5, then on the following day went into the lead to stay when Ralph Branca, big 20-year-old ace right-hander, whitewashed Boston with three hits.

On July 11 the Dodger lead was three games, which was the lengthiest the close race had produced up to that point. It hovered around three and two and one-half games for another fortnight, then as the Cardinals began to surge forward the other clubs dropped back. By means of a winning streak of 8 games and losing only 1 in a string of 12, the Red Birds got within 3 games of the leading Dodgers, but that was their high point.

At the end the Cards were 5 games back of the Dodgers, who had annexed their fourth pennant since the turn of the century by winning 94 games, 2 fewer than in the previous year when the pennant eluded them.

There were three no-hit games, only one in the National league. On June 18 Ewell Blackwell, lanky right-hander of the Cincinnati Reds, turned back the Boston Braves with no hits, the Reds winning 6-0.

In the American league Don Black, of the Cleveland Indians, pitched his no-hitter in the first game of a doubleheader with the Philadelphia Athletics at Cleveland.

The man who was the losing pitcher in Black's classic—Bill McCahan, of the Athletics—hurled the other junior circuit no-hitter against Washington in Philadelphia on Sept. 3, winning by the same score, 3-0. An unfortunate error by Ferris Fain, Philadelphia first baseman, prevented McCahan from accomplishing the much more rare feat of pitching a perfect game. In the second inning Fain made a bad throw after fielding a grounder from Stan Spence—and Spence became the only Senator to reach first base during the nine innings.

Four triple plays, a rarity considering the number of games that are played without one being made, were turned in during the major league season. The National league made three of them—Pittsburgh made the first one on April 26 at Cincinnati, the Chicago Cubs at Cincinnati on Aug. 9, and the St. Louis Cardinals at Philadelphia on Aug. 23. The latter was an oddity in triple plays, in that Charley Gilbert, the batsman, in attempting to bunt popped a foul to the catcher and two base-runners, who were "off and running," were caught off base to complete the play.

The American league triple killing was made by the Chicago White Sox against the Browns in St. Louis on April 27 and was made possible by bad base-running on the part of two Brown players who were on base when a simple ground ball was hit to the White Sox third baseman.

In addition to his no-hitter Black also had the distinction of pitching the fastest game in the majors when, with John Rigney as his mound opponent, he blanked the Chicago White Sox, 1-0, at Chicago in a contest that required only 1 hr. 20 min.

Table II.—*Final Standings of Major League Clubs, 1947*

NATIONAL LEAGUE

Club	Bkn.	St. L.	Bost.	N.Y.	Cin.	Chi.	Phila.	Pitts.	Won	Lost	Pct.
Brooklyn	..	11	10	14	15	15	14	15	94	60	.610
St. Louis	11	..	13	9	14	12	14	16	89	65	.578
Boston	12	9	..	13	13	13	14	12	86	68	.558
New York	8	13	9	..	9	15	12	15	81	73	.526
Cincinnati	7	8	9	13	..	10	13	13	73	81	.474
Chicago	7	10	9	7	12	..	16	8	69	85	.448
Philadelphia	8	8	8	10	9	6	..	13	62	92	.403
Pittsburgh	7	6	10	7	9	14	9	..	62	92	.403

AMERICAN LEAGUE

Club	N.Y.	Det.	Bost.	Clev.	Phila.	Chi.	Wash.	St. L.	Won	Lost	Pct.
New York	..	14	13	15	13	12	15	15	97	57	.630
Detroit	8	..	10	14	11	15	12	15	85	69	.552
Boston	9	12	..	9	10	16	12	15	83	71	.539
Cleveland	7	8	13	..	11	11	13	17	80	74	.519
Philadelphia	9	11	12	11	..	11	11	13	78	76	.506
Chicago	10	7	6	11	11	..	14	11	70	84	.455
Washington	7	10	10	9	11	8	..	9	64	90	.416
St. Louis	7	7	7	5	9	11	13	..	59	95	.383

All-Star Game.—This inter-league midseason fixture, 14th since its inception, was played at Wrigley field, Chicago, July 8, and resulted in the 10th triumph for the American leaguers. The score was 2-1. Johnny Mize, New York Giants' slugging first baseman, made the losers' only tally with a home run off Frank Shea, rookie right-hander of the New York Yankees, in the fourth inning.

Shea, however, became the winning pitcher when the Americans pushed over one run in the sixth against Harry (the Cat) Brecheen, famous St. Louis Cardinal southpaw, and scored the winning run off Johnny Sain, Boston Braves' right-hander, in the next inning. Joe Gordon, Cleveland second baseman, singled, stole second base and reached third on a wild throw by Sain. Then, with two out, Stan Spence, Washington outfielder, hit a pinch single to drive in the run. Seventy-five per cent of the receipts of $105,315 was turned over to the players' pension fund.

The World Series.—Scarcely anything that could happen in a world series failed to occur in this 44th renewal of baseball's no. 1 event, which, incidentally, was the 7th so-called "subway series," the New York Yankees being a participant in all of them, the New York Giants in five and the Brooklyn Dodgers in two.

The affair went the limit of seven games, the Yankees winning four games to three for their 11th triumph against only four series setbacks since they won their first pennant in 1921.

The seven games produced, among other things, the unique spectacle of a pitcher being beaten by the only hit he allowed after two were out in the ninth inning; a relief pitcher winning two consecutive games; a substitute outfielder making the most spectacular catch in series history; one competitor (the Dodgers) using 27 pitchers, including the aforesaid relief pitcher (Hugh Casey) in six games; six pitchers, three from each team, making a total of eight wild pitches; one batsman (Yogi Berra) hitting the first pinch home run in series history, and a pinch hitter and two pinch runners winning the one-hit game mentioned above.

It also was the richest series, the total attendance of 389,763 and receipts of $2,021,348.92 being new high marks for a seven-game affair. The players cut a financial melon of $493,674.83, the winning Yankees dividing $207,343.43 of this amount. The players' pension fund was enriched by $175,000 realized from sale of the broadcasting rights, money that in previous years had been added to the players' pool.

The Yankees, pronounced favourites in the betting, became prohibitive choices after winning the first two games, but the odds were shaved sharply when the Dodgers won the next two to even matters.

Scores of the seven games, the first and final two in the Yankee stadium and the other three at Ebbets field, Brooklyn, were: Yankees 5, Dodgers 3; Yankees 10, Dodgers 3; Dodgers 9, Yankees 8; Dodgers 3, Yankees 2; Yankees 2, Dodgers 1; Dodgers 8, Yankees 6; and Yankees 5, Dodgers 2.

There were five home runs, two by Joe Di Maggio and one each by Tommy Henrich and Berra, while Dixie Walker struck the only four-base blow for the Dodgers. Two pitchers won two games each, Frank Shea for the Yankees and Hugh Casey for Brooklyn.

In stolen bases the Dodgers were in front, seven to two. Harold (Pee Wee) Reese pilfered three, Jackie Robinson two and Walker and Al Gionfriddo one each, the latter the most important base theft of the series. Phil Rizzuto stole twice for the Yankees.

With almost perfect weather prevailing and no interruption necessitated for travelling between cities the series was run off in seven straight days, opening on Tuesday, Sept. 30, and concluding on Monday, Oct. 6.

The first game started as a pitching duel between the two talented right-handers, Branca and Shea, with the Brooklyn youngster having a decided edge in the first four innings. But he blew up in the fifth and the Yankees won the game.

The second game was pretty much of a romp for the Yankees.

The third game, however, saw the Dodgers win the first game of their uphill battle, a free-hitting affair that extended 3 hr. 5 min. for a world series longevity record that eclipsed the previous mark of 2 hr. 54 min. also set by the Yankees and Dodgers on Oct. 5, 1941, in Brooklyn.

Next day the Dodgers evened the series at two games each in a contest unmatched in the history of baseball's classic. Casey made just one pitch to become the first relief pitcher to win two consecutive world series games; Harry (Cookie) Lavagetto, Oakland, Calif., veteran, swung his bat just twice (missing the first swing) to win the game, and the hit Cookie made, with two out in the ninth inning, was the only one allowed by Floyd (Bill) Bevens, big right-hander from Salem, Ore.

Table III.—*League Leaders*

BATTING

First Ten in Each League

National League	G	AB	R	H	Pct.
H. Walker, Philadelphia	140	514	81	186	.363
Elliott, Boston	150	555	95	176	.317
Galan, Cincinnati	124	392	60	123	.314
Kiner, Pittsburgh	152	565	119	177	.313
Musial, St. Louis	149	589	113	183	.311
Kurowski, St. Louis	146	513	107	159	.310
Cavarretta, Chicago	127	459	54	142	.309
Holmes, Boston	150	617	91	190	.308
Reiser, Brooklyn	110	389	68	120	.308
F. Walker, Brooklyn	148	529	77	162	.306
American League					
Williams, Boston	156	528	125	181	.343
McCoskey, Philadelphia	137	545	77	180	.330
Pesky, Boston	155	638	107	207	.324
Wright, Chicago	124	401	48	130	.324
Kell, Detroit	152	588	75	188	.320
Mitchell, Cleveland	123	493	69	156	.316
J. Di Maggio, New York	141	534	100	168	.315
Boudreau, Cleveland	150	538	79	165	.307
Appling, Chicago	138	503	67	154	.306
McQuinn, New York	147	517	91	157	.304

HOME RUNS

National League		American League	
Mize, New York	51	Williams, Boston	32
Kiner, Pittsburgh	51	Gordon, Cleveland	29
Marshall, New York	36	Heath, St. Louis	27
W. Cooper, New York	35	Cullenbine, Detroit	24
Thompson, New York	29	York, Chicago	21

RUNS BATTED IN

National League		American League	
Mize, New York	138	Williams, Boston	114
Kiner, Pittsburgh	126	J. Di Maggio, New York	97
W. Cooper, New York	122	Henrich, New York	97
Elliott, Boston	112	Jones, Boston	96
Marshall, New York	106	Doerr, Boston	96

Shea dominated the fifth game with his four-hit pitching to score his second triumph and put the Yankees ahead once more, three games to two.

Once more, in the sixth encounter, the Dodgers were able to even matters as the battle moved back to the Yankee stadium to produce the second great thrill of the series when Di Maggio was robbed of a third home run by the tiny substitute outfielder, Gionfriddo.

There were two Yankees on base and two out when Di Maggio came to bat in the sixth with the Dodgers leading, 8-5. A home run would tie the score and Di Maggio hit it—but Gionfriddo took it away from him! Joe Hatten, third of the Dodger pitchers, was on the mound when Di Maggio sent a towering drive toward the left field bleachers, 415 ft. away. Gionfriddo, who had just been inserted in left field in place of Miksis, raced back toward the stands and just as the ball was going over the low gate that leads to the visiting "bull pen" the little fellow reached over the barrier with his gloved hand to make a backhanded catch and save the game.

In the final game Joe Page, whose fine relief pitching during the season was an outstanding factor in winning the pennant, came into his own. His fourth and final relief appearance in the series was an almost perfect job. Working the last five innings Page faced the minimum of 15 men and allowed only one hit, a ninth inning single by Miksis after one was out. Edwards promptly grounded into a double play to erase Miksis, end the game and give the Yankees the world's championship.

With this triumph the American league's margin of superiority over the senior circuit was increased to 27 victories in 44 world series played since its inception in 1903.

Individual Achievements.—The fourth annual award of the Kenesaw Mountain Landis Memorial trophies for the most valuable player in each major league went to Joe Di Maggio of the New York Americans and Bob Elliott of the Boston Nationals by vote of the two 24-man committees of the Baseball Writers' Association of America.

The National league batting title went to Harry Walker, Philadelphia, younger brother of Brooklyn's Dixie, with an average of .363, high in both leagues, while Williams hit .343 to top the American league. Ted also led his league in home runs with 32 and in runs batted in with 114.

Home-run leadership in the National league was shared by Mize and Ralph Kiner, Pittsburgh, with 51 each, nine short of the all-time record established by the one and only Babe Ruth. Mize led in runs batted in with 138 and four other National leaguers exceeded the century mark in this respect.

Brooklyn's Stanky not only led all second basemen in fielding but set a modern National league record with an average of .9853, eclipsing the mark of .9851 set by Linus Frey with Cincinnati in 1943. This gave Stanky two records, the other being the high league mark of 148 bases on balls in 1945.

John (Buddy) Kerr, Giants' shortstop, added to two major league records he already held by playing through 68 consecutive games (52 in 1946 and the first 16 of 1947) without an error and also extended his string of consecutive chances without a misplay to 383.

In pitching the National league far outdistanced the American league, producing five hurlers who won 20 or more games while the junior loop had only one—the famous Bobby Feller, of Cleveland, who won exactly 20 and lost 11. Feller struck out 196 men, only three more than Blackwell, Cincinnati, for the major league leadership in that respect.

But Blackwell won the most games, 22, pitched the most complete games, 23, and also turned in the longest winning streak, 16 games.

Warren Spahn, Boston Braves' southpaw pitcher, had the low earned-run average of 2.33 to lead both leagues, with Spurgeon Chandler, New York Yankees' veteran right-hander, topping the American league with 2.46.

The leading percentage pitcher was Lawrence (Larry) Jansen, New York Giants' freshman right-hander, who won 21 and lost five for a mark of .808, while Frank Shea, Yankees' first year right-hander, led the American league with 14 victories and five losses for a percentage of .737.

The five top winning pitchers in the National league were Blackwell, Spahn, Jansen, Johnny Sain, Boston, and Ralph Branca, Brooklyn.

Leaders in batting, home runs and runs batted in may be found in Table III.

Four of baseball's greatest modern stars were voted into the Hall of Fame at Cooperstown, N.Y., by the ballots of 161 veteran members of the Baseball Writers' Association of America late in January. They were Carl Owen Hubbell, left-handed pitcher, whose fame was achieved with the New York Giants; Robert Moses (Lefty) Grove, another great southpaw, whose most brilliant years were with the Philadelphia Athletics; Gordon (Black Mike or Mickey) Cochrane, catcher with the Athletics and later manager of the Detroit Tigers, and Frank (Fordham Flash) Frisch, for years talented second baseman for the Giants, later second baseman and manager of the St. Louis Cardinals when that club won the name of "The Gas House Gang," and still later pilot of the Pittsburgh Pirates.

In addition to this quartet, 11 famous players of a bygone era were enshrined in the Hall of Fame, their selection being made by a special committee of men who were active in baseball four decades ago. The names of the 11 old timers follow:

John Dwight Chesbro, pitcher for Pittsburgh in the National, and Boston and New York in the American league, who won 41 games in 1904; Joseph B. Tinker, John Joseph Evers and Frank LeRoy Chance, famous Chicago Cubs infield combination in the early 1900s; George Edward (Rube) Waddell, brilliant and eccentric southpaw pitcher of the Philadelphia Athletics; Edward Arthur Walsh, outstanding right-hander for the Chicago White Sox from 1904 to 1916; Jesse C. Burkett, star batsman, who hit more than .400 to win the batting titles in 1893 and 1896; Joseph Jerome (Iron Man) McGinnity, who on five occasions pitched two games in one day, three times winning both games, and won 20 or more games in seven seasons with Baltimore, Brooklyn and New York; Thomas F. McCarthy, outstanding base-runner, who stole 109 bases with the St. Louis Browns in 1888; Edward S. Plank, 14 years with the Philadelphia Athletics from 1901, one of the greatest left-hand pitchers and one of very few to win more than 300 games; and Clark C. Griffith, president-owner of the Washington American league club, with a 50-year background as pitcher, manager and executive.

The Minor Leagues.—Twenty minor league clubs which finished first, either in a full season or split season, also came out ahead in play-offs.

In the Triple A loops Minneapolis won the junior world series from Syracuse, four games to three, although neither had won the pennant in its league, the American association and International league, respectively. Both had finished third and won the right to meet in the series by winning the play-offs.

Los Angeles, winning the Pacific Coast league pennant in a one-game play-off with San Francisco, went on to win the play-off crown by defeating Portland, Ore., and Oakland, Calif., each by four games to one. It was the first time in five years that Lefty O'Doul's San Francisco Seals had failed to win this title.

In the Double A circuits Houston not only won both pennant and play-off in the Texas league but defeated the Southern association's pennant winner, Mobile, four games to two, to take the Dixie series.

(Ro. McG.)

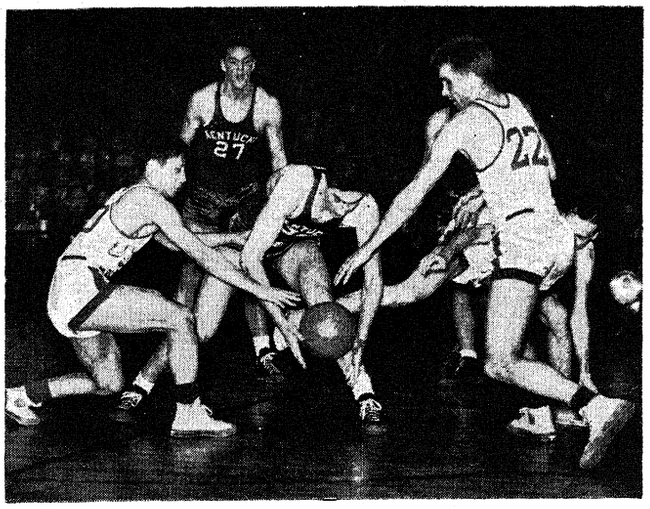
Basketball. Holy Cross college of Worcester, Mass., gained the basketball pinnacle for 1946–47 by winning the National Collegiate Athletic association tournament. Holy Cross defeated Oklahoma university, Norman, Okla., 58 to 47, in the final at Madison Square Garden after stopping Navy and City College of New York in the eastern regional tests. The final between Holy Cross and Oklahoma was tied on 11 different occasions, and brought George Kaftan the rating of the N.C.A.A.'s most valuable player on the 18 points he scored for Holy Cross.

Utah captured the National Invitation tournament with a 49–45 victory over Kentucky in the final. Earlier, Utah defeated Duquesne, 45 to 44, and West Virginia, 64 to 62.

Columbia topped the Eastern Intercollegiate league with 11 victories and 1 defeat, while St. John's dominated the metropolitan New York sector with a 6–0 record. Kentucky won its fourth straight Southeastern conference crown as well as its 10th title in 14 years. In the Southern conference, North Carolina State outlasted North Carolina university and Duke to gain the championship.

Wisconsin won a heated Western conference race with a 9–3 record, one game ahead of Indiana and Illinois. Notre Dame led independent play in the middle west with 20 victories in 24 games.

Oklahoma university, with an 8–2 league record, won the Big Six title, while Texas was unbeaten in the Southwest confer-



A TIGHT PLAY during the title game of the National Invitation basketball tournament in New York city on March 24, 1947. Utah scored a victory of 49-45 over Kentucky

ence, winning 12 straight games. Wyoming repeated as champion of the Big Seven, while Oregon State won the Northern and University of California at Los Angeles captured the Southern titles of the Pacific Coast conference. Oregon State beat U.C.L.A. in the playoffs, 69 to 22 and 64 to 46.

For the fifth straight time, Phillips "66" of Bartlesville, Okla., won the A.A.U. championship. The Oilers had little trouble outlasting the 52-team field and defeated the Oakland, Calif., Bittners, 62 to 41, in the final.

The Atlanta, Ga., Sports Arenas ended a three-year reign of women's A.A.U. basketball by the Goldblumes of Nashville, Tenn. Led by Alline Banks, eight times All-American, the Atlanta team defeated the Goldblumes, 26 to 22, in the final. Alline Banks forced the title game into overtime with the basket which made the score 22–22, and scored the tie-breaking field goal early in the extra period.

With the Basketball Association of America completing its first full season, professional basketball gained considerable impetus in 1947. Philadelphia won the B.A.A. crown in a playoff with Chicago. The National league title went to Rochester, N.Y., with the American Gears of Chicago winning the league playoffs and Indianapolis finishing first in the pro tournament.

A third professional league was organized on a 16-team basis late in 1947 by Maurice White of Chicago, but was abandoned after two weeks of play. The College All-Stars defeated Indianapolis, 58 to 52, in their annual game which unofficially opened the 1947–48 season. (M. P. W.)

Basutoland: *see* BRITISH SOUTH AFRICAN PROTECTORATES.

Battleships: *see* NAVIES OF THE WORLD.

Bauxite. World production data on bauxite are shown in Table I, so far as figures were available from the major producing countries.

Table I.—*World Production of Bauxite*

(Thousands of short tons)

	1940	1941	1942	1943	1944	1945	1946
Br. Guiana	699.4	1,169.5	1,340.1	2,115.4	1,023.1	747.9	1,254.4
France	538.0	647.5	705.0	1,010.1	733.7	278.2	527.1
Gold Coast	...	16.4	49.3	179.3	118.9	163.7	128.7
Greece	83*	20*	25*	27*	11*	?	?
Hungary	770*	794.0	1,145.0	1,102.3	992.0	?	?
Italy	629.8	591.8	561.6	232*	?	2.8	72.1
Neth. Indies	302.4	189.4	300*	660*	300*	?	?
Surinam	679.4	1,321.0	1,353.1	1,824.5	689.8	754.0	629.0
U.S.S.R.	330*	275*	300*	385*	440*	440*	?
United States	491.9	1,049.5	2,914.3	6,980.8	3,162.6	1,098.8	1,201.5
Yugoslavia	319.7	255.1	264.5	220*	165*	?	?
Total	4,840*	6,656*	9,330*	15,583*	7,867*	4,080*	4,400*

*A number lacking a decimal is an estimate.

There were sharp postwar increases in output in British Guiana, France and Hungary.

United States.—The salient features of the bauxite industry in the United States are outlined in Table II.

In 1946 increases were recorded both in production and imports, with the improvement continuing into 1947. Domestic

Table II.—*Data of Bauxite Industry in the U.S., 1940–46*

(Thousands of short tons)

	1940	1941	1942	1943	1944	1945	1946
Mine production	571	1,215	3,381	8,157	3,721	1,283	1,474
Dried equivalent	492	1,050	2,914	6,981	3,163	1,099	1,202
Shipments, crude	568	1,162	3,224	7,896	3,677	1,469	1,509
Dried equivalent	490	1,005	2,777	6,733	3,125	1,283	1,231
Imports, Dried	705	1,251	990	1,727	622	826	953
Exports, equiv-	135	245	330	592	236	175	143
Consumption, alent	1,345	1,928	2,820	5,332	3,875	2,725	2,116
Domestic	?	?	?	?	?	1,923	1,102
Foreign	?	?	?	?	?	803	1,014

production (dried equivalent) amounted to 1,027,428 short tons in the first three-quarters of 1947, and imports (as shipped) were 1,608,072 tons, making a total supply of 2,635,500 tons for the period.

Imports are largely from Surinam with small amounts from British Guiana. (G. A. Ro.)

Beans, Dry. The U.S. crop of dry beans for 1947 was estimated at 17,164,000 bags of 100 lb. each, uncleaned, compared with 15,859,000 bags in 1946 and a 10-year (1936–45) average of 16,312,000 bags. The acreage was increased about 10% in 1947 to 1,759,000. Average yield was only 976 lb. per acre compared with 981 lb. in 1946 and a 10-year average of 889 lb.

U.S. Production of Dry Beans in Leading States, 1947, 1946 and 10-year Average, 1936–45

(In thousands of 100-lb. bags)

State	1947	1946	10-yr. average	State	1947	1946	10-yr. average
California	4,363	3,587	4,610	Wyoming	1,444	1,305	864
Michigan	3,129	3,841	4,404	New York	1,375	1,488	1,189
Colorado	2,568	1,618	1,676	Nebraska	1,058	1,054	454
Idaho	2,341	2,176	1,871	Montana	364	280	276

The farm price of beans, which had almost doubled during 1946, stood at $12.20 per cwt. in Jan. 1947, advanced to $12.70 by July, and held steady to $12.10 in December. Exports of dry beans increased during 1947; at the higher prices the value of the exported crop almost doubled.

The world's bean production was estimated to be about 10% larger than in 1946. (J. C. Ms.)

Bechuanaland Protectorate: *see* BRITISH SOUTH AFRICAN PROTECTORATES.

Beef: *see* MEAT.

Beekeeping. The honey crop of 1947 in the United States was estimated at 210,039,000 lb., compared with 213,814,000 lb. in 1946—a decrease of about 2%. The number of colonies was estimated at 5,910,000, or 2% more than in 1946.

Average yield for the United States was 35.4 lb. per colony compared with 36.9 lb. in 1946. California produced a crop of only 14,100,000 lb., compared with 22,128,000 lb. in 1946. Florida's crop of 7,410,000 lb. was also poor. Iowa stood first in production with a 17,570,000 lb. crop. Minnesota stood second with 17,043,000 lb., Texas and New York each had 13,140,000 lb. and Wisconsin 11,660,000 lb.

Imports declined to 15,000,000 lb. in 1947, mostly from Cuba, Mexico, Puerto Rico and Hawaii. Prices ranged around 12 cents per pound, compared with four to five cents in prewar years. (J. C. Ms.)

Beer: *see* BREWING AND BEER.

Belgian Colonial Empire.

The Belgian colonial empire consists of the colony of Congo in central Africa and the adjacent mandated territories of Ruanda and Urundi. The accompanying table gives material relative to all territories administered by Belgium (*q.v.*). Total area: 925,000 sq.mi.; pop. (est. Jan. 1, 1947): 14,088,191, of whom 34,782 were whites (24,058 Belgians). Chief towns, with their white pop. only (est. Jan. 1, 1947): Léopoldville (cap. 6,183), Elisabethville (5,359), Stanleyville (1,246). Governor general (appointed Dec. 31, 1946): Eugène Jungers.

History.—The Belgian colonial empire in 1947 enjoyed great social stability and unparalleled economic prosperity. There were no political troubles and exports were 78% more than before World War II. A certain desire for decentralization existed, but it manifested itself more among the Belgian residents than among the natives. In this connection Governor General Eugène Jungers stated in April, during a visit to Brussels, that during World War II the Congo had developed its resources enormously; it had come of age and it expected that fact to be taken into consideration. The residents, he said, wished to participate more, and more directly, in the government of the colony. They wanted the resources of the Congo to be assigned mainly to the needs of the colony itself. They were not separatist, and they favoured a sound autonomy under the permanent hegemony of the mother country.

From June 29 to Aug. 12 Prince Charles, regent of the kingdom, paid an official visit to the colony. It was an occasion for the natives to show their loyal attachment to Belgium and its dynasty. It was also the occasion for the regent and Pierre Wigny, minister of the colonies, to sign on July 1 two important decrees. The first created a Farmers' Credit bank (Société de Crédit au Colonat) with a view to helping Belgians who decide to settle permanently in the Congo; this arrangement had been recommended by a special commission which discussed the subject in Brussels during July and Aug. 1946. The second decree established a Native Welfare fund (Fonds du Bien-Etre Indigène), having an annual income of 250,000,000 francs, the object of which was to finance all enterprises capable of increasing the moral and material development of the natives in the Congo and in Ruanda and Urundi.

In 1947 there were in the Congo 6,102 primary schools with 358,215 native pupils and 56 secondary schools with 3,872 native pupils; there were also 8,994 rural schools with 246,424 natives attending evening classes. A new technical school for natives was opened at Elisabethville. The missionaries, generally Roman Catholic, were mainly responsible for the education of the natives. The medical corps looking after the state of health in the colony was composed as follows by July 1947: 350 physicians, 703 white nurses, both men and women, and 2,500 native auxiliaries. Mortality among the natives in 1946 was 7 per 1,000.

Among measures taken in 1947 in the interest of the natives were: the prohibition of polyandry; the appointment of a commission to study the problem of 12,000 mulattos, who are rejected both by the whites and the natives; the opening of a native social studies centre at Léopoldville; and the promulgation of a law forbidding the sale of the cotton crop on the field and stating that the growers remained proprietors of the cotton until it was sold on the world market. (G-H. D.)

Belgian Congo: *see* BELGIAN COLONIAL EMPIRE.

Belgium.

A kingdom of western Europe. Area: 11,774 sq.mi.; pop. (est. Jan. 1, 1947): 8,388,526. Chief towns: Brussels[1] (cap. 1,290,534); Antwerp (259,622); Ghent (162,488); Liége (150,103); Bruges (52,698); Namur (30,702). Languages: Dutch, French and German; religion: mainly Roman Catholic. Ruler: King Leopold III, Prince Charles (*q.v.*), regent. Prime minister (appointed March 19, 1947): Paul-Henri Spaak.

History.—During 1947 further progress was made in the economic rehabilitation of the country, but the political struggle remained bitter. From the beginning of January the government of Camille Huysmans was attacked not only by the Christian-Social opposition, but also by the Liberals, the Communists and even some Socialists; agreement inside the coalition seemed at an end. On Feb. 26 former prisoners of war organized a march throughout the capital to protest against the slowness shown by the government in granting them material and moral help. The demonstration rapidly degenerated into a serious riot round the royal palace and the government buildings and the horse gendarmerie had to charge the rioters, killing 1 and wounding 30. Twelve days later the shopkeepers started a strike protesting against too many controls and fines.

The government was shaken by these and other signs of general dissatisfaction. On March 11, on the pretext of an increase in the price of coal, the Communist ministers resigned. The government crisis that followed was of short duration. The prince regent asked Paul-Henri Spaak to form a new cabinet. On March 19 the eighth government of Belgium after the liberation, a coalition of the Christian-Social and Socialist parties, came into existence; nine portfolios went to the former, eight to the latter and two to nonparty experts. Liberals and Communists went into opposition.

In his speech to parliament, on March 25, Spaak promised,

[1]Not the commune of Brussels, which has only 187,039 inhabitants, but Greater Brussels.

Belgian Colonial Empire

Country and Area sq. mi. (approx.)	Population (000s omitted) (Est. Jan. 1, 1947)	Capital, Status, Governors, Premiers, etc.	Principal Products 1946* (exports)	Imports and Exports (Francs '000)	Road, Rail and Waterways	Revenue and Expenditure* (Francs '000)
Belgian Congo, 904,974	Native: 10,667 White: 33	Léopoldville, colony. Governor General: Eugène Jungers	Diamonds (mainly industrial) 6,057,783 carats (In short tons) Copper 179,573 Tin ingots 4,907 Zinc ore 8,591 Uranium ore 6,889 Gold 11.6 Palm oil 97,036 Palm kernels 53,897 Gum copal 21,701 Cotton 51,753 Jute substitutes 9,206 Coffee 21,548 Tea 8.8 Sugar 7,773	Imp. (1944) 2,478,409 (530,422 short tons) Exp. (1946) 5,774,875 (747,343 short tons) Exp. to Belgium (1946): 2,522,000 (407,275 short tons)	Roads open to traffic (Jan. 1, 1943) 55,307 mi.; under construction: 976 mi. Railways (Jan. 1, 1943) 3,053 mi. Navigable waterways (1946) 7,235 mi.	1946 Revenue 2,209,110 Expenditure 2,337,786 1947 Revenue (est.) 2,448,879 Rate of exchange (July 1947) 1 franc=2.283 U.S. cents
Ruanda and Urundi, 20,120	Native: 3,386 White: 2	Nianza (Ruanda), Kitega (Urundi), mandated territory united administratively with the Belgian Congo		Imp. (1943) 136,766 (7,009 short tons) Exp. (1946) 250,769 (33,798 short tons)	Roads open to traffic† 4,148 mi.	United administratively with the Belgian Congo

*Including Ruanda—Urundi.
†From *Belgian Congo Directory* (1943); figures apparently for 1942 though this is not explicity stated for roads.

among other measures, to introduce woman suffrage, to improve the situation of public finance without devaluing the Belgian franc, to increase the efficiency of technical education, to hasten the repair of war damage and to seek agreement among the parties in order finally to settle the royal question while respecting the constitution. The next day the chamber of deputies passed a vote of confidence in the government by 148 votes to 13 and 22 abstentions; on March 28 the senate approved the government by 125 votes to 7 and 17 abstentions.

On June 16 and 17 the representatives of the trade unions and of employers held a national conference of labour under the chairmanship of Spaak, assisted by the ministers of labour, works, supply and economic affairs. The conference decided to revise the policy of subsidies, to increase family allowances and holiday bonuses and to introduce joint advisory committees (*conseils d'entreprise*) in industry. As the suppression of subsidies for certain food products automatically caused an increase in prices, the government decided on July 22 to give compensatory allowances to all citizens earning 72,000 francs or less annually. At the same time a big campaign to reduce prices was started.

On June 19 the report of a special commission on the royal question was published. This commission, established by King Leopold III on July 14, 1946, comprised experts in constitutional law and prominent personalities of the right and left under the chairmanship of Jean Servais, honorary attorney general and professor at the University of Brussels. The report established that the conduct of the king, from 1936 to 1944, was above reproach. The government discussed the report of the Servais commission on July 4 and asked the prime minister "to examine the possibility of giving effect to that part of his speech to parliament that concerned the royal question." At the beginning of December Spaak was preparing to declare publicly that the king's honour was "unblemished." On Dec. 4 King Leopold received at Lausanne, Switz., a delegation of the National Congress to Solve the Royal Question and said to them: "I am ready to re-assume my constitutional duties as soon as the government publicly declares that nothing has ever blemished my honour as the head of the dynasty." When this statement appeared in the Catholic press the leader of the Socialist party asked for a debate on the government's policy regarding the dynasty. Spaak referred to his difficulty over this problem in a government which was divided not on the king's honour, but on the king's return. The government received a vote of confidence (152 votes to 32) but the declaration of Spaak was postponed *sine die*. By the end of 1947 discussion between the parties was going on, generally in secret.

Despite the disillusionment frequently expressed by Spaak, Belgium's foreign policy continued to support the United Nations. Belgium was also one of the first states to accept the Marshall plan of aid to Europe. But the outstanding event of the year was the signature on March 14 at The Hague of a protocol establishing a customs union between Belgium, the Netherlands and Luxembourg that had been adopted in principle in an agreement signed in London on Sept. 5, 1944. Thus a new economic unit called "Benelux" was born. The customs duties of the three countries were standardized, and it was hoped that in the near future the same would be done for excise duties, the transfer tax and tariff legislation. The ultimate objective of "Benelux" was complete freedom inside the common frontiers. The three countries were not, however, to limit their collaboration to the economic field: they were also to conduct a common foreign policy. This unity in foreign policy was apparent for the first time at the conference of 16 European countries in Paris, on July 12–15; it was evident at the U.N. assembly at Lake Success, N.Y., where in regard to Indonesia Belgium defended the Netherlands' point of view. (G-H. D.)



BELGIAN VETERANS rioting on Feb. 26, 1947, at Brussels, where several thousands of former P.O.W.'s and deportees demanded compensation for time spent in prison. One person died and 40 were injured in the demonstration

Education.—1945: kindergarten schools 4,140, scholars 228,108; primary schools 8,714, scholars 828,996; higher grade (1946–47) schools 447, scholars 100,459; adult schools 211, scholars 83,856; universities (1946): Ghent 2,228 students; Liége 3,054 students; Brussels 4,302 students; Louvain 7,554 students.

Banking and Finance.—Revenue (est. 1946) Fr. 58,000,000,000; expenditure Fr. 70,000,000,000; public debt (June 1947) Fr. 279,586,000,000; gold reserve (Oct. 23, 1947) Fr. 26,960,000,000; note circulation (Oct. 27, 1947) Fr. 78,326,000,000: rate of exchange 1 franc = 2.283 U.S. cents (1947).

Trade and Communication.—External trade (merchandise): imports (1946) Fr. 52,561,608,000; (Jan.–June 1947) Fr. 36,505,300,000; exports (1946) Fr. 29,654,016,000; (Jan.–June 1947) Fr. 28,297,164,000. Communications: roads suitable for motor traffic (1945) 6,433 mi.; railways open to traffic, main (1945) 3,089 mi.; waterways open to navigation (1945) 936 mi.; airways (1946) passengers carried 9,720; freight 1,203 short tons. Shipping entered (1946) 9,612,000 tons net; cleared 6,180,000 tons net. Motor vehicles licensed (1945): private cars 43,903; commercial 2,217; buses 261; trucks 60,234. Telephones (1944) 304,314.

Agriculture.—Harvest 1947 (est. yields in short tons): wheat 124,354; rye 179,479; barley 158,060; oats 550,748; potatoes (early and semi-early) 735,475; peas 16,625; flax (seed) 13,060; flax (straw) 125,220; colza 2,930; fodder crops (grass, sainfoin, lucerne and clovers) 904,404. Other produce (1946) butter 19,800; cheese 8,800; meat 96,000. Livestock (1947) horses 303,925; cattle 1,729,341; sheep 170,166; pigs 616,144; poultry 5,712,112.

Industry and Labour.—Industrial production index (1936–38 = 100). April 1947 = 99. Textile production during 1946 and the first half of 1947 is shown in the table on page 118. Other products (1946): bicycle tires (number) 6,102,200; matches (boxes) 45,338,798,000; new dwellings under construction

Belgian Textile Production, 1946, 1947

(In short tons)

	1946	1947 (Jan.-June)
Cotton	76,390	44,740
Wool	34,050	23,700
Linen	9,380	4,977
Jute	38,820	19,960

(May 1947) 1,075. Unemployed (June 1947) 46,300.

Minerals.—July 1946–June 1947 (in short tons): coal 26,515,200; pig iron and ferroalloys 2,863,000; steel ingots and castings 2,882,800; lead 34,620; zinc 123,110; cement 2,520,270. (*See* also BELGIAN COLONIAL EMPIRE.)

Benefactions: *see* DONATIONS AND BEQUESTS.

Benelux: *see* BELGIUM; LUXEMBOURG; NETHERLANDS; TARIFFS.

Benton, William (1900–), publishing executive, was born on April 1 in Minneapolis, Minn. He was graduated from Shattuck Military academy, Faribault, Minn., and received the bachelor's degree from Yale university, New Haven, Conn., in 1921. He entered the advertising agency business in New York in 1922. In 1929, in partnership with Chester Bowles, he founded the Benton and Bowles agency, which rose rapidly to become one of the most successful in the advertising business. He resigned from all active participation in the affairs of the agency early in 1936.

Benton became vice-president of the University of Chicago in 1937, partly devoting himself to the development of radio and classroom motion pictures as instruments of education. At Benton's instance the university acquired Encyclopædia Britannica, Inc., in 1943. He financed the company, became chairman of its board and shared its ownership with the university. He launched Britannica into the classroom motion-picture field and served as board chairman of Encyclopædia Britannica Films Inc. In collaboration with Paul Hoffman he helped to found (and served as vice-chairman of the board of trustees for) the Committee for Economic Development, which instituted studies and plans for reaching and maintaining high levels of employment and productivity in the postwar period.

Benton was appointed U.S. assistant secretary of state by Pres. Harry S. Truman on Aug. 31, 1945. He resigned from all operating responsibilities outside the department of state. His special responsibilities within the state department included: (1) a projected program of information and educational exchanges with other countries; (2) U.S. participation in the United Nations Educational, Scientific and Cultural organization and (3) the department's information and group relations program within the United States.

Under the first of these Benton in 1946 and 1947 developed the country's first peacetime international information program, designed to project to other peoples "a full and fair picture of American life, and of the aims and policies of the United States Government." This included short-wave broadcasts in 24 languages; exhibition of documentary films about the U.S. before audiences of many millions abroad; fast servicing to foreign editors of full texts of important U.S. foreign policy statements; stimulation of exchange of students, scholars and scientists and maintenance of small information staffs and U.S. libraries in 62 countries.

In the second field Benton participated in drafting the U.N.E.S.C.O. constitution at London in 1945; served as chairman of the U.S. delegation to the first U.N.E.S.C.O. general conference at Paris in 1946 and again as chairman of the delegation at the second conference at Mexico City in 1947.

During 1947 U.S. policy on international press freedom was developed under Benton's direction, and an organization was set up to administer the greatly expanded student-exchange program made possible under the Fulbright bill.

Benton resigned as assistant secretary on Sept. 30, 1947, though he continued to serve the secretary of state as a consultant on U.N.E.S.C.O. Shortly thereafter he resumed the chairmanship of Encyclopædia Britannica, Inc., and of Encyclopædia Britannica Films Inc. In December he also became board chairman of the Muzak corporation, which he had owned for some years.

Bentonite. Sales of bentonite by producers in the United States increased from 573,998 short tons in 1945 to 601,428 tons in 1946, making a new record high. Nevada and Oklahoma appeared as new producers in 1946, in addition to the nine states previously reporting. Wyoming and South Dakota supplied nearly half the total. About 38% of the output goes into rotary drilling mud, 27% into foundry sand and 24% is used for filtering and decolourizing oils, leaving 11% for miscellaneous uses. Most of the increased supply of 1946 went into drilling muds. (*See* FULLER'S EARTH; MICA.) (G. A. RO.)

Bequests, Philanthropic: *see* DONATIONS AND BEQUESTS.

Berlin. Capital of the German reich from 1871 to 1945, Berlin is the largest and the most important city of Germany. Area: 341 sq.mi.; pop. (census of Oct. 29, 1946): 3,180,383, or 26.4% less than the pre-World War II figure (census of May 17, 1939: 4,332,242).

The political scene in 1947 was dominated by the controversy over the office of *Oberbürgermeister*. Otto Ostrowski, a Social Democrat, chosen after the elections of Oct. 1946, was in April forced by his own party to resign on the grounds that he had been subservient to S.E.D. (the Communist-controlled *Sozialistische Einheits-Partei Deutschlands*) views and lacked courage in his attitude toward the soviet occupation authorities. The Berlin *Kommandantura* (the four Berlin Allied commanders) agreed to his resignation. In July the new nominee of the majority of the city assembly, Dr. Ernst Reuter, another Social Democrat, was accepted by all Allied commanders except the Russian, Gen. Alexander Kotikov, who rejected his nomination

NEW STORE FAÇADE on Berlin's Kurfuerstendam, set incongruously against the ruins of World War II. Shopping facilities were making but slow returns to normalcy in 1947



on the grounds that he was antisoviet and of doubtful political record. The disagreement was taken to the Allied Control council where the Russian representative again vetoed the appointment of Dr. Reuter. For the rest of the year Frau Luise Schröder, a Social Democrat, acted as *Oberbürgermeisterin.*

Berlin's industries, chief of which are electrical equipment, clothing and machine construction, were seriously handicapped by dependence upon raw material supplies from the four zones. In July the Askania instrument manufacturing firm in the U.S. sector was closed down on the grounds that it was making war materials for another Allied power. In the soviet sector 600 nazi firms were expropriated and placed under a trustee with a view to their being handed over to the city authorities or to the co-operatives.

In the cultural field Berlin remained the capital of Germany. Excellent productions at the theatres included works by Jean Cocteau, Eugene O'Neill, Jean Giraudoux, Gerhart Hauptmann, Karl Sternheim, Ferenc Molnar, Franz Werfel and Konstantin Simonov.

The total circulation of Berlin's 15 daily newspapers by Jan. 1, 1947, was 3,500,000. The Russian-licensed or official Russian papers accounted for about 70% of this amount. (*See* also GERMANY.) (D. A. SN.)

Bermuda. The Bermudas or Somers islands form a group of about 360 small islands situated in the western Atlantic about 580 mi. east of Cape Hatteras in North Carolina. Together the islands constitute the British colony of Bermuda. Total area: 19 sq.mi.; pop. (1945 est.): 34,435. The capital is Hamilton (pop. *c.* 3,000). The only other town of importance (St. George) has a population of about 1,300. The colony is administered by a governor appointed by the British crown, assisted by an executive council containing four official and three unofficial members. The legislative council consists of 9 members (3 official and 6 unofficial) and the house of assembly of 36 members, 4 being selected by each of the 9 parishes of the colony. Governor in 1947: Adm. Sir Ralph Leatham.

History.—The principal questions that arose in Bermuda during the year 1947 had relation to local conditions and standards of living. Toward the end of 1946 a petition to the secretary of state was drawn up by the executive committee of the Bermuda Workers' association (a body claiming a membership of nearly 5,000, representing approximately one-seventh of the population of the colony) praying for the appointment of a royal commission "to investigate and report on the social, economic and political conditions of Bermuda, with recommendations for the alleviation and adjustment of the several inequities and handicaps under which the great majority of the population are labouring." The matter came under consideration in London early in 1947. The secretary of state was not prepared to agree to the immediate appointment of a royal commission. He considered that, as Bermuda had "enjoyed representative government for over 300 years," the petitioners' representations should be examined, in the first instance at any rate, by the local legislature. He invited the governor to take immediate steps to initiate such an examination. He also called special attention to certain imperfections in the local law relating to trade unions; to the desirability of extending the franchise; and to the need for reforming the fiscal system by the introduction of direct taxation. The Workers' association was informed that the secretary of state would reply in due course to its petition in the light of the local legislature's examination and of the governor's observations thereupon. A joint committee of the legislative council and the house of assembly was appointed to inquire into and report on the matters raised in the petition. New salary scales for government servants (in which account was taken of the high cost of living) were introduced in Jan. 1947.

Finance and Trade.—The currency of Bermuda is that of the United Kingdom. Revenue (1945) £815,657; expenditure £836,129. Imports (1946) £3,634,000; exports £263,000. The colony had in 1945 a public debt of £875,000 (including two interest-free loans totalling £800,000 to the British government). (J. E. SH.)

Beryllium. After declining from 388 short tons in 1944 to 39 tons in 1945, the output of beryllium ores in the United States increased to 100 tons in 1946. Imports declined from 3,115 tons in 1944 to 1,201 tons in 1945 and 1,098 tons in 1946. The production of refined beryllium products from ore had practically ceased everywhere except in the United States. (G. A. RO.)

Bessarabia: *see* UNION OF SOVIET SOCIALIST REPUBLICS.
Best Sellers: *see* BOOK PUBLISHING.

Betting and Gambling. The postwar gambling fever, which had seemed to subside in 1946, was stronger than ever in 1947. Professional gambling houses, illegal in every state but Nevada, were patronized as heavily as in 1945, and many of the smaller ones which had closed during 1946 were reopened.

Outstanding was the spread of "floating crap games." Hitherto a monopoly of New York's underworld, this type of game became prevalent in small town and big city alike. Roulette, a standard game at gambling houses, received its usual high quota of publicity when, in November, two University of Chicago students descended upon the largest gaming house in Reno, Nev., with the claim that they had perfected a system of winning. First reports said the aleatory collegians had won $2,000. A few hours later the figure was doubled. The third flash put the bettors ahead $12,000. After that the story died out, and the fact that the mathematical wizards had lost most (not all) of their winnings was not given enough attention to prevent a parade of other hopeful system gamblers to Reno.

Bingo was played more than in 1946, especially in the small towns. The decline in attendance at motion pictures brought Screeno (a form of Bingo) back as a trade stimulator in a few theatres.

Manufacturers and proprietors of slot machines had a banner year. Factories that had manufactured other products during World War II were reconverted, and thousands of new machines were marketed or reconditioned. In only one state, Nevada, could these machines operate openly, but 17 states permitted them in private clubs, and, legal or not, they were still to be found in clubs in all states.

There was some decline in betting on horse racing, which continued to attract more betting dollars than any other form of gambling. Many of the states that permitted pari-mutuel betting at the race tracks reported a drop in the golden flow. The expected total "handle" of $2,000,000,000 was not reached, nor was the 1946 total of $1,900,000,000 equalled. Off-the-track bookmakers also were pessimistic. The gambling fraternity blamed the decline on public resentment at the heavy "take" of the tracks and state taxes.

Betting on sporting events continued, both in the football pools and with bookmakers. The Minneapolis syndicate furnishing bookmakers with probable results of all football games did its usual accurate job, being right in so high a proportion of the cases that the bookmakers had a profitable year. In basketball there were rumours of "thrown" games, all denied and some disproved but sufficiently grave so that western bookmakers refused to accept bets on games played in some eastern cities.

Football, both amateur and professional, escaped suspicion except in a few cases, and baseball retained the entire faith of the public. There was little heavy betting on boxing matches, perhaps because of the scarcity of bouts between well-matched fighters.

Card games remained a minor factor in gambling. Blackjack, otherwise known as twenty-one, was the principal game in the gambling houses, but was not played for high stakes comparable with those in the dice games. In the temples of luck with social pretensions, chemin-de-fer was gaining favour and was played for higher stakes. The game most often played for high stakes in private homes, clubs and resorts was gin rummy, with stakes ranging from $1 to $15 a point not being uncommon. This attracted card "sharps," and although there was no repetition of the Hollywood scandal in 1946, when detectives exposed a ring reputed to have won more than $3,000,000, there were similar cases on a smaller scale.

In England the stakes in bridge and poker were relatively much higher. A game at London's leading bridge club was played regularly for £40 per hundred points with £100 extra to the winner of the rubber, equivalent to well over $2 a point and more than ten times as high as the highest-stake bridge game regularly played in any U.S. club.

Lotteries continued to have general popularity throughout the world except in the United States, where continued agitation to legalize them made no apparent headway and the undercover numbers game was the only flourishing form of lottery. Toward the end of the year Tass reported that a new Russian loan would be promoted, in accordance with previous custom, by a state-operated lottery, and that there would be seven such lotteries, involving about 8,000,000,000 rubles.

(A. H. Md.; M. Ml.)

Beveridge Report: *see* Relief; Social Security.

Bevin, Ernest (1881–), British foreign secretary, was born at Winsford, Somerset, England, the son of an agricultural worker. In 1920 he became national organizer of the Dockers' union, and the following year general secretary of the newly formed Transport and General Workers union. From 1925–40 he was a member of the general council of the Trades Union congress and in 1937 was chairman. In May 1940 he became minister of labour in Winston Churchill's coalition government and entered the house of commons for central Wandsworth. Together with the other Labour members he left the government in May 1945, and in July was appointed secretary of state for foreign affairs by Prime Minister Clement Attlee.

Bevin attended the Potsdam conference (July 1945), the Council of Foreign Ministers in London and Moscow (Sept.–Dec. 1945), the first general assembly of the U.N. in London (Jan. 1946) and the Council of Foreign Ministers and U.N. meetings in New York (Nov.–Dec. 1946). In 1947 the Council of Foreign Ministers met twice, in Moscow in March and April, and in London from Nov. 25.

On April 25, after the Moscow meetings which had ended in a deadlock, Bevin was surprisingly optimistic of the future and said, "I would rather take a long time and produce a good peace in the end than have a loose one, slopping over with false formulas." In June he met Georges Bidault in Paris for discussion on the Marshall plan for Europe, and at the end of the month visited Paris again for discussions with Bidault and Vyacheslav Molotov. In July, at the first meeting of the Committee for European Economic Co-operation, he was elected chairman.

Bible Society, American: *see* Societies and Associations.

Bicycling: *see* Cycling.

Bidault, Georges (1899–), French statesman, was born on Oct. 5 in Moulins, France. He served in the French army during World War I from 1917 to 1919. After the war, he resumed his studies at the Sorbonne university, being graduated with high honours, and later taught history in secondary schools. In 1932 he and members of a left-wing Catholic group founded the Catholic newspaper *L'Aube*, with Bidault as foreign editor and columnist. At the outbreak of World War II, he joined the army with the rank of sergeant. He was taken prisoner and held in the reich until 1941. On returning to France, he joined the underground and in 1943 became president of the National Council of Resistance. A fortnight after the liberation of Paris, he was named foreign minister (Sept. 9, 1944), in Charles de Gaulle's provisional government. He headed the French delegation to the U.N. charter conference in San Francisco in 1945 and represented France at all the quarterly councils of the Big Four foreign ministers from the initial parley in the fall of 1945 through 1947.

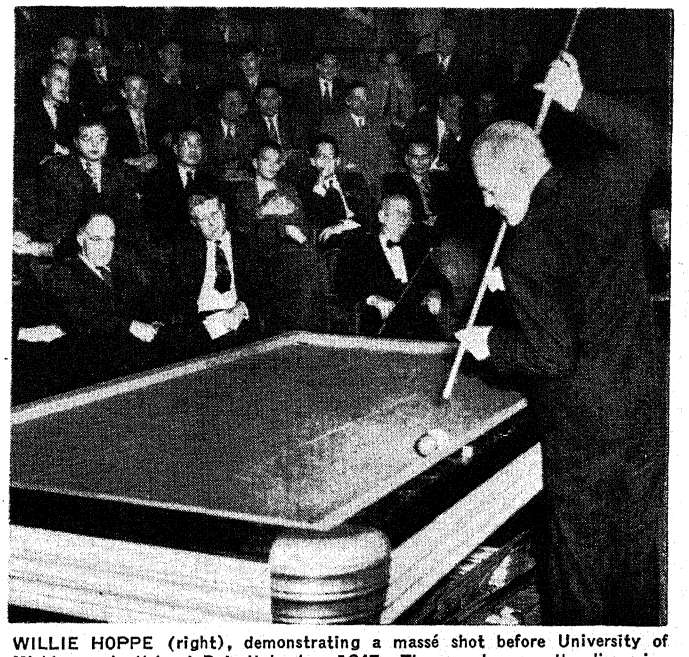
Bidault concurrently held the posts of provisional president and premier of France in June 1946. He resigned in Nov. 1946 but retained the foreign-affairs portfolio in the succeeding Blum, Ramadier and Schuman governments.

A staunch defender of the Marshall plan, he nevertheless expressed regret over the division of the world into "two hostile blocs" and in a speech before the U.N. general assembly on Sept. 20, 1947, said France would work incessantly to recement the riven world. The following month (Oct. 11), he warned his political followers in France that if the Marshall plan failed, "it will mean misery for us all."

During the sessions of the London Council of Foreign Ministers in Dec. 1947, Bidault sided with George C. Marshall and Ernest Bevin in branding as abuse and propaganda Vyacheslav Molotov's charge that the western powers were profiting in Germany.

Bikini Island: *see* Atomic Energy.

Billiards. Both major world billiard titles, the three-cushion and pocket, were at stake during 1947. Willie



WILLIE HOPPE (right), demonstrating a massé shot before University of Michigan scientists at Detroit in Jan. 1947. The occasion was the discussion of original research on the mathematical and neuromuscular phenomena of billiard playing

Hoppe replaced Welker Cochran as the three-cushion champion, while Willie Mosconi dethroned Irving Crane as wearer of the pocket diadem.

Hoppe's road to the crown he first won in 1936 was made easier when Cochran, the previous champion, did not defend his honours in the world tournament at Chicago in March. The former "boy wonder" was at the top of his game, reeling off eight victories in succession to clinch first place. Arthur Rubin, runner-up with a 7–2 record, lost all hope of tying Hoppe when he was beaten by Andrew Ponzi.

However, Rubin had another chance at the championship later in the year when he played Hoppe in a challenge match. The event started in Detroit on Oct. 25 and ended in Perth Amboy, N.J., on Nov. 9, with the titleholder in front by 1,400 points to 1,076. Hoppe set a world challenge match record in this engagement by scoring 50 points in 21 innings on the opening day. Hoppe and Rubin played the "still ball" game, which is not to be confused with the optional cue ball style used in the 1944 world tournament.

Mosconi, a former pocket billiard champion, regained the title in May by beating Crane in 14 of 16 blocks, 2,000 points to 918, and set a world mark for a 2,000-point match by averaging 15.89 balls per inning. In the fall, Mosconi defended his crown against Jimmy Caras, another former champion, and proved equal to the occasion by capturing 26 of the 32 blocks and scoring 4,000 points to his opponent's 2,334. Mosconi averaged 12.9 balls per inning, and Caras 7.9. Caras took high run honours with 121, while Mosconi's best cluster was 107.

(P. Br.)

Biochemistry.

Vitamin-Enzyme Relationships.—Biotin and pantothen were added to the growing list of those B-vitamins (riboflavin, thiamin, niacin and pyridoxin) which are parts of enzyme systems, and whose biological effects are thus given a chemical basis. Biotin was found to be essential for the enzymatic decarboxylation of oxaloacetate, and for the enzymatic deamination of aspartic acid, serine and threonine. By the reversal of the former reaction, biotin was thought to play a fundamental role in the fixation of carbon dioxide by bacteria and animal tissues. Corroborative evidence was found in the observation that oxaloacetate and aspartate spare the biotin needs of certain bacteria, whose growth is stimulated by carbon dioxide in the presence of biotin, but not in the latter's absence. Biotin deficiency in fowl causes a decrease in the oxaloacetate decarboxylase of liver tissue. Pantothen was found to constitute about 10% of a compound, called coenzyme A, which participates in the acetylation of choline and sulfanilamide by a brain-tissue enzyme, and in the oxidation of pyruvate by bacteria and of acetate by yeast.

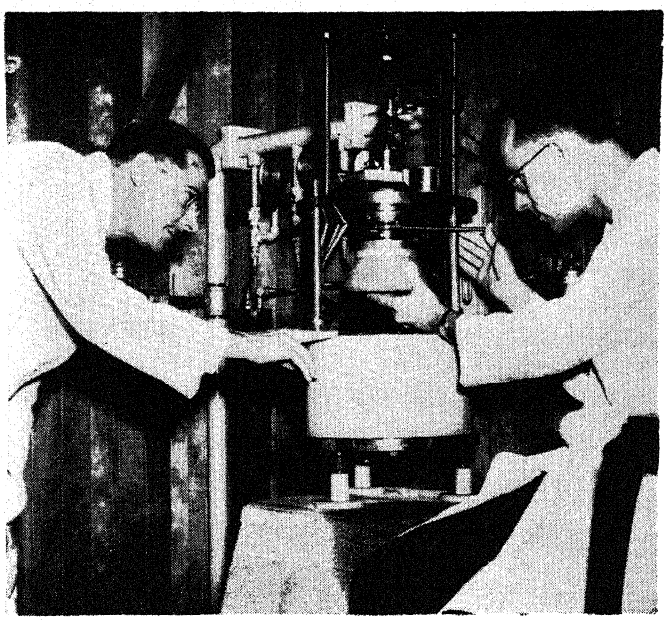
Pyridoxine was found to relieve the deficiency state resulting from absence of dietary fat, and to cause the deposition of linoleic as well as di- and tetraenoic acids in the tissues of rats on fat-free diets. This contradicts the idea that linoleic acid cannot be synthesized by rat tissues, and pointed to a new function for pyridoxine. Pyridoxal phosphate, previously shown to be a coenzyme for transaminases and amino acid decarboxylases, was shown to be also a coenzyme for the tryptophanase of *Escherichia coli,* which converts tryptophane into indole, pyruvic acid and ammonia. Vitamin B_6 was also found to be necessary for the metabolic synthesis of tryptophane from indole or anthranilic acid by *Lactobacillus arabinosus.* Pteroyl glutamic acid (PGA) was found to restore the tyrosine-oxidizing capacity of the livers of PGA-deficient rats. In addition to the function of PGA in formation of red blood cells (treatment of pernicious anaemia), this vitamin was found to be essential for normal lactation in rats. The conversion of carotene to vitamin A, previously thought to occur in the liver, was shown in the rat to occur in the intestine, after which the vitamin is transferred to the liver for storage. The oxidation of dioxyphenylalanine was found to be effected by kidney slices of normal animals, but not by those of scorbutic guinea pigs; and the addition of ascorbic acid to the scorbutic slices in vitro restores the ability to oxidize the amino acid. Previously, a similar action of ascorbic acid for the oxidation of tyrosine by liver tissue was reported. Since tyrosine and dioxyphenylalanine are precursors of melanin pigment, these observations are probably related to the removal of the coppery bronze skin colour of Addison's disease by administration of ascorbic acid.

Enzymes.—Especially numerous were studies on variations in the occurrence and concentration of enzymes in tissues in different physiological or pathological conditions. Both acid and alkaline phosphatases of kidney are increased in alimentary hyperglycaemia, in phlorhizin poisoning and in alloxan diabetes. It was postulated that the renal threshold for glucose is an expression of the limit to which kidney phosphatase activity can be raised. Striking was the observation that the β-glucuronidase activity of cancer tissue is 6-36 times greater than that of adjacent or other normal tissue. Since the β-glucuronidase activity of tissues was known to be increased by estrogens, it was postulated that the increased β-glucuronidase activity of tumour tissue is a metabolic response to some estrogen or related substance characteristic of cancer.

Among new enzyme activities reported during 1947 may be mentioned: diacetyl mutase, widely distributed in animal tissues, which converts diacetyl into acetic acid and acetoin, and for which diphosphothiamin is a cofactor; a new phospholipid-splitting enzyme specific for the nitrogen base-phosphoric acid ester linkage; an enzyme from liver which converts ribose (from nucleosides) into hexose-monophosphate. For the last reaction, the postulated mechanism is the splitting of the pentose into smaller fragments, and the recombination of two triose units.

Nucleoproteins and Nucleic Acids.—The demonstrated relation of nucleic acids to the structure of viruses and chromosomes had implicated these substances in the fundamental processes of growth and inheritance and stimulated many studies on their chemical nature and metabolism. At the annual meeting of the American Society of Biological Chemists in Chicago in May 1947 a symposium was devoted to this subject. The development of methods for the preparation, separation and analysis of these compounds and their degradation products were important. Colorimetric and spectrophotometric methods for characterizing purines, pyrimidines, nucleosides and nucleotides were combined with the use of specific enzymes for degrading and synthesizing these intermediates. Certain strains of neurospora, which require certain purines, pyrimidines or nucleosides for growth were especially useful not only in the analytical methods, but also in showing the metabolic interrelations of the compounds. It was found that the desoxyribose nucleic acids are present in the nucleus, while the pentose nucleic acids are characteristic of the cytoplasm. Dietary adenine, but not guanine, is used for nucleic acid synthesis. From the nucleic acid of tobacco mosaic virus, three mononucleotides were isolated, uridylic, cytidylic and guanylic acids. Ribonucleic acids as usually prepared and as usually occur in tissues are not homogeneous substances; nor do they conform to the composition of a statistical tetranucleotide, containing equimolecular amounts of the four mononucleotides. Variations in tissue nucleic acid composition reflect various stages of growth and development of cells, rather than variations in organs or species.

Competitive Inhibition.—Many additional examples were



STANFORD UNIVERSITY scientists, Dr. H. S. Loring (left) and Dr. C. E. Schwerdt, at the centrifuge used in their isolation of an 80% pure virus of poliomyelitis, announced at Palo Alto, Calif., in Jan. 1947

reported of the inhibition of biological processes (growth, enzyme action) by structural analogues of natural substances, especially vitamins and amino acids. Five new analogues of pantothenic acid were found to exhibit antimalarial activity. Tyrosine and β-hydroxyphenylalanine were found to interfere with the growth of *Escherichia coli,* by preventing the synthesis of phenyl alanine. Several synthetic pterins were found to prevent the growth of a number of microorganisms, which require folic acid. Pteroyl aspartic acts similarly on bacteria and was found also to cause folic acid deficiency in chicks. Methylfolic acid was found to displace folic acid in the growth of bacteria and in the action of the enzyme dopa decarboxylase. The growth of *Staphylococcus aureus* was found to be inhibited by the presence of various derivatives of glutamic acid. In each of the above cases, the inhibition could be prevented by the addition of the natural substance analogous to the inhibitor. (*See* also PHYSIOLOGY; VITAMINS.)

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Biography: *see* AMERICAN LITERATURE; ENGLISH LITERATURE.
Biology: *see* BOTANY; GENETICS; MARINE BIOLOGY; PHYSIOLOGY; ZOOLOGY.

Birth Control.

Planned Parenthood programs throughout the United States were expanded in 1947, a direct result of the first nation-wide campaign of the Planned Parenthood Federation of America, Inc. A major campaign by-product was the vast increase in public understanding and acceptance of Planned Parenthood services. The coverage given by the nation's press, wire services, radio and other media, especially magazines, was instrumental in breaking down some of the resistance to publicized discussion of birth control.

Research.—The first comprehensive program for research in the field of human reproduction was instituted during 1947. It was under the direction of the National Research council in Washington. The Committee on Human Reproduction established by the council was to study needs and recommend grants for specific research projects to qualified institutions and investigators. The council by contract with the National Committee on Maternal Health and in collaboration with the Planned Parenthood federation established this committee to plan the program of research. Research panels were to operate in accordance with policies to be defined by the newly reorganized board of the Committee on Maternal Health, under the chairmanship of Dr. Haven Emerson, professor emeritus of public health service at Columbia university, and a member of the New York city board of health.

The Committee on Human Reproduction of the National Research council was headed by Dr. Howard C. Taylor, Jr., professor of obstetrics and gynaecology at Columbia university's college of physicians and surgeons.

More than the purely medical aspects of reproduction was envisaged by the Committee on Human Reproduction as vital to its program. The medical aspects are so closely bound to the socio-economic environmental problems of the individual, family, community, nation and the whole world that a sound research program can ignore none of them. The main areas of the study would include: (1) the physiology of and the factors controlling conception; (2) the causes of sterility and treatment for infertility; (3) maternal and foetal physiology and clinical disorders developing during pregnancy; (4) the psychological problems of marriage and family relationships; (5) the population aspects of these problems, social and economic as well as medical.

The Planned Parenthood federation would seek to contribute a substantial part of the funds for the research program. The clinics and records of its affiliates would also constitute a valuable field for certain of the research projects. While not a party to the contract between the National Research council and the National Committee on Maternal Health, the federation was collaborating as a full partner in the whole program.

Medical Survey of U.S. Physicians on Birth Control.—Dr. Alan F. Guttmacher, associate professor of obstetrics and gynaecology at Johns Hopkins, conducted a nation-wide survey to tabulate medical opinion on conception control. According to his poll, 96% of the physicians in the U.S. approved birth control. Teaching of conception control methods in medical schools was found inadequate. Three-quarters of the respondents had not received training in this area. Only 7% said they had received both lectures and clinical instruction in contraception.

Lasker Awards in Planned Parenthood.—Dr. Guttmacher and Dr. Abraham Stone received the third annual Lasker Awards in Planned Parenthood for their distinguished contribution in the fields of marriage counselling and education. The award recognized Dr. Stone's 30 years of clinical work, teaching and marriage counselling.

Development of Services.—Dr. L. E. Kling, formerly with the U.S. public health service, became acting medical director of the federation. During his public health services, Dr. Kling developed the first mass X-ray programs and had wide experience in tuberculosis and cancer control public health programs.

Nearly two-thirds of the people of the U.S. believed government health clinics should furnish birth control information, it was found in a Gallup poll conducted during the year. Figures showed that 64% approved, 23% disapproved and 13% had no opinion.

A bill to permit physicians in Connecticut to prescribe contraceptives to their patients was defeated in May when the state senate voted two to one against the bill. It had passed the lower house 180 to 40.

Massachusetts officially opened a campaign for repeal of the state law forbidding medical prescription of contraception on Sept. 2. An initiative petition for a new law was approved by

the state attorney general after it had been filed by ten voters headed by Dr. Karl T. Compton, president of the Massachusetts Institute of Technology. Many more than the 20,000 registered voters required by law signed the petition.

Four fertility clinics were opened during the year. Two of them were in Delaware and Connecticut where these services had hitherto been unavailable. Of these four new clinics, two were under Planned Parenthood auspices.

International Developments.—An International Union of Family Organizations was established by 27 nations meeting in Paris June 22–29 at a World Conference on the Family and Population. It was called by the French Union of Family Associations. U.S. representatives included Dr. Abraham Stone, who was delegated by the National Research council, the Planned Parenthood federation and the National Council for Family Relations; Dr. Ernest Stebbins, professor of hygiene and public health, Johns Hopkins; Miss Jane Hoey, director of the social welfare bureau, Federal Security agency; Mrs. Rachel Nyswander, director of the women's bureau of the labour department; and Dr. Norman Himes from the educational department of the U.S. military government in Germany. Representatives from the cultural department of the U.S. embassy in Paris and of the United Nations Educational, Scientific and Cultural organization also participated. Dr. Stone was elected a vice-president of the new International Union of Family Organizations.

Organization.—The Planned Parenthood federation was in 1947 the national agency and clearinghouse for 38 state leagues and 206 local committees. The total number of birth control centres stood at 550. These services were in 231 public health clinics, 60 hospital clinics and 214 extramural clinics. Of the 55 fertility clinics in the U.S., 12 were under Planned Parenthood direction. (*See* also BIRTH STATISTICS.) (M. SR.)

Birth Statistics.

Births in the United States reached a record peak in 1947, according to provisional data for the first nine months, which showed a birth rate 23% higher than for the like period of 1946. For each of the first eight months, the birth rate in 1947 was higher than in 1946, but the margin between the two years decreased toward the end of the period; Sept. 1947 fell below the record for the same month in 1946. The estimated number of births in the United States for the whole of 1946 was 3,288,450, and the birth rate 23.3 per 1,000 total population.

Canada's birth rate in 1947 also exceeded that of 1946, according to data for cities of 10,000 or more, which showed a 19% increase for the first eight months. The total number of births in Canada during 1946 was 325,805, the rate being 26.5 per 1,000 total population. There was a rapid upswing in the birth rate in England and Wales from 1946 to 1947; data showed a 13.8% increase for the first ten months in London and the great towns. The recorded number of births for all of England and Wales during the entire year 1946 was 819,894, and the birth rate was 19.1 per 1,000 total population.

An international comparison of birth rates for the years 1944–46 is shown in the table on page 124 with countries ranked according to the per cent change in their rates from 1945 to 1946. It will be noted that all but a few of the countries listed experienced a rise in their birth rate from 1945 to 1946, the first full year of peace. For many of these countries, the birth rates were not only higher than during World War II, but also above the level prevailing a few years before the war. The postwar upswing occurred in spite of food and housing shortages and serious dislocations. At the top of the list of increases in birth rates from 1945 to 1946 were the Netherlands, France and Italy, with gains of 33.0%, 27.2% and 23.5%, respectively. The United States was high on the list with a gain of 18.9%; practically the same showing was made by England and Wales, where the rise amounted to 18.6%. Of the English-speaking countries, Scotland ranked highest, with a gain of 20.1%. Canada showed a rise of 11.8%, while Australia and New Zealand experienced practically identical gains of 8.7% and 8.6%, respectively. The birth rate for the white population of South Africa rose by 7.4%. Observers believed that these postwar increases were the temporary effect of the reunion of families consequent to demobilization; and that, once this effect was over, the birth rate would take a downward trend. Of the few countries showing decreases in birth rates from 1945 to 1946, three—Switzerland, Sweden and Portugal—were neutral, while two—Chile and Mexico—were not active belligerents.

As a result of the upward trend in its birth rate from the low point reached in 1933, the United States had gained, through 1946, more than 4,000,000 babies that would not have been born if the situation of 1933 had remained unchanged (*Statistical Bulletin of the Metropolitan Life Insurance Company*, May 1947). Of this total gain, only 350,000 were attributed to the rise in the birth rate during the 6-year period 1934–39. Substantial contributions to the gain resulted from the wartime spurt in the birth rate. The high birth rate of 1943, as compared with that of 1933, gave the United States 691,000 extra babies; and for the 2 years 1944 and 1945 taken together, the excess amounted to almost 1,000,000.

In 1945, the latest year of complete record for the United States available in 1947, the birth rate for the white population was 19.2 per 1,000, while that for the Negro population was 23.3 per 1,000. The proportion of births attended by physicians ranged from 99.2% for white births in cities of 100,000 or more to only 39.8% for Negro births in rural areas. On the other hand, the proportion of births attended by midwives was at a minimum of 0.7% for white babies in cities of 25,000 or more, but at a maximum of 58.9% for Negro babies in rural areas.

In relation to age of mother, the birth rate in the United States in 1945 was at its highest at ages 25–29 years for white women, the rate being 131 per 1,000 women of those ages; for Negro women, the peak was at ages 20–24 years, with a rate of 149 per 1,000 women.

In view of a common opinion that the ratio of male to female births tends to increase in times of war, R. J. Myers studied the situation on the basis of available data for the United States and Canada over the period 1942–45 (*American Sociological Review*, Feb. 1947). It was concluded that "there is no evidence of any appreciable increase in masculinity of births in the United States and Canada during the second World War, especially when account is taken of the higher proportion of white births and of lower order births."

The sixth of the reports by P. K. Whelpton and C. V. Kiser on the social and psychological factors affecting fertility dealt with the planning of fertility (*The Milbank Memorial Fund Quarterly*, Jan. 1947). The subjects for the study were about 1,000 couples in Indianapolis who were considered typical of a large segment of the urban population. It was found that nearly 90% of the couples attempted, by contraceptive measures, to control the number and spacing of their children. The attempts to plan fertility began at marriage for about two-thirds of the couples, and before the end of the first puerperium by about one-sixth of the couples. Of the couples who knew that they did not experience a period of sterility, about one-half of those attempting to prevent or postpone the first or second pregnancy reported themselves as successful; similar efforts in connection with third, fourth or fifth pregnancies were successful in three-fifths of the cases. Almost three-

Annual Birth Rates per 1,000 Total Population in Certain Countries in 1944, 1945 and 1946

Country	1944	1945	1946	Per Cent Change from 1945 to 1946
Netherlands	24.0	22.7	30.2	+33.0
France	16.4	16.2	20.6	+27.2
Italy	19.2	18.3	22.6	+23.5
Rumania	21.7	19.6	23.8	+21.4
Scotland	18.5	16.9	20.3	+20.1
Norway	19.6	18.8	22.5	+19.7
United States	20.2	19.6	23.3	+18.9
England and Wales	17.5	16.1	19.1	+18.6
Belgium	15.1	15.5	18.1	+16.8
Japan	29.4	23.4	26.5	+13.2
Canada	23.8	23.8	26.6	+11.8
Austria	*	14.5	15.9	+ 9.7
Australia	21.0	21.8	23.7	+ 8.7
New Zealand (excl. Maoris)	21.6	23.2	25.2	+ 8.6
Finland	21.1	25.1	27.0	+ 7.6
South Africa (white)	26.6	25.8	27.7	+ 7.4
Bulgaria	21.9	24.1	25.7	+ 6.6
Venezuela	35.9	36.8	38.5	+ 4.6
North Ireland	23.5	22.0	22.6	+ 2.7
Eire	22.2	22.5	22.9	+ 1.8
Denmark	22.6	23.5	23.4	− 0.4
Switzerland	19.6	20.1	20.0	− 0.5
Sweden	20.3	20.2	19.6	− 3.0
Chile	32.9	33.1	32.1	− 3.0
Portugal	25.0	25.7	24.7	− 3.9
Mexico	44.2	44.9	42.5	− 5.3

*Data not available.

quarters of the couples agreed that the most desirable period to bear the first child is from two to three years after marriage, and more than four-fifths agreed upon a like period for the spacing between children. Although almost all husbands were familiar with contraceptive methods before marriage, only one-third of the wives were then acquainted with such methods. Almost all the other wives, however, acquired such information before their second pregnancy. (*See* also CENSUS DATA, 1947.)

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Bismuth. World production of bismuth was estimated to have reached 1,870 short tons in 1942, but declined to 1,210 tons in 1945 and 1,040 tons in 1946. United States production is about one-half of the total and Peru about one-third, while Mexico and Canada account for most of the remainder. United States output was not reported but is said to have declined by 38% in 1946, because of extended strikes in the smelters and refineries from which most of the metal is recovered as a by-product. Reported outputs for 1946 are as follows, with 1945 figures in parentheses for comparison: Bolivia 30.8 (17.9) short tons, Canada 117.1 (95.0), China 1.5 (—), Mexico 82.7 (178.0), Peru 343 (339). (G. A. Ro.)

Black Markets. Black markets in the U.S. were essentially an outgrowth of price controls. When, except for sugar, rice and rent, these controls were removed in Nov. 1946, the background for the black market virtually disappeared. Rice and sugar were decontrolled in July and October, respectively, so that of all wartime price regulations, only rent control remained in effect at the close of 1947. Violations of price ceilings were thus possible only in rentals.

Although 85 areas or portions of areas were decontrolled during 1947, an estimated 14,000,000 dwelling units remained under control at the end of the year. Tenant complaints dropped 38% and compliance actions 67% between the first and last half of 1947, but over-ceiling violations continued on a large scale. Tenants appeared to be restrained from bringing suits for fear of blacklisting or other retaliation. Eviction actions, a means of bringing pressure on the tenant for increased rentals without a written lease, increased 65% over 1946.

U.S. Gray Market.—This successor to the black market had its origin in the shortages of many materials and end products which, in spite of record peacetime production levels, continued throughout 1947. In the popular mind it consisted of a form of profiteering in which speculators bought up all available supplies of scarce materials with the intention of selling at excessive prices.

Technically this definition is probably correct, but at least two other factors contributed to the price squeeze. To keep in business many small manufacturers found it necessary to rely on high-cost spot markets for their supplies, to engage in excessive cross hauling and to accept abnormal conversion costs. Also, in the absence of legal prohibition many exporters made it a practice to charge all the traffic would bear. Much was done to curb the latter practice in Dec. 1947 when congress permitted the Office of International Trade in the department of commerce to take prices into consideration in granting export licences.

Perhaps the most widespread of all gray markets was in building materials. In hearings before the Joint Committee on Housing many instances of profiteering in pig iron, nails, lumber, gypsum board, steel products and other items were reported. Maldistribution, however, accounted in some part for the high prices, as in the case of cast iron soil pipe.

Steel was likewise subject to profiteering. Estimates of the amount flowing into the gray market varied greatly from relatively negligible quantities to substantial amounts. The outside estimates apparently included high priced output of small mills forced to absorb uneconomic costs of spot supplies, excessive cross hauling and abnormal markets—the results of basic conditions and not gray marketeering. Unquestionably some customers of integrated producers preferred to dispose of part of their supplies in the gray market rather than use it themselves. When cognizant of this fact the producers took steps to cut off the customer, even when this involved the threat of legal action for contract violation. Complete policing, however, was impossible. Another contributing factor was the pressure exerted by some scrap dealers on small producers, many of whom were completely dependent on scrap for their raw mate-

OPEN-AIR TRANSACTION in Paris. Low incomes and the continued scarcity of food and other necessities kept black markets thriving in the French capital during 1947



rial. In return for scrap, the dealers forced the mills to furnish them specified quantities of finished steel products which frequently were diverted outside normal distribution channels at high prices.

Gray marketeers also were active in the purchase and sale of automobiles. Production of about 3,500,000 passenger cars in 1947 failed to satisfy demand, and second-hand postwar models continued to bring prices well in excess of those charged for new cars. Many real or pseudo consumers bought for resale through used car lots or individual offerings, and the ability of manufacturers to control the situation was limited. Where it was known that a dealer was profiteering, it was customary to take away his franchise. But since connivance between new and used car dealers was the exception rather than the rule, the results of such policing were relatively insignificant.

Gray markets in exports were probably no more prevalent than in domestic transactions, although some merchandise for prompt delivery was obtained through abnormal trade channels at excessive price levels. A limited number of domestic over-market sales apparently were consummated in lead, copper, aluminum and other scarce materials. (H. B. My.)

Continental Europe.—Black market operations in Europe in 1947 continued to involve directly almost every person able to pay the high prices demanded. In France the pattern was one common to all Europe: money was so unstable as to be undesirable in large quantities and therefore at all costs to be transformed into goods. In general, black market prices were two-and-a-half to three times higher than official prices. It was observed that the black market price fell rapidly as soon as a commodity was released from rationing. When control was taken off wine during the summer, the price for an ordinary bottle fell from about frs. 120 to frs. 45. Major black markets continued to exist in textiles and machinery.

Although conditions were better in the Scandinavian countries and in Switzerland, where there was some rationing but no real scarcity and consequently no black market, the position of the rest of Europe was much the same as that of France. In Italy, Spain and Greece, where many peasants were as badly off as townspeople, the contrast of the luxury provided by the black market with the near-starvation of the lower grades of workers was even more acute. In western Germany, under conditions of total scarcity and with a distrusted domestic currency, black market dealings were based primarily on barter. Here, more than anywhere in Europe, the cigarette was the real currency.

Great Britain.—During 1947 the black market in Great Britain continued to be active but did not openly flourish as it did on the European continent. Thefts of cloth, cigarettes and whisky continued to supply the black market. From time to time protests were made against greengrocery wholesalers and retailers for selling scarce fruit and vegetables either above the controlled price or on the understanding that a quantity of less desirable produce was also purchased. In the autumn illicit sales of young pigs took place and later the black market in livestock of all kinds was beginning to reach serious proportions. (G. Ln.)

Blood Plasma: *see* Physiology.
Blue Cross: *see* Insurance.

Bolivia. A land-locked republic in south central South America. Area, 416,040 sq.mi.; pop. (1945 est.), 3,596,000. The legal capital is Sucre (est. pop., 1946, 32,000); the real seat of government is La Paz (est. pop. 301,000). Other cities (with pop. estimates) include Cochabamba (80,000), Oruro (50,000), Potosí (40,000), Santa Cruz (32,800) and Tarija (27,000). Racial distribution is estimated to be 52.34% Indian, 27.5% mestizo, 13.08% white, 0.22% Negro and 6.85% unspecified. Religion: predominantly Roman Catholic. Presidents in 1947: Tomás Monje Gutiérrez, to March 10; Enrique Hertzog, from March 10.

History.—Developments in the early months of 1947 were a direct aftermath of the sensational revolt of July 1946 in which the dictator, Lieut. Col. Gualberto Villarroel, was overthrown and killed. Tension remained at a height in the closing months of 1946 despite the provisional government's promise of presidential elections early in January. In the campaign, as it shaped up at the end of 1946, Enrique Hertzog and Luis Fernando Guachalla emerged as the outstanding opposing candidates. The election was held as scheduled on Jan. 5. Five days later a four-man commission was named by the provisional regime to supervise a recount and certification of the vote, which apparently was quite close. Official results were announced Jan. 16: Hertzog, 43,581; Guachalla, 43,203. The ministry of government announced on Jan. 20 that inasmuch as neither of the two men had an absolute majority of the popular vote it would be necessary for congress to make a decision, as required by the constitution; supporters of the two were almost equally represented in congress.

Guachalla on Feb. 24 withdrew all claim to the presidency, clearing the way for congressional choice of Hertzog soon thereafter. On March 6 congress elected José Antonio Arce, leader of the liberal P.I.R. (Partido Izquierdo Revolucionario), as president of the chamber of deputies.

Hertzog was inaugurated on March 10 and announced an all-Socialist Republican Union cabinet. He lauded the Argentine government and pledged economic co-operation with that country. The government on May 1 arrested Víctor Andrade, an M.N.R. leader and former ambassador to the United States, along with 11 other leaders of the M.N.R., and deported them to Chile because of political plotting. A strike of miners at Bolivia's largest tin mine, beginning May 8, further complicated matters for the government; the mine reopened on government orders on May 24. Labour difficulties continued, however, and on Sept. 18, Pres. Hertzog declared a state of siege; the situation was especially confused in the Catavi area, where the so-called Catavi massacre of miners and their families had occurred in Dec. 1942.

The provisional government was forced to put down Indian raids on farms near Lake Titicaca on Jan. 10. A serious flood at Trinidad in northern Bolivia on Feb. 28 inundated about 50,000 sq.mi. and necessitated evacuation of 200 persons by plane. Bolivia adhered to the I.R.O. (International Refugee Organization) in May and agreed to contract for the immigration of 100 European refugee families.

Bolivia on Oct. 26 concluded an agreement with Argentina to arbitrate all mutual disputes.

Education and Religion.—The women's civic league of Bolivia began co-operation during the year with the ministry of education for organization of Sunday courses for workers in reading, writing, Bolivian history and geography, English, Spanish, arithmetic, religion and ethics, civil and criminal law and other subjects. The government during the year decreed pay raises (of from 5% to 65%) for all teachers.

Finance.—The theoretical monetary unit is the gold peso, valued at 20.6 cents, U.S. currency. Most transactions, however, are carried on in terms of bolivianos, valued at 2.36 cents (controlled price), U.S. currency, on Oct. 31, 1947. The extraordinary budget was approved by decree on June 27 in sum of 316,776,000 bolivianos; the ordinary budget for the year amounted to 1,156,000,000 bolivianos, the total of the two being 1,472,776,000. Government receipts by April 30 under the ordinary budget were only 66% of expenditures, but the budget director predicted that the deficit would be made up later in the year; revenues by that time were 122,536,000 bolivianos below expectations. The drop was blamed largely on declining tin exports, which had an unfavourable effect on the whole economic picture. The Central bank's dollar balance Jan. 1, 1947, was $1,707,000; the overdraft in dollars April 30 was $2,040,000. A report circulated at that time that a short-term loan of $2,500,000 would be obtained from the New York Federal Reserve bank. Pres. Hertzog on May 31 approved a law authorizing a $5,000,000 loan from a U.S. commercial bank. Another law in May raised the national government's credit limit with the Central bank to 1,300,000,000 boliv-

ianos plus a 200,000,000-boliviano mortgage loan against public construction. The law represented an increase of 600,000,000 bolivianos in the government's credit with the bank; the bank unsuccessfully tried to oppose effecting of the law. Accumulation of unprocessed applications for import licences totalled $50,000,000 by early in the year; the exchange shortage resulted partly from the drop in tin exports during negotiations for a new purchase contract.

Trade and Communications.—Imports in 1946 were 313,000 metric tons valued at $52,223,000; exports in the same year were 200,175 metric tons valued at $72,519,000. Imports of petroleum products in 1946 totalled 149,928 bbl. and included 138,325 bbl. of motor fuel. Economic relations with Argentina increased in various ways during the year. The two countries on March 8 signed an economic pact, which the Bolivian congress approved on May 26. On March 26 Bolivia signed a tin-sale agreement with Argentina. Presidents Hertzog and Juan D. Perón met at Yacuiba on Oct. 23 and signed a comprehensive trade pact, terms of which resembled those Argentina had negotiated with Chile. After long negotiations, Bolivia concluded a tin agreement with the United States in March, retroactive to Jan. 1; the basic price was increased from 67 to 76 cents per lb. The government also undertook negotiations for a new trade agreement with Peru.

A section of the railway from Corumbá, Brazil, to Santa Cruz (all of it to be part of a new transcontinental railway from Santos, Brazil, to Arica, Chile), was opened for 186 mi. east of Corumbá early in 1947; it was anticipated that the line would be completed as far west as San José during the third quarter of 1947. The government planned an early start on work on a La Paz-Beni railway to the north. Various highway projects were advanced irregularly during the year.

Agriculture.—A U.S.-Bolivian agricultural experiment station program passed the planning stage during 1947; it was designed to begin with experiments with forage crops both in the altiplano and at lower elevations. Brazilian seed was being used extensively in eastern Bolivia. The program planned to pay attention to wheat, barley and rye cultivation.

Mining.—Crude oil production in 1946 was 362,659 bbl. (1945: 381,554 bbl.); petroleum products marketed in 1946 totalled 362,981 bbl., including 250,615 bbl. of motor fuel. The government officially approved a petroleum development program on July 3, 1947, involving an Export-Import bank loan of $8,500,000 to Bolivian agencies, approval of contracts for new and extended pipe lines, construction of refineries at Cochabamba and Sucre, etc. Labour difficulties during the year led the government to prohibit closing of any mines for one year.

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Bombing: *see* ATOMIC ENERGY; MUNITIONS OF WAR.
Bonaire: *see* CURAÇAO.
Bonds: *see* STOCKS AND BONDS.

Book-Collecting and Book Prices.

There was a marked increase in the collecting of pure Americana and historical works during 1947, and a concurrent decrease in the collecting of literature in the United States. Prices showed the effect of this movement, which was sufficiently strong to deserve more than the designation of a mere trend. Symptomatic were the prices paid in New York city during October for the books of Herbert S. Auerbach, with the following prices suggesting the whole: W. Clayton's *Latter-Day Saints' Emigrants' Guide* (1848), $1,150; Joseph Smith's *A Book of Commandments for the Government of the Church of Christ* (1833), $1,250; Joseph Cain and Arieh C. Brower's *Mormon Way-Bill* (1851), $3,400. Increased shipments of material from Europe to the United States caused prices in the U.S. market for such material to show definite decrease.

The most notable event of the year was the sale at Parke-Bernet galleries in New York city (Jan. 28) of the Prince-Crowninshield-Stevens-Brinley-Vanderbilt-Whitney copy of the *Bay Psalm Book,* printed by Stephen Daye at Cambridge, Mass., in 1640. It was knocked down to the Rosenbach Company for $151,000, thus establishing the highest price ever paid at public sale for a printed book. It was purchased for Yale university libraries, the transfer being marred by a financial misunderstanding which was not satisfactorily explained publicly by either of the principals in the transaction. On another plane was the price realized for a holograph note of Herbert Hoover, written while president of the United States, which was sold at Samuel T. Freeman & Co. galleries (Philadelphia) for the astonishing price of $550. Another noteworthy price was realized at Sotheby's (London) on March 11 when a Gutenberg Bible (vol. 1 only) brought £22,000.

The European market continued turbulent with prices based on those of commodities in the black market. As for the British market, Sir D'Arcy W. Thompson summarized it by declaring that the price of better old books had risen greatly, to the point where the bibliophile-scholar could no longer hope to possess books which he could well afford 30 or 40 years before. Sir D'Arcy attributed this condition to economic causes, taste and fashion, and the great increase in public libraries, especially in the United States.

Among bibliographical publications were: *The New Colophon: A Book Collectors' Quarterly,* edited by John T. Winterich, Frederick B. Adams, Jr., and Elmer Adler; *Dakota Imprints, 1858–1889,* edited by Albert H. Allen; *Carrousel for Bibliophiles,* edited by William Targ; Colton Storm and Howard Peckham's *Invitation to Book Collecting;* the Grolier Club's *One Hundred Influential American Books Printed Before 1900.* Worthy of inclusion in this list was the catalogue of books and manuscripts issued by Bernard Quaritch, Ltd. (London) to commemorate the 100th anniversary of the establishment of the firm, containing a biographical study of Quaritch written by his daughter, Charlotte Quaritch Wrentmore.

In December, the R. R. Bowker company, publishers to the U.S. book trade, announced plans for the establishment of a magazine, *Antiquarian Bookman,* under the editorship of Sol. M. Malkin, devoted exclusively to antiquarian books and related literary material and designed for antiquarian book dealers, librarians and collectors. (J. BK.)

Book Publishing.

The increase of title production in the U.S. which began after the close of World War II continued in 1947 with a total of 9,182, or 1,447 more titles than appeared in 1946. Greatest increase was shown in the field of fiction, followed in order by those of religion and theology, philosophy and ethics, science and law. Books on fine arts represented the single class with title production on a decline, but this may have been a result of increased costs as well as paper shortages. The five leading publishing houses of 1947, as in the previous year, were Doubleday (and subsidiaries) with 447 titles, followed by Macmillan (420), Harper (with Hoeber) (241), Grosset & Dunlap (232) and McGraw-Hill (with Whittlesey House) (214). Book reviewers and dealers deplored the flood of new titles appearing in November which resulted in a seeming neglect on the part of the critics and possibly lowered sales.

There was a marked increase (about $6,500,000) in book exports from the U.S. to supply an almost insatiable market in Europe and Asia where so many libraries were sadly depleted or totally destroyed.

Table I.—*Publication of Books in the U.S., 1947 and 1946*

International Classification	1947 New books	1947 New editions	1947 Total	1946 New books	1946 New editions	1946 Total	Net Change
Philosophy, Ethics	240	50	290	164	28	192	+98
Religion, Theology	560	70	630	479	51	530	+100
Sociology, Economics	331	56	387	284	27	311	+76
Law	158	56	214	98	26	124	+90
Education	166	28	194	128	19	147	+47
Philology	119	37	156	76	32	108	+48
Science	304	138	442	244	106	350	+92
Technical & Military Books	299	94	393	261	76	337	+56
Medicine, Hygiene	187	135	322	195	105	300	+22
Agriculture, Gardening	73	24	97	37	18	55	+42
Domestic Economy	158	43	201	116	28	144	+57
Business	163	65	228	166	50	216	+12
Fine Arts	224	25	249	236	31	267	−18
Music	77	17	94	54	17	71	+23
Games, Sports	127	41	168	110	24	134	+34
General Literature	348	52	400	283	54	337	+63
Poetry, Drama	463	48	511	392	49	441	+70
Fiction	1,307	659	1,966	1,134	588	1,722	+244
Juvenile	834	99	933	798	79	877	+56
History	345	68	413	306	53	359	+54
Geography, Travel	164	32	196	103	30	133	+63
Biography	455	63	518	406	50	456	+62
Miscellaneous	141	39	180	100	24	124	+56
Total	7,243	1,939	9,182	6,170	1,565	7,735	+1,447

Best Sellers.—Topping the 1947 list of best sellers in fiction was Laura Z. Hobson's *Gentleman's Agreement,* with an over-all sale among stores and book clubs of more than 1,000,000 copies. Second highest on the fiction list was *Prince of Foxes,* by Samuel Shellabarger, with an over-all sales total of 832,000. The bookstore sales for each were 172,615 and 107,000, respectively. They were followed, in third place, by Sinclair Lewis' *Kingsblood Royal* which, like *Gentleman's Agreement,* dealt with inter-racial relations. Next in order of total sales were *The Moneyman* by Thomas B. Costain, *Lydia Bailey* by Kenneth Roberts, *The Wayward Bus* by John Steinbeck, *The Miracle of the Bells* by Russell Janney, *The Vixens* by Frank Yerby, *House Divided* by Ben Ames Williams and *East Side, West Side* by Marcia Davenport; the last two titles were sold only through the bookstores. Rated by bookstore sales alone, *The Miracle of the Bells* in its second year as a best seller took first place and *Prince of Foxes* (second on the above list) placed last.

John Gunther's *Inside U.S.A.,* with 187,000 copies in print, took first place on the 1947 best-seller list for nonfiction, including store and book club sales. It was followed in second place by *Human Destiny* by Pierre Lecomte du Noüy. Joshua Liebman's *Peace of Mind,* a best seller for two years running, was in third place. It was followed, in order of total sales, by the *Information Please Almanac, 1947, Together* by Katherine T. Marshall, *A Study of History* by Arnold J. Toynbee, *The Egg and I* (a best seller for the third consecutive year) by Betty MacDonald, *Speaking Frankly* by James F. Byrnes, *The American Past* by Roger Butterfield and *The Fireside Book of Folk Songs.* On the basis of bookstore sales alone, *Peace of Mind* was first among nonfiction best sellers, having sold about 270,669 copies exclusive of book club and foreign sales. (X.)

Great Britain.—Book publishing in Great Britain, during 1947, continued to a great extent to follow the general pattern imposed upon it during World War II. In the first 10 months of 1947, the total number of new titles published in Great Britain was 10,653, of which 1,934 were reprints and new editions (comparative total figures for previous full years were: *1939,* 14,904; *1940,* 11,053; *1941,* 7,581; *1942,* 7,241; *1943,* 6,705; *1944,* 6,781; *1945,* 6,747; *1946,* 11,411).

In the first 6 months of 1947 the volume of business amounted to £13,370,661 (compared with £12,293,692 for the corresponding period of 1946). Since the trade in books during the second half of any year is invariably greater than in the first half, it was expected that the final figure for the whole of 1947 would be greater than the 1946 figure of £26,961,622, which was itself nearly £5,000,000 greater than the 1945 figure. The prewar average annual total was about £10,000,000. During the first half of 1947, the export trade amounted to £3,360,830, compared with £3,095,929 during the corresponding period of 1946.

Despite these considerable increases British book publishers were unable to supply more than a fraction of the quantity of essential books required. In May 1947 the vice-chancellor of Cambridge university, supported by the heads of colleges, appealed in the *London Times* to all former Cambridge students to relieve the book shortage at the university by lending or selling to their old colleges such textbooks and standard works as they might still possess and could spare. At Jan. 1947 the book publishers' paper ration stood at 80% of their prewar consumption, plus an additional 10% for export. In March the basic ration was cut to 70% and in May was further reduced to 60%. Provided a publisher undertook to devote the same proportion of his basic ration as hitherto to the production of educational books or to export he was eligible to receive an additional 20% for these special purposes. Restrictions imposed in Sept. 1947 on the importation of foreign books into Great Britain further aggravated the shortage of technical books.



PROFESSOR ARNOLD J. TOYNBEE, English scholar, in an informal discussion with students at Bryn Mawr college, Pa. A one-volume abridgment of his six-volume *A Study of History,* published in March 1947, became a leading best seller of the year

Europe.—In France, although the devaluation of the franc and the exorbitant cost of imported paper inflated the price of books, output in titles approached prewar level. In each of the zones of Germany, general publishing went forward, but the main effort was concentrated upon providing the denazified school books that were required in prodigious quantities. Polish and Czechoslovakian book publishing, which had practically ceased during the years of occupation, except for "permitted" publications, was notably restored, while in the Netherlands and Belgium, from all appearances and accounts—and still more in Italy—book production had fully caught up with, and possibly even outrun, readers' requirements. In Switzerland and in the Scandinavian countries book publishing was marked by its considerable volume and admirable technical quality.

(*See* also AMERICAN LITERATURE; ENGLISH LITERATURE.)

(E. SE.)

Books: *see* BOOK PUBLISHING; CHILDREN'S BOOKS; *see* also under AMERICAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; etc.

Book Sales: *see* BOOK-COLLECTING AND BOOK PRICES; BOOK PUBLISHING.

Borneo: *see* NETHERLANDS INDIES; NORTH BORNEO.

Boron Minerals. The United States output of boron minerals made a new record high in 1946 with 430,689 short tons, against 325,935 tons in 1945. This figure is more than a third greater than the previous high of 1937 but the boron content had increased by only 7%. Imports, which had been lacking for 3 years previously, rose from 1,344 lb. in 1945 to 100,567 lb. in 1946. U.S. exports of borax dropped from a high of 154,052 tons in 1937 to a low of 27,118 tons in 1943, but had recovered to 53,303 tons in 1946. About 90% of the world output is produced in the United States. (G. A. RO.)

Boston. Boston, the capital of Massachusetts and the ninth city in the United States in population, is located on the Atlantic seaboard at the head of Massachusetts bay. It had a population of 770,816 by the 1940 federal census and a land

area of 43.9 sq.mi.

Mayor James M. Curley's appeals from the findings of the federal court in 1946 were not sustained and he started serving the sentence imposed by the court on June 26. Under a special statute, City Clerk John B. Hynes became temporary mayor during the absence of the mayor. This act gave Hynes permanent tenure as city clerk at the end of his service as temporary mayor and permitted Mayor Curley to receive his regular salary. Mayor Curley was pardoned by President Harry S. Truman Nov. 26 and returned to his office immediately.

Loan orders authorizing expenditure of $27,000,000 for veterans' and low-cost housing were adopted by the city council. Subsequently, the housing authority awarded contracts totalling $10,000,000 and providing for the erection of 434 buildings containing 851 apartments. A loan of $5,000,000 was issued for the establishment of off-street parking facilities, and three locations in downtown Boston were taken and conversion of these areas into parking lots started. The council authorized installation of 5,000 parking meters throughout the city and the traffic commission prepared for installations in the Back Bay. The construction of a garage under Boston common was deferred because of court action claiming use of the common for garage purposes would be in violation of the terms under which it was originally secured.

The Metropolitan Transit authority, a political subdivision of the commonwealth, exercised the option provided in the 1931 Boston Elevated Public Control act, paid over to the company cash equal to $85 per share for all outstanding common stock and became invested with the assets, property and franchises of the company and assumed all its outstanding indebtedness and liabilities. The transit commission started construction on an $8,500,000 rapid transit project in East Boston.

Pay-roll costs were sharply expanded by legislative acts authorizing (1) a 48-hr. work week for firemen, (2) one day off in six for patrolmen, (3) substantial increases to school teachers, (4) a 40-hr. work week for employees, except police, firemen and teachers and (5) equal pay for teachers.

The 1947 tax rate was $46.50 (1946—$42.00) on an assessed valuation (real and personal) of $1,558,610,900, an increase of $22,225,300. Budget: (city and county) $61,802,673.82, an increase of $8,000,000; (schools) $19,675,134.99, an increase of $2,100,000. School enrolment decreased 2½%. In the period Jan.–Nov., bank clearings increased 10.7%, bank debits increased 4.7%, department store sales increased 6.9%, manufacturing employment increased 4%, manufacturers' payrolls increased 14%. (C. J. Fx.)

Botanical Gardens: *see* BOTANY.

Botany. During 1947 botanical activity returned to prewar levels, despite a shortage of qualified instructors and investigators. A survey of the requirements and of the availability of botanists in the U.S.A., conducted by the Botanical Society of America, indicated that by 1950 there would be a 33% shortage of Ph.D.s and a 46% shortage of M.A.s in botany.

Several international congresses of interest to botanists were held during the year. These included the sixth International Congress for Experimental Cytology in Stockholm, Sweden, and the fourth International Congress of Microbiology in Copenhagen, Denmark. Several new journals made their initial appearance, including *Heredity,* published in England, and *Evolution,* published in the United States.

Most botanical societies in the United States held their annual meetings in Chicago, Ill., in December, in connection with the American Association for the Advancement of Science. A botanist, Professor E. C. Stakman, became president-elect of the A.A.A.S. At these meetings, a sufficient number of botanical and zoological societies voted to join the proposed American Institute of Biological Sciences to ensure the organization of this agency.

All phases of botanical research showed activity during the year. Progress was greatly accelerated by the use of newly developed techniques. The electron microscope began to play a significant role in botanical investigation. The greatly increased availability of radioactive isotopes made possible more extensive use of these substances in the study of plant metabolism. Plant tissue-culture techniques were further improved and were extensively employed in physiological and genetical investigations. The growing realization of the important biological effect of many chemical substances led to a sharp rise in the number of investigations in this field. With the assistance of the newly established Chemical-Biological Co-ordination centre of the national research council, a number of workers began an extensive study of the structure of organic compounds in relation to their biological effects.

Research Projects.—J. T. Buchholz developed methods for the study of cell structure by electron microscopy and described details of chromosome and mitochondrial structure in various tissues.

M. S. Brown reported results of the Bikini atomic bomb tests on chromosome structure in cotton. Induced abnormalities included the presence of multivalents, loss of a chromosome and reduction in chiasma frequency.

S. Aronoff, A. Benson, W. Z. Hassid and M. Calvin exposed barley seedlings to $C^{14}O_2$ for 60 min. in the light and found the radiocarbon to have been incorporated not only into sugars but also into a variety of other compounds, including amino acids, proteins, cellulose and lignins.

C. P. Swanson found that exposure to infra-red before or after X-raying increased the number of induced structural changes in the chromosomes in *Tradescantia* microspores.

A. C. Hildebrandt and A. J. Riker showed that tissues of higher plants grown in culture respond differently to different growth-regulating substances. They suggested that tissue cultures might become valuable as assays of growth regulators.

N. F. Kent and R. A. Brink found that addition of casein hydrolysate or tomato juice to the medium in early stages of barley embryo culture prevented premature differentiation, thus ensuring larger, more robust plants.

A. H. Sparrow and M. R. Hammond reported the presence of Feulgen-positive bodies in the cytoplasm of meiotic prophase stages of microsporecytes of eight genera of plants. This contradicts earlier concepts according to which Feulgen-positive desoxyribose nucleic acid is confined to the nucleus.

R. S. deRopp showed that bacteria-free crown-gall tumour tissue, growing on tobacco, tomato or sunflower, generates a diffusible substance capable of stimulating growth of normal tissue and converting it into tumour tissue.

Sterling Emerson produced a mutant strain of *Neurospora* which requires sulfonamides for growth. T. Kushinck, C. I. Randle, C. T. Gray and J. M. Birkeland similarly found strains of certain bacteria which require the antibiotic streptomycin for growth.

C. C. Lindegren and C. Raut found that inability of mutant yeast to grow in media deficient in a specific vitamin is not absolute, but may be a function of the concentration of that vitamin, or of the presence or absence of certain mineral constituents.

D. I. Macht showed that blood sera from human patients with different diseases have different effects upon the growth of *Lupinus,* thus offering a possible new method for the differential diagnosis of these diseases. (*See* also BIOCHEMISTRY; GE-

NETICS.)

Books published during the year include: *The Fungi,* by F. A. Wolf and F. T. Wolf; *Introduction to Paleobotany,* by C. A. Arnold; *Diseases of Crop Plants,* by J. G. Dickson; *Radioactive Traces in Biology,* by M. D. Kamen; *Trace Elements in Plants and Animals,* by Walter Stiles; *Hormones and Horticulture,* by G. S. Avery, Jr., and B. B. Johnson; *Nature and Prevention of Plant Diseases,* by K. Starr Chester; *Introduction to Plant Anatomy,* by A. J. Eames and L. H. MacDaniels.

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Arboretums and Botanical Gardens.—The National arboretum in Washington, D.C., was reactivated by the appointment of a special arboretum advisory committee by the secretary of agriculture. This committee, composed of 16 citizens, was given the responsibility of drawing up a statement of scope and objectives for the National arboretum, and was most active during 1947; it made its report to a congressional committee and asked for specific funds to carry out the projected plans. Frederic P. Lee of Bethesda, Md., was designated chairman of this committee.

The Arnold arboretum of Harvard university received two gifts of approximately 150 ac. of land in Weston, Mass., and nearly $1,000,000 in endowment. A rearrangement of its policies enabled the Arnold arboretum to grow only meritorious plants on its grounds at Jamaica Plain, Mass., and all other plants in permanent nursery rows on the Weston property about 12 mi. away. This greatly reduced the maintenance costs of the arboretum proper. The Morton arboretum of Lisle, Ill., had excellent success with its classes for homeowners in landscape planning and also in various types of art work dealing with plants. Its program for training Chicago schoolteachers in nature study proved a tremendous success, and it was being expanded, including many classes for children throughout the summer.

The New York Botanical garden continued the extensive drive for funds for new buildings. One of the innovations in its rather extensive educational program was a special radio program initiated on a weekly basis. Dr. P. P. Pirone, formerly of New Jersey Agricultural Experiment station, was appointed to the position of plant pathologist. The University of Washington arboretum at Seattle, Wash., reorganized its Arboretum foundation and the method by which this active group of private citizens works for the arboretum's interests was further clarified. The objectives, plans and history of the Cornell plantations (Cornell university, Ithaca, N.Y.) were clearly outlined and discussed in book form, *The Cornell Plantations, A History,* by Ralph S. Hosmer.

The American Association of Botanical Gardens and Arboretums held its annual meeting in San Francisco, Calif.; past accomplishments and future plans were discussed. One of its publications during the year, *The Arboretums and Botanical Gardens of North America,* by Donald Wyman, Arnold arboretum, Harvard university, discussed in detail all the 90 "gardens" in this category, together with others that had been discontinued and 26 additional "gardens" in 19 states that had been established or were about to be established. (*See* HORTICULTURE.) (D. WN.)

Bowles, Chester (1901–), U.S. businessman, government official, author and economist, was born in Springfield, Mass., on Aug. 5. A graduate of Yale, 1924, he formed with William Benton in 1929 the advertising firm of Benton and Bowles and became chairman of its board in 1936. He resigned in Jan. 1942 to become tire-rationing director and later Office of Price Administration director for Connecticut. On July 15, 1943, he was appointed national OPA general manager and, on Oct. 25, OPA administrator. For three years he fought vigorously to maintain and popularize effective price, rent and rationing controls. On Feb. 14, 1946, President Harry S. Truman appointed Bowles director of the Office of Economic Stabilization. In this post he exercised supervisory authority over prices, wages and their interrelations with agricultural and industrial production. He also carried on in the spring of 1946 a bitter fight for one year's extension of price controls after July 1946. On June 28, however, he resigned in protest against congressional weakening of the price control act and urged President Truman to veto the new bill. He predicted that it would permit sharp increases in living costs and a grave danger of inflation. In the autumn of 1946 he was active in Connecticut state politics but failed to receive the Democratic nomination for governor. In 1947 he attended the Paris United Nations Educational, Scientific and Cultural organization conference as an alternate U.S. delegate; lectured widely and wrote articles on current economic problems; served as a consultant to the United Nations and directed the economic report of Americans for Democratic Action. His book, *Tomorrow Without Fear,* published in June 1946, urges annual federal expenditures sufficient to assure full production and argues for greater equality in income distribution to widen mass markets. In 1947 Trygve Lie appointed him chairman of the International Committee of the United Nations Appeal for Children, a voluntary nongovernmental group. In this capacity he left for Europe in Dec. 1947, for an extended survey of the committee's organization in Europe. (R. R. R. B.)

Bowling. Junie McMahon of Chicago scored one of the infrequent "doubles" of American Bowling congress history by winning both the singles and all-events of the 1947 tournament. He scored 247–248–245—740 to win the singles crown in competition at Los Angeles, Calif., and collected the all-events title with 1,965. The doubles division went to Edward Doerr, Jr., and Len Springmeyer of St. Louis, Mo., with 1,356. The Eddie and Earl Linsz team of Cleveland, O., won the five-man event with 3,032. Members of the team were: Fred Drury, Samuel Pantelione, Charles Whiteman, Steve Pisesalko and Theodore Miller.

Andy Varipapa, Hempstead, N.Y., veteran, repeated as national individual match game champion, defeating Joe Wilman of Berwyn, Ill., by 17 pins. Stanley Slomenski of Newark, N.J., was third.

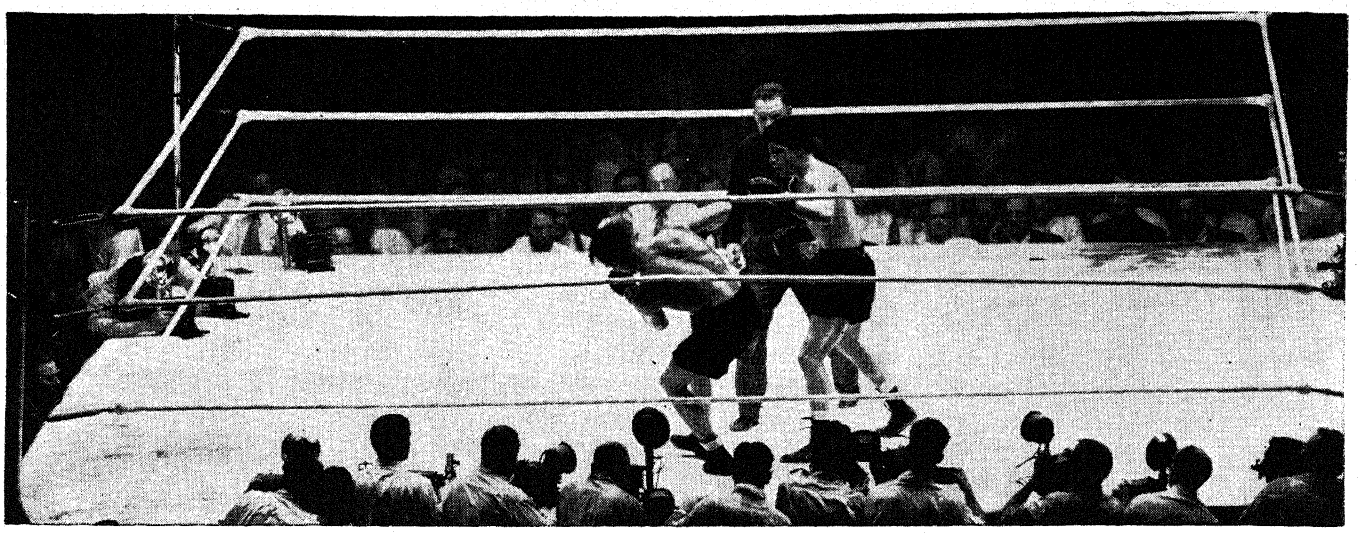
In the women's international congress championships, winners were: Marge Dardeen of Cincinnati, O., all-events; Candice Miller and Emma Beard of Fort Wayne, Ind., doubles; Kornitz Pure Oil of Milwaukee, Wis., team. (M. P. W.)

Boxing. Professional boxing in the United States started under a cloud in 1947. It ended with a roar of disagreement over a decision in a world heavyweight championship match. Between these periods, spread almost over the year's span, the sport was subjected to a legal investigation in its richest centre, New York; four champions retained their titles, two title-holders were dethroned; another title was declared forfeited for inability of the champion to make his class weight, only to be later restored, and the sport generally underwent a sharp dip from the standpoint of patronage and gate receipts. Tragedy presented itself when, for the first time in modern history, a challenger died following a championship bout.

The investigation of alleged charges that he failed to report a proffered bribe to throw a bout against Reuben Shank in 1946 led to the revocation of the licence of Rocky Graziano in his native New York. Ineligible in his own state, Graziano knocked out Tony Zale of Gary, Ind., in the sixth round of a bout held at Chicago Stadium, Chicago, Ill., July 16, to become world middleweight champion, despite his ineligibility. The bout drew record indoor receipts of $422,918, paid by a crowd of 18,547, which saw Graziano avenge a similar defeat he had suffered at the hands of Zale in 1946, and provided the most thrilling ring spectacle of the year.

Subsequently, publicity was given an unfavourable army record of Graziano's, with the result that the champion found himself disqualified in every important boxing centre. He was still vainly waiting for reinstatement when the year ended, without having once defended his title.

Ray Robinson, world welterweight champion, was also under investigation. He was exposed to official inquiry for failure to report an alleged bribe of $25,000 not to make weight for a bout. The investigation ended with Robinson fined $500 and suspended for 30 days. It was in Robinson's sole defense of his title that tragedy occurred. He knocked out Jimmy Doyle (Delaney), Calif., in the eighth round of a bout at Cleveland, Ohio, July 24, and the following day Doyle died in a Cleveland



ROCKY GRAZIANO (right) sending Tony Zale into the ropes during the world middleweight championship bout at Chicago on July 16, 1947. Graziano became the new titleholder by a technical knockout in the sixth round

hospital. The fatality led to reform in the examination of boxers, orally and physically, which took root in Cleveland and swept the country.

Robinson knocked out Chuck Taylor, Coalport, Pa., in the 6th round of a scheduled 15-round bout Dec. 19, at Detroit, Mich., and following the bout Taylor was removed to Woman's Hospital, Detroit, for observation for a kidney complaint. He was released the following day. The bout drew receipts of $83,522, an indoor record for Michigan.

Joe Louis made one defense of his world heavyweight title and narrowly missed being dethroned. Against Jersey Joe Walcott, in Madison Square Garden, New York, Dec. 5, Louis, far below the form which established him as one of boxing's greatest fighters, retained his title after 15 rounds, on a split decision. The vote was 2 to 1 in favour of the champion. The decision created a furore among onlookers who paid receipts of $216,477, a new record for Madison Square Garden, who disagreed violently after having seen Walcott floor Louis in the first round for a one-count, and again in the fourth round for a seven-count. The Madison Square Garden former receipts record was $201,613, made by Jack Delaney and Jim Maloney in 1927.

Disappointed with his own showing, Louis frankly admitted that his reflexes had dimmed with the passing of the years, and, insisting on a return bout against Walcott for the summer of 1948, declared it would be his last ring battle.

Gus Lesnevich, Cliffside Park, N.J., retained his world light-heavyweight title when he knocked out Billy Fox, Philadelphia, Pa., in the tenth round of a bout held in Madison Square Garden, Feb. 28.

A situation of confusion which involved the world lightweight title was settled when Ike Williams, Trenton, N.J., knocked out Bob Montgomery, Philadelphia, in round 6 of a scheduled 15-round bout at Philadelphia, Aug. 4. Until this bout Montgomery was recognized by the State Athletic commissions of New York and Pennsylvania as world lightweight champion, and Williams was recognized as title-holder by the National Boxing association, having jurisdiction in more than 30 other boxing localities. A crowd of 30,500 saw the match, paying receipts of $178,301.

Willie Pep, Hartford, Conn., survived an aeroplane accident in which he sustained a broken leg and multiple bruises, to come back from this harrowing experience and defend his feather-weight title by knocking out Jock Leslie, Flint, Mich., in the 12th round of a bout held at Flint, Aug. 22. It was Pep's only title match of the year.

Manuel Ortiz, El Centro, Calif., Mexican, lost his world bantamweight title to Harold Dade, Los Angeles, Calif., in Los Angeles, on a 15-round decision, Jan. 7, but came back March 12 to regain the title from Dade on decision in a return bout. He twice defended the championship, winning a 15-round decision over David Kuikong Young, Honolulu Chinese, April 30, and beating Tirso Del Rosario, Filipino, on a 15-round decision at Manila, P.I., Dec. 20.

When Jackie Paterson, Scotland, 3 times failed to make the required 112-pound weight as world flyweight champion for his title match against Dado Marino, Hawaii, at Glasgow, Scotland, causing three postponements of the bout, the British Board of Boxing Control withdrew championship recognition from him. However, Paterson carried his case to court, won a verdict, and the B.B.B.C. rescinded its action, giving Paterson until March 31, 1948, to defend his title or surrender it, under B.B.B.C. rules.

Amateur boxing was conducted on a scale that compared with previous years. A heavy entry list forced the extension of the Amateur Athletic union's national championship tournament over a five-day period. Syracuse university won the Eastern Intercollegiate championship tournament and in the National Collegiate Athletic association championships Gerald Auclair of Syracuse won the 125-pound class title. The University of Wisconsin captured two individual championships in this tournament when Cliff Lutz won in the 145-pound division and John Lendenski was victorious in the 165-pound class. (J. P. D.)

Boy Scouts. The theme for 1947 for the Boy Scouts of America was "Scouts of the world building for tomorrow." Scout activities were centred around this theme. Scouts helped their brother scouters abroad through the World Friendship fund to which they contributed. The money was used to purchase camping equipment, books and other scouting necessities. Through the "shirts off our backs" program the scouts gave used uniforms and good, worn scouting equipment which was sent to scouts overseas.

The 37th annual meeting of the National council was held in New York May 27–28. More than 1,000 delegates and friends of scouting took part.

An outstanding event was the 6th World Jamboree, called "The Jamboree of Peace" held at Moisson, France, in August. The Boy Scouts of America delegation consisted of 1,100 boys and leaders from all over the United States. The United States government made available a government transport ship to take the boys to and from the jamboree. All expenses were defrayed by the Boy Scouts of America.

This was followed by the 11th International National Scout Conference of Scout Leaders, including representatives from all over the world.

The 8th National Training Conference of Professional Scout Leaders took place in Bloomington, Ind., in September where

a five-year program was developed. In the following months a Scout Round-Up was held giving new boys opportunity to join scouting units. The scout program includes cub scout activity for boys 9-11 years old, emphasizing skills and fun around the home under the leadership of "Den Mothers" and "Den Chiefs" (older scouts). Boy scouts are 12 years and older organized in scout troops and other units. They camped in great numbers during 1947, because scouting is an outdoor program emphasizing woodcraft and outdoor skills. The third branch of the scout program is for young men of 15 years and older and features air scouting, explorer scouting and sea scouting. The largest gain in any branch of scouting during the year was made in senior scouting.

As usual, scouts co-operated with the national, state and local governments in many service projects. These included collections of all kinds of materials, distribution of pamphlets and other material, and helping the police in safety work, fire prevention and conservation projects.

There was an increase in membership over the previous year. Nov. 30 figures showed the following:

Total boys 1,534,164
Total leaders 542,141
Grand total membership 2,076,305
Total units 66,743. (L. W. BA.)

Great Britain and Europe.—International brotherhood was the keynote of scouting activities in 1947. In August 30,000 scouts from 70 countries camped together for two weeks at the 6th World Jamboree held at Moisson, France. The success of this gathering proved that the organization had emerged from the war stronger and more vital than ever. International friendship was also promoted by correspondence and exchange visits under the "linking-up scheme." About 170 British groups camped with their "partner" groups in various European countries, and many groups from Europe camped in Britain.

In Great Britain the fine summer ensured an extremely successful camping season. A party of 20 senior scouts went to Newfoundland in September with the ninth expedition of the Public Schools Exploring society, to explore an area of unmapped and trackless country.

A memorial to Lord Baden-Powell, the founder of the scout movement, was unveiled in Westminster abbey by the duke of Gloucester on St. George's day, April 23. (E. G. W. W.)



U.S. BOY SCOUTS ready to sail for France where 30,000 scouts from 70 nations assembled for the 6th World Jamboree at Moisson in Aug. 1947

Bradley, Omar Nelson (1893–), U.S. army officer, was born in Clark, Mo., on Feb. 12. He was graduated from the U.S. Military academy in 1915 and later from the Infantry school, the Command and General Staff school and the Army War college. Early in 1941 he was commandant of the Infantry school, and in Feb. 1943 he was sent to North Africa where he assumed command of the 2nd corps, which he led to victory at Tunis and Bizerte. In Jan. 1944 Gen. Dwight D. Eisenhower disclosed that Bradley had been made commanding general of the U.S. ground forces for the invasion of Europe. When the invasion started, June 6, Bradley headed the U.S. 12th army group. On Aug. 30 it was disclosed that General Bradley had been given equal status with Gen. Bernard L. Montgomery. The U.S. armies under Bradley's command hammered their way into the Siegfried line by the winter of 1944. After recovering from the nazi counterblow in the Ardennes forest, Bradley's forces overran a large part of the reich by the close of the war in Europe. He was made a full general (temporary) on March 13, 1945, and was named (June 7, 1945) by Pres. Harry S. Truman as administrator of veterans' affairs. On Nov. 21, 1947, the president announced a new promotion for Bradley—that of army chief of staff—to become effective when General Eisenhower left the army to become president of Columbia university.

Brazil. The second largest nation of the western hemisphere and the most populous Latin country in the world; language: Portuguese; religion: predominantly Roman Catholic, with about 1,000,000 Protestants (including their families) of various denominations; capital: Rio de Janeiro (est. pop. 1947, 2,052,672); president: Gen. Eurico Gaspar Dutra.

Brazil's area of 3,286,170 sq.mi. is second only to that of Canada in the western hemisphere. The population (1940 census: 41,570,341) was officially estimated at 48,000,000 as of Dec. 31, 1947; 13.2% was classified as urban, and 77% as rural. The capital, Rio de Janeiro (coterminous with the federal district), is the largest city in Brazil and the second largest in Latin America.

At the time of the latest census (1940) there were 1,285,000

Area and Population of States and Territories of Brazil, 1947
(Latest estimates available as published by the Instituto Brasileiro de Geografia e Estatística)

State or territory	Area (sq. mi.)	Pop. (Dec. 31, 1947)	Capital
North			
Acre (terr.)	57,153	92,814	Rio Branco
Amazonas	595,474	492,908	Manaus
Rio Branco (terr.)	97,438	14,010	Boa Vista
Pará	470,752	1,074,062	Belém
Amapá (terr.)	55,489	25,082	Macapá
Guaporé (terr.)	96,986	24,696	Pôrto Velho
Northeast			
Maranhão	133,674	1,437,185	São Luís
Piauí	94,819	951,322	Teresina
Ceará	57,371	2,433,027	Fortaleza
Rio Grande do Norte	20,236	893,630	Natal
Paraíba	41,591	1,654,901	João Pessoa
Pernambuco	38,315	3,126,660	Recife
Alagoas	11,031	1,106,888	Maceió
Fernando de Noronha (terr.)	7	1,251	.....
East			
Sergipe	8,321	631,025	Aracajú
Baía (Bahia)	204,393	4,558,933	Salvador
Minas Gerais	228,469	7,838,179	Belo Horizonte
(Serra dos Aimorés)*	...	77,951	.....
Espírito Santo	17,688	872,790	Vitória
Rio de Janeiro (state)	16,372	2,150,080	Niterói
Distrito Federal	451	2,052,672	Rio de Janeiro
South			
São Paulo	95,459	8,365,359	São Paulo
Paraná	82,741	1,438,473	Curitiba
Santa Catarina	31,118	1,371,061	Florianópolis
Rio Grande do Sul	110,150	3,863,799	Pôrto Alegre
Central-West			
Goiaz	225,266	961,577	Goiânia
Mato Grosso	485,405	489,665	Cuiabá

*This area is in dispute between the states of Minas Gerais and Espírito Santo.

foreign-born residents: 354,000 Portuguese, 285,000 Italians, 148,000 Spaniards, 141,000 Japanese, 71,000 Germans, 41,000 Polish and 245,000 citizens of other countries. Of the total Brazilian population, 26,200,000 declared themselves of the white race, 8,800,000 mulattoes, 6,000,000 Negroes, 250,000 of the yellow race.

Political History.—During 1947 a tendency was observed among the political parties to crack up along the old state political lines. At the end of the year this disintegration had gone so far as to leave President Dutra without the backing of a clear-cut majority in the congress. Portions of the Social Democratic party, the majority party which elected him, had veered off so much as to favour measures in direct contradiction to the general policies of the party. In some states (Pernambuco and São Paulo, for instance) the Social Democrats had gone so far as to ally themselves with the communists to secure the control of local government.

The Communist party, reorganized under the electoral regulations of 1945, was declared illegal by the upper electoral tribunal in May 1947. At the end of the year congress had not yet decided, however, whether the communist representatives and senators were entitled to continue to hold their seats. This situation brought about much unrest and a wave of strikes, street incidents and the mobbing of communist newspapers and propaganda centres in several cities. State elections for governors and legislators, held at various times during the year, were marked by violence although the communists apparently showed less strength than had been anticipated.

In the state of Pernambuco—important because of the character of the population and the strategic location of its territory, in the northeastern bump—a coalition of Social Democrats and communists controlled the state legislature. Since the results of the elections for state governor remained uncertain, the president of the legislature, backed by the Social Democrats and the communists, governed the state *ad interim*. On the other hand, in the neighbouring state of Sergipe the governor, backed by the state branch of the Social Democratic party, ruled as a dictator and suppressed all communist activities.

Convinced that the nation was fast approaching a crucial moment in its political and economic life, President Dutra and other political leaders endeavoured to secure a coalition of the Social Democratic party and the National Democratic union, the opposition party, as against the communists. By the end of the year these efforts seemed to have been crowned with success. On Dec. 5, the publication of *Tribuna Popular*, communist organ of Rio de Janeiro, was suspended for 30 days and the nation awaited with anxiety the decision as to the legality of the communist representatives and senators.



COMMUNIST PARTY building at Rio de Janeiro being taken over by Brazilian police following a government order outlawing the party on May 7, 1947. Estimated Communist membership exceeded 180,000

Internationally, Brazil continued to enjoy increasing prestige. The Brazilian representative in the United Nations assembly, Dr. Oswaldo Aranha, was elected president of both the special and the regular sessions of the assembly.

The much-postponed Inter-American Conference for the Maintenance of Continental Peace and Security, decided upon by the American nations at Chapultepec (1945), finally met at Quitandinha hotel, in Petrópolis, near Rio de Janeiro, from Aug. 15 to Sept. 2. After some wrangling and one or two snarls, the conference adopted a treaty on continental defense which was generally hailed as a step forward in hemispheric co-operation for peace. (*See* INTER-AMERICAN DEFENSE CONFERENCE.)

At the invitation of the Brazilian government, Pres. Harry S. Truman, accompanied by Mrs. Truman and their daughter, Margaret, visited Rio de Janeiro (Sept. 1–7). Truman addressed the closing session of the Inter-American conference. He was generally received with great cordiality by the authorities and the people of Brazil. On Sept. 5 the Brazilian congress honoured him with a special joint session.

On Oct. 2 Brazil broke off diplomatic relations with Russia. This came in the wake of a series of incidents, climaxed by editorial comments of *Izvestia* on President Dutra, considered insulting by the government and the people of Brazil. A demand for an apology went unanswered.

The Communist party in Brazil, claiming a membership of about 130,000, apparently was going underground.

Although the relations between Brazil and the United States continued most cordial, at the end of the year a certain amount of dissatisfaction was guardedly expressed in some quarters because of alleged unwillingness on the part of the U.S. government to assist in Brazil's industrialization plans.

Education.—There were in 1945, 44,794 primary schools with 95,393 teachers and 3,548,409 students. Other schools, according to available information (1943) were: 1,183 secondary schools with 14,280 teachers and 213,520 students; 3,076 professional schools and universities, with 19,267 teachers and 255,368 students.

There were seven official universities, all of them state institutions except the Universidade do Brasil (Rio de Janeiro) which was maintained by the federal government. There were also three private universities maintained by the Catholic Church, at Rio de Janeiro, São Paulo and Pôrto Alegre. The Catholic university of Rio de Janeiro was raised to pontifical status in December.

Finance.—The cruzeiro, the monetary unit of Brazil, divided into 100 centavos (cents), sold in the free market at about 22.50 per U.S. dollar.

The federal government's budget for the year, estimating expenditures at Cr. $12,597,686,000 and revenues at Cr. $12,003,650,000, anticipated a deficit of Cr. $594,036,000. Later, however, the total of authorized expenditures was increased to Cr. $14,360,111,000 which left a deficit of Cr. $2,356,461,000 for the year. Alarmed at the magnitude of the deficit, the government undertook to decrease all expenditures. By the end of September the actual deficit was estimated at about Cr. $12,889,000.

Despite strong pressure from some quarters, which recommended that the budgetary deficit, or part of it, be wiped out by a new increase in money circulation, the government steadily pursued its policy of systematic reduction of the currency in circulation as a means to combat inflation. Money in circulation as of Oct. 31 amounted to Cr. $20,297,661,976, a decrease of Cr. $191,750,305 as compared with the amount in circulation in January (Cr. $20,481,228,492).

The fight against inflation seemed to be the basis of the government's economic program. The principal causes of inflation were the government's annual deficits, the government financing of exports and the prevailing speculation in values. The first cause tended to disappear with the approval by congress, for 1948, of a budget estimating revenues at Cr. $14,597,320,000 and expenditures at Cr. $14,596,041,044, with a small, but significant, surplus of Cr. $1,278,956.

As to the second cause, it was intimately tied up with the general world scarcity of dollar exchange. The government faced the problem by restricting both exports and imports.

The third cause continued uncontrolled because of the apparent difficulty in enforcing price control measures. The prices of some staples had increased two to four times the prices prevailing in 1941.

The bank situation continued uncertain. The government's proposed

bank reform was still being discussed in congress at the end of the year. Of 2,111 banking institutions existing at the beginning of the year, 36 were classified as foreign. Most of the banks were in São Paulo and Rio de Janeiro. At the beginning of the year the foreign debt was estimated at £101,126,010 and $207,730,795 U.S.

Trade and Communications.—During the first nine months of the year, Brazil exported merchandise valued at Cr. $15,554,721,000, which was Cr. $2,366,222 more than the total for the same period in 1946. The principal items were: coffee (Cr. $5,437,862,000), cotton (Cr. $2,499,965,000), cocoa (Cr. $814,690,000), sugar (Cr. $165,800,000), rice (Cr. $493,847,000) and pine lumber (Cr. $647,790,000).

Although still the principal export item, coffee contributed less to the total, in volume, than in the previous year. During the first six months of 1947 a total of 6,550,393 bags of coffee (132 lb. each), valued at Cr. $3,488,695 were exported, whereas in 1946 the total was 7,650,785 bags valued at Cr. $2,737,648.

The imports increased from Cr. $9,048,349,000 during the first nine months of 1946 to Cr. $16,973,015,000 during equivalent period in 1947. This was caused by a larger number of automobiles, and parts, refrigerators, radios, phonographs, electric apparatus and similar articles imported during the period.

The unfavourable trade balance of Cr. $1,418,494,000 in the first nine months of 1947 contrasted with the favourable balance of Cr. $4,140,150,000 in the same period of 1946. This was because of the lack of imports of many items during the war years and had been anticipated. On the other hand, Brazilian exports to England and other countries had not increased as expected because of lack of dollar exchange. The government, confronted with the alternative of assisting exporters with the purchase of their credits in national currency (which would increase inflation) and the curtailment of exports, preferred the latter.

The government announced plans to re-equip and reorganize the merchant marine (for which 38 new units were purchased) and the railroads (requiring an estimated purchase of 20,000 cargo and passenger cars and at least 1,000 locomotives, besides 3,000 railroad cars already ordered in Brazil).

There were about 22,000 mi. of railroad track in operation and about 38,000 mi. of surface roads and 124,000 mi. of common roads in 1945. It was estimated that the country had about 150,000 passenger automobiles and trucks in 1944.

In 1945, 12 aviation companies operated about 70,000 mi. of routes. Their planes transported about 290,000 passengers, 2,500,000 lb. of baggage, 400,000 lb. of mails and 3,250,000 lb. of freight.

Agriculture.—Total output for 1946 was about the same as for 1945. The most important agricultural products in 1946 were: rice (46,198,634 bags of 132 lb. each), cotton (352,752 metric tons), sugar (28,300,000 metric tons), beans (17,000,000 bags of 132 lb. each), tobacco (118,500 metric tons), wheat (248,058 metric tons), cocoa (138,000 metric tons) and coffee (15,335,675 bags of 132 lb. each). The 1946 coffee production was valued at Cr. $5,350,029,000, whereas the previous year's production (13,915,265 bags) was valued at Cr. $3,717,173,000.

Crops were considerably affected by pests in 1947. Clouds of locusts, flying from Argentina and Uruguay, swept over the rich southern plantations destroying everything in their path. In the state of São Paulo many coffee plantations were devastated by the disease known as "broca." It was estimated that the next year's crop might fall as much as 50% on that account.

Total value of animal products in 1945 was estimated at Cr. $6,906,459,000. The livestock production continued high, although a scarcity of meats was observed in Rio de Janeiro and most other important cities. The hog plague, starting in the south, spread until it covered the whole country, killing hundreds of thousands of animals. The congress appropriated about $500,000 to combat this disease.

Manufacturing.—The value of industrial production in 1945 was estimated at Cr. $33,121,176,000, showing a substantial increase over the total of Cr. $27,631,386,000 for 1944. There were 576,935 industrial workers in 1945 (550,804 in 1944).

Textile production decreased from 24,246 metric tons in 1945 to 14,103 tons in 1946. During the first six months of 1947, the textile production was 9,994 metric tons.

The iron and steel production was as follows in 1946 (in metric tons): pig iron 365,345, steel ingots 342,643 and slabs 311,515.

Rayon, an industry established in 1924, produced a total of 21,605,080 lb. of fibres in 1946. Other important industrial products were: furniture, food products, shoes, electric materials, glass and rubber products.

Mineral Resources.—In 1946 the total mineral output of the nation was estimated at Cr. $2,285,936,000, including iron ore, manganese, coal, oil and other important minerals such as beryllium, watch jewels, industrial diamonds, mica, monazite, quartz, tantalite, tungsten, zircon and rutile.

Geologists had estimated that about 900,000 sq.mi. of Brazilian territory were potentially oil-producing. Of this area, only about 190,000 sq.mi. had been commercially explored. There were 45 producing wells with a capacity of 4,779 bbl. a day and 14 gas-producing units. Crude oil production in 1946 was 66,889 bbl. (12,441 bbl. less than in 1945).

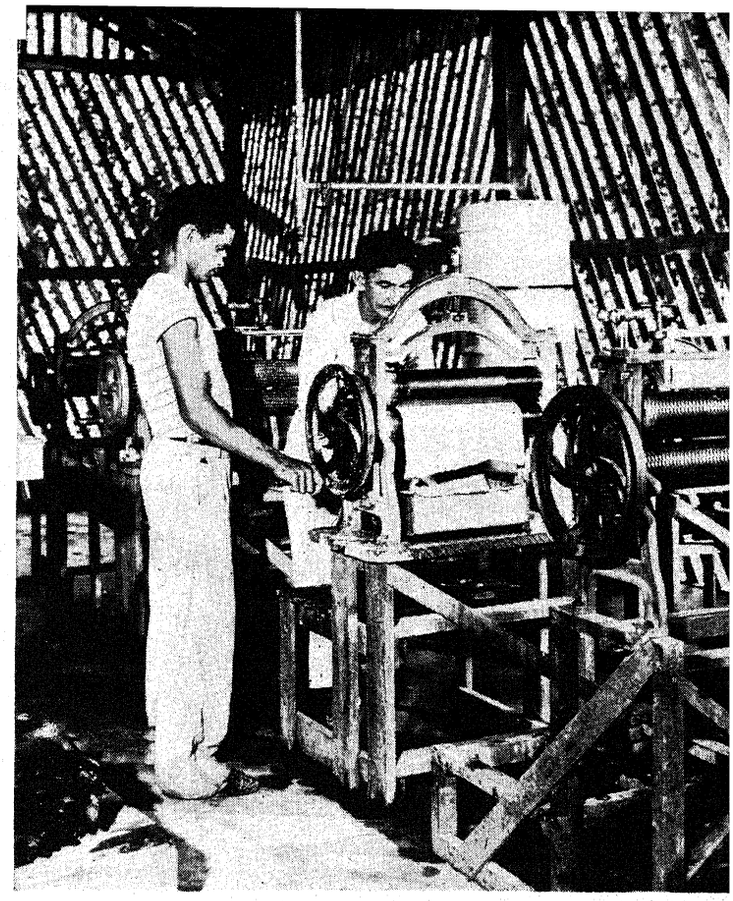
Search continued in the Amazon basin and in the state of Bahia. In Nov. 1947 it was announced in New York city that the Brazilian government had signed a contract with a United States firm to erect oil-refining facilities in Belem, near the mouth of the Amazon, with a daily capacity of more than 100,000 gal. The work was to be finished in 18 months. (*See* also ARGENTINA.)

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(R. D'E.)

Bread and Bakery Products.

The attention of leading bakers and millers during 1947 was directed to a consideration of the problems presented by a report of Sir Edward Mellanby, published in the *British Medical Journal* of Dec. 14, 1946. This report showed that the feeding of large amounts of so-called bleached flour produced signs of nervous disorder in dogs. Later studies in England and in the U.S. confirmed the original observations and extended them.



RUBBER SHEETING MACHINERY at the Instituto Agronomico do Norte in Belém (Para), a Brazilian institute setting standards for farm and forestry products, a service urgently needed in 1947 for purposes of international trade

By the end of 1947 it had been established that: (1) The deleterious effects are produced only when large amounts of flour that have been treated with nitrogen trichloride gas are fed, and that none of the other accepted agents for bleaching or artificially aging flour produces harmful effects. (2) The nitrogen trichloride acts on the proteins of the flour. (3) In addition to the effect on dogs, somewhat similar effects can be produced with heavily treated flour fed in large quantities to cats, rabbits, ferrets, monkeys and rats, but not to guinea pigs, hamsters or chickens; and (4) No harmful effects have been observed in human beings who have consumed large amounts of bread made from flour treated with nitrogen trichloride under conditions which would unfailingly produce symptoms in dogs.

The attitude of scientific bodies who studied the evidence, both in the U.S. and in Great Britain, was that the facts do not demand precipitous action. The Food and Nutrition board of the National Research council (Washington, D.C.) recommended to the Food and Drug administration that the use of nitrogen trichloride in the treatment of flour should be reduced to a minimum, and eliminated altogether wherever possible, and that suitable alternative methods of improving the baking qualities of many varieties of wheat should be sought. The organized baking industry in the U.S. at once took action to approve the recommendations of the Food and Nutrition board and urged the milling industry to take steps to bring about the complete elimination of the nitrogen trichloride process.

Like other methods of improving the baking performance of flour, the nitrogen trichloride process long was considered meri-

torious and harmless. The new developments illustrate vividly the need for the most careful scrutiny of methods of the food-processing industry which involve the addition of foreign substances to foods. The baking industry, in particular, has a responsibility to maintain the integrity of bread by demanding that all ingredients of the loaf must at all times be nutritious and wholesome.

Some experimental corroboration of the conclusion of the U.S. bureau of human nutrition and home economics, that the U. S. diet in general was considerably improved during World War II with respect to thiamin, riboflavin, niacin and iron because of the bread enrichment program, was provided in the report of N. B. Guerrant and O. B. Fardig of The Pennsylvania State college. These investigators showed in experimental work with growing animals, that dark breads and so-called milk breads, as produced commercially in the U.S., are inferior to both whole wheat and enriched breads in thiamin and riboflavin.

With the enactment of compulsory enrichment laws in Oklahoma and Kansas, there were in 1947 21 states plus the territories of Hawaii and Puerto Rico, which required the enrichment of white bread and flour. This movement to establish high nutritional standards for bread, also gained attention in other countries.

Leading bakers estimated that in the U.S. the gross sales of bakery products in 1947 reached an all-time high of nearly $3,000,000,000. (*See* also FLOUR.)

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Bretton Woods: *see* INTERNATIONAL MONETARY FUND.

Brewing and Beer.

On March 1, 1947, all restrictions on the use in the United States of the principal brewing grains—malt, corn and rice—were lifted, and brewers found themselves, for the first time after World War II, in position to produce enough beer and ale to meet a constantly rising demand.

Concurrently with the rise in production, sales of beer and ale began to climb on a scale unprecedented in U.S. history. From a decrease of 1,179,000 bbl. for the first three months of 1947 as compared with the corresponding period for 1946, sales rose until they exceeded the 1946 figure by 8,532,133 bbl. at the end of the first 10 months, reaching a total of 74,552,599 bbl. and indicating a new all-time high of approximately 90,000,000 bbl. for the year.

Brewers had to revise their plans for unlimited production, however, when it developed, in September, that the food situation in Europe was becoming increasingly serious and that U.S. industries and individuals would have to make sacrifices by voluntarily cutting their grain usage and thus make more grain available for export to the needy countries. President Harry S. Truman appointed a Citizens Food committee and the brewing industry was requested to work with this group in evolving a conservation program that would free substantial quantities of edible grains for export without appreciably affecting industry production, employment or quality of the product.

The United States Brewers foundation, whose members produce more than 90% of the nation's beer and ale, immediately created a grain committee to work with the government authorities and presidential appointees in Washington. The immediate result of the Washington meetings was acceptance of the foundation's voluntary program of grain conservation, extended over a 90-day period, calling for the following provisions:

(1) Reduction in corn usage by a total of 3,000,000 bu.

(2) Elimination of wheat, table grades of rice and sorghum grains or their products, as brewing ingredients. Wheat held by brewers or under contract was released for purchase to such buyers as were indicated by government authorities.

(3) Elimination of the use of feed barley, the brewers restricting themselves to malting barley, which is not normally used for feed purposes because it brings a higher price to the farmer.

FRENCH WHEAT RESERVES being turned in by rural farmers complying with a government appeal during the bread shortage which became acute in France in April 1947. Daily rations were reduced to 250 grams on April 24



(4) Increasing recovery of such by-products as high-protein residual grains, used extensively for dairy cattle feeding, and yeast for the feeding of poultry. These by-products, recovered in the brewing process, reduce the brewing industry's net annual consumption of all grains to less than 50,000,000 bu., according to a statement by Secretary of Agriculture Clinton Anderson.

Following promulgation of the grain conservation program among all brewers, an Industry Advisory committee was named to work with the Citizens Food committee, later changed to the Cabinet Food committee, consisting of the secretaries of state, agriculture and commerce. Although the industry participation in the program was on a voluntary basis, brewers complying represented approximately 98% of the nation's production.

Beer for Military Needs.—A contribution to the increased beer supply for domestic needs was the lifting of the government order, effective March 1, 1947, which required brewers to set aside 3% of their grains for the production of beer for the use of the armed forces. The original order, during the war, called for earmarking 15% of the brewers' production for military use. The set-aside had been ordered after it had been established by service authorities that beer had been a valuable aid to morale and substantially contributed to the army's sobriety. With the gradual return of a large number of the military to civilian life, this set-aside was reduced to 5% on Dec. 1, 1945, to 4% on June 13, 1946, and 3% on Sept. 1, 1946. Another reason for the reduction in military requirements abroad was that some of the beer required for overseas was being supplied by breweries in occupied areas, requisitioned and manned by U.S. troops and civilian personnel.

By-Products.—The brewing process extracts only a portion of the nutrients in the raw grains. The brewing industry each year returns about 35% of the original grains to the farms in the form of protein-rich feed concentrate. These by-products, known as brewers' grains, contain about 75% of the feed value of the original grains.

The other important by-product is brewers' yeast, the richest known natural source of vitamins of the B complex, containing between 40% and 50% of high-grade protein. This was supplied in increasing quantity during the years 1942–47 both as a human nutrient and as a protein and vitamin supplementary feed for livestock and poultry to provide a balanced ration. Debittered yeast was used in army rations such as bread and crackers and in the enrichment of such food items as noodles and dehydrated soup. In addition to its use in baking products, it is also added in small quantities to candy bars, meat loaves, gravies, peanut butter, syrups and casserole dishes.

Moderation and Law Enforcement.—Close co-operation between brewers, wholesalers and retailers continued to be an integral part of the brewing industry's self-regulation program, which had its origin in 1938. This program is designed to promote moderation and sobriety and to maintain wholesome conditions wherever malt beverages are sold under licence. Trained investigators are utilized to observe the conduct of retail beer outlets and to report to law-enforcement authorities those licensees who fail to comply with all provisions of state regulations. Failure to correct conditions after warning usually leads to suspension or revocation of licence or, in cases that cannot be handled otherwise, shutoff of beer by brewers.

On the basis of approximately 250,000 inspections of retail beer establishments after the program was put into effect, more than 95% of the licensed premises were found to be operated in an orderly and wholesome manner.

Sales Records.—Following are the sales records in U.S. barrels (31 gal.) by fiscal years ending June 30: 1933 (85 days), 6,277,728; 1934, 32,266,039; 1935, 42,228,831; 1936, 48,759,840; 1937, 55,391,960; 1938, 53,926,018; 1939, 51,816,874; 1940, 53,014,230; 1941, 52,799,181; 1942, 60,856,219; 1943, 68,636,434; 1944, 76,969,764; 1945, 79,590,598; 1946, 81,286,821; 1947 (official but not audited), 84,353,412.

Taxes.—Federal excise and special taxes on beer for the fiscal year 1947 totalled $665,081,497, bringing the cumulative total after relegalization in 1933 to $5,438,690,682. State and local taxes and licence fees in 1947 were estimated at $180,000,000, raising the cumulative figure for that revenue to about $1,875,000,000.

From April 7, 1933, the date of relegalization, the combined public revenue from beer approximated $7,313,000,000. Beer was in 1947 taxed at $8 per barrel, contrasted with the federal tax rate of $1 per barrel from 1902 to 1914. There were no state taxes before prohibition. (*See* also LIQUORS, ALCOHOLIC.) (E. V. LH.)

Bridge, Contract: *see* CONTRACT BRIDGE.

Bridges. The world's longest spans of the various types built up to 1948 are listed in the following table.

World's Longest Spans by Type of Bridge

Type	Bridge	Location	Year Completed	Span
Cable Suspension	Golden Gate	San Francisco	1937	4,200 ft.
Transporter Bridge	†Sky Ride	Chicago	1933	1,850
Cantilever	*Quebec	Canada	1917	1,800
Steel Arch	Bayonne	New York	1931	1,652
Eyebar Suspension	*Florianopolis	Brazil	1926	1,114
Concrete Arch	Sando	Sweden	1943	866
Continuous Truss	Dubuque	Mississippi river	1942	845
Simple Truss	*Metropolis	Ohio river	1917	720
Continuous Girder	Cologne	Rhine river	1948	605
Vertical Lift	*Cape Cod Canal	Massachusetts	1935	544
Wichert Truss	Homestead	Pittsburgh	1937	533½
Swing Span	*Fort Madison	Mississippi river	1927	525
Tubular Girder	*Britannia	Menai straits	1850	460
Timber Span	†Wettingen	Switzerland	1758	390
Bascule	*Sault Ste. Marie	Michigan	1914	336
Masonry Arch	Plauen	Saxony	1905	295
Single Leaf Bascule	*16th Street	Chicago	1919	260
Concrete Girder	Villeneuve	Seine river	1939	256

*Railroad bridge. †Not standing.

United States.—The Bronx-Whitestone bridge in New York city was modified and stiffened in 1947 at a cost of $1,300,000 by the addition of 14-foot high trusses on top of the original 11-ft. stiffening girders. Aerodynamic oscillations of 18 in. were reduced to 9 in.

Immediate construction of a second vehicular crossing of San Francisco bay, at a cost of $134,468,000, was recommended in 1947 by a joint board of army and navy officers. The proposed plan was a combination low-level bridge, under-water tube and filled causeway, a total length of more than six miles from San Francisco to the Alameda shore. An alternate crossing, recommended by the California Toll Bridge authority, about 200 feet north of the Transbay bridge and similar to it in design, was estimated to cost $105,000,000. The California Toll Bridge authority in Nov. 1947 approved both for construction, at a total cost of $239,468,000.

Proposed construction of the Delaware River bridge (suspension type) at Wilmington, Del., was approved by the secretary of war in 1947.

The U.S. army engineers in 1947 approved construction of the proposed $30,000,000 bridge over Chesapeake bay to connect Baltimore with the eastern shore of Maryland.

Construction of the seven main piers of the new Mississippi river bridge at Memphis, Tenn., was completed in May 1947. The design of the main cantilever structure comprises spans of 433, 621, 621, 790 and 359 ft., with 2 approach truss spans of 435 ft.

A new toll vehicular bridge across the Mississippi river between East St. Louis, Ill., and St. Louis, Mo., was begun in 1947 at a contract cost of $6,490,000. The new structure is of reinforced concrete and steel cantilever type, 7,700 ft. long, and carrying 5 highway lanes and 2 sidewalks. The main span is approximately 1,000 feet, flanked by 2 500-ft. spans.

A $6,000,000 bond issue was approved in 1946 for the construction of a state-owned toll bridge over the Connecticut river between Old Lyme and Saybrook, Conn.

The U.S. navy department approved construction of a $6,000,000 low-level highway bridge over the York river at Yorktown, Va.

Preliminary work of borings, surveys and design studies was started in 1947 on the proposed $27,000,000 toll bridge over

the Mystic river between Chelsea, Mass. and the Charlestown section of Boston.

The Chain-of-Rocks canal bridge near St. Louis, to carry a relocation of U.S. highway 66 over the proposed Chain-of-Rocks canal, was under construction 1946–47 at a contract cost of $1,585,000.

The historic Eads bridge (completed 1874) at St. Louis, Mo., which was the first bridge across the Mississippi river, was modernized in 1946–47 at a cost of $300,000.

The $1,153,000 foundation contract for the new high-level bridge across the Delaware-Chesapeake canal at Chesapeake City, Md., was completed in 1947. The highway structure, 3,954 ft. long, was designed to cross the canal with a steel tied-arch of 540-ft. span providing 140 ft. clear height above the water.

A new $2,000,000 railroad bridge one-half mi. long was completed in 1947 for the Baltimore and Ohio railroad at Point Pleasant, W.Va. With a main truss span of 480 feet, the bridge crosses the Kanawha river near its junction with the Ohio river and replaces a 16-year-old structure at the site.

A steel bowstring truss bridge of novel streamlined design was completed in 1947 on Oregon's highway across the Santiam river between Salem and Albany, with a 240-ft. centre span and side spans of 180 ft.

The Twelfth Street bridge over the Kaw river in Kansas City, Kan., was partially destroyed when 1945 floodwaters undermined and overturned one of its piers. Reconstruction of the bridge in 1946–47, at a cost of $330,000, included replacing the overturned pier, rebuilding a second river pier and rebuilding of one 200-ft. span and 140-ft. of the centre span of a 3-span 600-ft. long deck cantilever.

Construction of the foundations and the nine main piers of the South Capitol street crossing over the Anacostia river in Washington, D.C., was completed early in 1947. Bids for the superstructure were double the engineer's estimate of $1,000,000 and were rejected. The design was of plate-girder construction, with the main crossing 854 ft. long, including a 386-ft. swing span at the main channel.

Using 24 steel girder spans up to 161 ft. long, a $2,000,000 highway bridge, 2,693 ft. long, 66 ft. wide and 70 ft. high, was completed in 1947 across the Feather river at Marysville, Calif.

An unusual design was represented by the semipermanent railway-highway bridge under construction in 1947 at the Garrison damsite in North Dakota. Carrying an all-steel deck on steel girders, this 1,350-ft. structure was supported on tubular steel piles, 24 in. in diameter and 100 ft. long, each driven to a 150-ton resistance. For maximum future salvage of the steel in the spans, all field connections except main girder splices were bolted with automatic locking nuts instead of being riveted.

The $1,500,000 Piney Bluff bridge, spanning the Altamaha river on U.S. highway 1 between Baxley and Lyons, Ga., constructed in 1947, is 13,115 ft. long and consists of steel girder spans on concrete piers and a series of concrete girder spans on concrete pile bents.

The $5,000,000 bridge connecting Terminal Island and Long Beach, Calif., a U.S. navy project under construction in 1947, included a 240-ft. vertical lift span of record width (two 35-ft. roadways) and record height of lift (from 50 to 175 ft. above water). Construction of the freeway providing access to the bridge, at an additional cost of $9,000,000, was under the supervision of the state highway department.

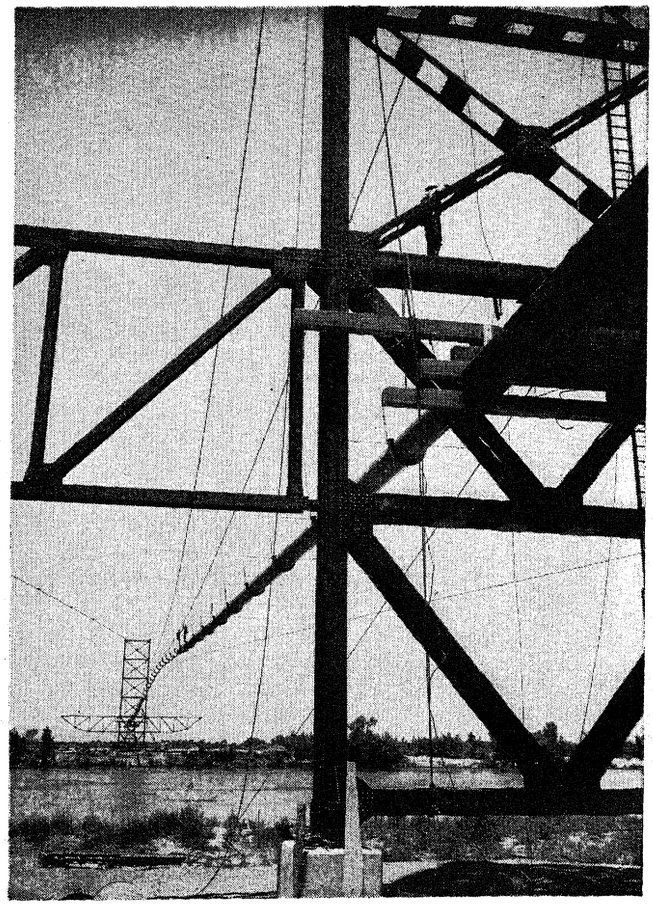
Plans were completed in 1946 for the construction of a 368-ft. span vertical lift bridge at Sault Ste. Marie to replace an old swing span of the International Railway bridge built in 1888. Total cost of the project, including removal of the swing span and Bridge Island, was estimated to exceed $1,000,000.

Germany.—Of the 55 pre-World War II bridges that crossed the Rhine (22 railroad bridges, 22 highway bridges and 11 pontoon highway bridges), 9 had been replaced by temporary military bridges and 24 by semipermanent reconstruction in 1947. The railroad crossing at Brisach was rebuilt for highway traffic. The highway bridge at Strasbourg was replaced by a laminated timber bridge of modernistic design. The railroad bridge at Strasbourg was replaced with shorter plate girder spans on temporary piers. The highway and railway bridges at Maxau were each replaced by five truss spans on a single set of temporary piers. At the highway and railway bridge at Spire, only one span was raised and saved. At Mannheim the railway bridge was replaced and the highway bridge was scheduled for early rebuilding. The famous highway bridge at Worms was not scheduled for rebuilding. The railway bridge at this city, however, was replaced with five spans. The Coblenz-Horcheim railway bridge was back in service on the original piers, and the Coblenz-Pfaffendorf highway bridge had also been rebuilt.

The Cologne-South railway bridge was back in service in 1947. Also back in service was the Dusseldorf-Hamm railway bridge, with two original arches and two German military spans. The Dusseldorf-Oberkassel highway bridge was replaced by 4 300-ft. spans. The Baerl railway bridge lost only the end span and was back in service in 1947. The 611-ft. centre span was saved from falling by a safety pier placed under its mid-point by the Germans as an air-raid precaution.

The SKR trusses, a German design for military bridges, were used extensively in Rhine bridge rebuilding. With 20-ft. panels, the web arrangement and depth were varied to suit the span, with divided Warren web, K-web and Z-web for 20-, 40- and

HAZARDOUS WORK of cradling the "Biggest Inch" pipe line from a suspension bridge over the Colorado river at Blythe, Calif. Designed to pipe natural gas from Texas to southern California, the project was scheduled for completion late in 1947



60-ft. depths, respectively.

The Frankenthal bridge, whose two continuous girder spans of 543 ft. each were by far the longest girder spans in the world, was never completed by the Germans because of shortage of steel during World War II.

The war-wrecked Cologne-Deutz highway bridge (a self-anchored suspension bridge with a central span of 605 ft. and side spans of 302 ft., completed 1915) was replaced with a deck girder continuous cellular bridge on the old piers. The 605-ft. span established a new world's record for girder spans.

An unusual floating Bailey bridge was built in 1947 by the British royal engineers over the Rhine at Duesseldorf. About 980 of its 2,391 ft. total length was placed on floats, the spans resting on towers providing a vertical shipping clearance of 27 ft. and a horizontal clearance of 100 ft. During floods, the entire bridge would be towed away to a safe harbour.

Italy.—Some 2,944 bridges on the highways, plus 39 mi. of masonry bridges and 21 mi. of iron or steel bridges on the railroads, were wrecked in World War II. Steel shortages continued to delay rehabilitation in 1947. The 150-ft. high Sagittario viaduct near Sulmona—originally built of brick but reduced to a pile of rubble by German demolition squads—was rebuilt in concrete in 1947, with 17 arches of more than 30 ft. spans. In the highway bridge over the Tiber near Montecastelli, a 210-ft. concrete arch was substituted for 3 90-ft. brick arches.

Hungary.—Work proceeded during 1947 on reconstruction of the Franz-Josef bridge over the Danube river at Budapest. This steel cantilever, dating from 1897, was to be the first of the city's bridges restored to service. The Horthy bridge, a continuous truss completed in 1937, was scheduled to be rebuilt if possible in the original design.

The famed Margaret bridge, a stone spandrel-arch structure built in 1876 to span the Danube at Budapest, was under reconstruction in 1947, replacing the six 269-ft. stone arches with steel.

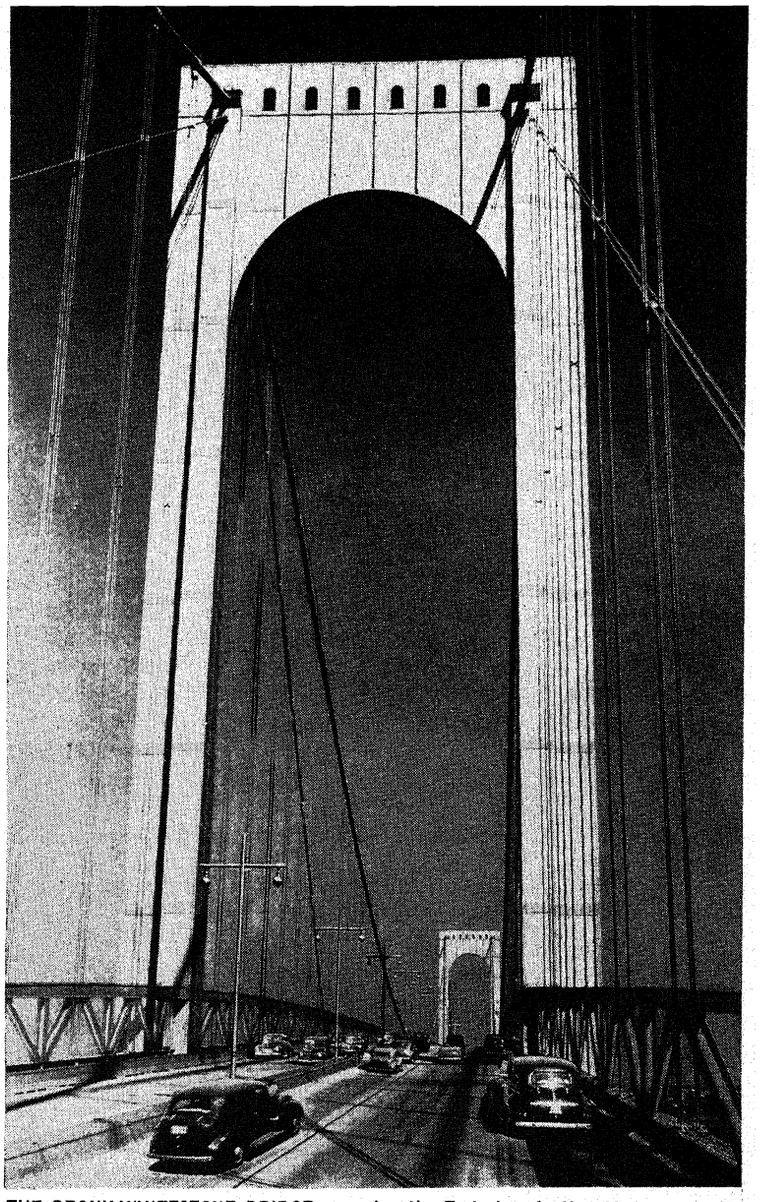
France.—Among France's many hundreds of restored railroad bridges, the one at Nogent-sur-Marne, ten miles east of Paris, was notable as an entirely new structure, whereas the majority of the war-damaged bridges were merely patched and rebuilt. The four original 165-ft. masonry arches of the Nogent bridge had been reduced to unusable rubble by demolition charges. The new bridge was an imposing double-track structure of three concrete arch spans of 260, 230 and 225 ft. The bridge was constructed with the aid of a 950-ft. span cableway.

After being war-wrecked (1940 and 1944) and rebuilt twice (1942 and 1947) the Eauplet bridge across the Seine upstream from Rouen again carried all the main line trains between Paris and Le Havre.

The 354-ft. central arch (reinforced concrete) of the Rhône river highway bridge at Vienne, France, constructed in 1947, was said to have the flattest curve at the centre of any similar structure in the world—only 18 ft. rise on a 207-ft. length. This flat curve, with the radius at the centre reaching 657 ft., was adopted to give an especially wide clearance for river traffic. The centring was hung from a temporary three-hinged steel arch, with a large cableway to place the concrete. Ten 50-ton hydraulic jacks inserted at the crown were used to decentre the arch and induce its precalculated dead load stress.

Ten thousand highway bridges and 5,000 railroad bridges were wrecked or damaged in France during World War II. Timber trestles were used to by-pass the wrecked highway spans while masons, aided by hand winches and not much else, rebuilt the bridges to their original outlines. The famous arch bridge over the Loire at Blois, built in 1724 by Jacques Gabriel, was restored to its original lines.

A new bridge over the Loire at Orleans, France, was of reinforced concrete and contained 1 arch of 155 ft. and 10 of 123 ft. It replaced 15 stone arches of 80 ft., 10 of which were completely destroyed during the war.



THE BRONX-WHITESTONE BRIDGE, spanning the East river in New York city, showing its widened roadway and added stiffening trusses. Reconstruction work on the bridge was completed in 1947

The Montlouis bridge over the Loire at Vouvray was completely rebuilt from the ruins of its twelve 82-ft. arches.

About 20 prestressed concrete bridges were built in France in 1947, and 20 more that had been designed were awaiting money and materials. This type was adopted for the large saving in steel. The longest single span, 181 ft., was in the Luzancy bridge over the Marne.

Other Countries.—Spanning the Hawkesbury river in New South Wales, Australia, a new steel highway bridge 2,000 ft. long was completed in 1946. A new steel railroad bridge, 2,764 ft. long, over the same river, was completed in 1947.

Construction of a $5,000,000 high-level bridge 5,500 ft. long over the Burdekin river in Queensland was authorized in 1947, following foundation tests and design studies in 1946. The bridge was planned as a dual rail and highway structure, to consist of ten main truss spans, each 250 ft. long, with approach trestles.

An unusual bridge, combining steel and concrete truss members, was completed in 1947 at Tordera, Spain, in the province of Barcelona. In the three deck-truss spans of 148, 177, and 148

ft., the top chords are of reinforced concrete while the bottom chords and the diagonal web members are of steel. The diagonals are of V-form, dispensing with transverse bracing below the deck.

To speed up traffic between Montreal, Quebec, Canada, and the Lachute district, work was started in 1947 on the construction of the new $1,500,000 St. Eustache bridge to replace the old De Bellefeuille span over the River of the Thousand Isles.

A light suspension bridge over the Minero river at Pauna in Boyaca department, Colombia, collapsed in 1947, with an estimated death toll of 25.

The first railroad bridge over the Tigris river was under construction in 1947 by British engineers south of Baghdad, Iraq. The 7 span concrete and steel bridge, carrying a metre-gauge railway line and an 18-ft. roadway, was undertaken to provide through railway freight connections from the oil fields of Iran to Turkey, Mosul and Basra.

The first aluminum bascule bridge in the world was planned in 1947 by British engineers to be erected in the harbour at Sunderland, on the northeast coast of England just south of Newcastle. The proposed double-leaf bascule was designed as a combination highway and railroad bridge, to provide a clear waterway of 90 ft., and to carry a moving load of 70 tons.

A reinforced concrete arch bridge over the Mond river in Udaipur state, India, with a main span of 175 ft. and a total length of 501 ft., was completed in 1946. The concrete hangers were cast integrally with the floor beams to form inverted rigid frames, to aid in resisting lateral wind force. (*See* also ROADS AND HIGHWAYS.) (D. B. S.)

Briquettes, Fuel: *see* FUEL BRIQUETTES
British Borneo: *see* NORTH BORNEO.

British Columbia. British Columbia ranks third in area among the nine provinces of Canada and occupies the most westerly position. The crown colonies of Vancouver Island (1849) and of British Columbia (1858) united in 1866, and on July 20, 1871, joined the Canadian confederation. The province has an area of 366,255 sq.mi., of which 6,976 sq.mi. are water, and is bounded on the west by the Pacific ocean and the panhandle of Alaska; on the north by the 60th parallel; on the east by the Province of Alberta; and on the south by the Straits of Juan de Fuca and the 49th parallel.

The population on June 1, 1947, was estimated to be 1,044,000 (1941 census, 817,861). The population is predominantly of British origin—70% at the time of the 1941 census. The 1941 census indicated 443,394 urban dwellers and 374,467 rural dwellers. The principal ports and chief urban centres—Greater Vancouver (1941, 351,491), Greater Victoria (75,218), the capital, and New Westminster (21,967) are all located in the southwestern portion of the province. Based on the distribution of ration books, in 1946 the population was: Greater Vancouver, 495,767, Greater Victoria, 97,822, Greater New Westminster, 43,586.

History.—In the second session of the 21st legislative assembly (Feb. 11, 1947–April 3, 1947) Herbert Anscomb, minister of finance, reported revenue collected for the fiscal year ending March 31, 1946, amounted to $46,183,468; expenditures had been $38,041,605; the net debt at Dec. 31, 1946, was $132,648,564. Anticipated revenues were $58,888,930 and expenditures $58,781,335 for the fiscal year 1947–48. Measures passed by the assembly included: an act to authorize and implement an agreement between the dominion and the province, involving a five-year tax agreement; the Fur Farm act, enabling the government to administer the fur-farming industry; the Industrial Conciliation and Arbitration act, respecting the right of employees to organize and providing for mediation, conciliation and arbitration of industrial disputes; the British Columbia Highway act, enabling the government to borrow $5,000,000 for the purpose of highway and bridge construction.

Premier John Hart announced in August that old-age pensioners in British Columbia would receive a maximum pension of $40 a month made retroactive to May 1, 1947. On Oct. 2, Premier Hart announced his retirement from the leadership of the Provincial Liberty party. At the close of 1947, members of the provincial executive council, or cabinet, and their portfolios were: Byron I. Johnson, premier and president of the executive council; H. Anscomb, finance; G. S. Pearson, provincial secretary, health and welfare; E. C. Carson, public works; E. T. Kenney, lands and forests; W. T. Straith, K.C., education; F. Putnam, agriculture; G. S. Wismer, K.C., attorney general and labour; R. C. MacDonald, mines, municipal affairs; L. H. Eyres, railways, trade and industry, fisheries.

Economic Activity in British Columbia, 1945–47

	Unit	1945	1946	1947 Preliminary Estimates
AGRICULTURE:				
Total value of production	$	103,679,430	117,827,400	120,700,000
Livestock	$	13,152,000	13,926,000	14,800,000
Poultry products	$	13,364,000	14,722,000	16,100,000
Dairy products	$	21,230,578	20,179,400	20,900,000
Fruits and vegetables	$	26,761,436	34,800,000	33,400,000
Field crops	$	23,679,000	28,100,000	29,000,000
Miscellaneous	$	5,492,416	6,100,000	6,500,000
FISHERIES:				
Total value of production	$	44,531,858	43,817,147	45,000,000
Pack of canned salmon	cases	1,739,308	1,348,137	1,500,000
FORESTRY:				
Total value of production	$	147,655,000	173,471,370	225,000,000
Timber scaled	M.B.M.	3,081,235	3,193,665	
Paper production	ton	334,362	342,754	
MINING:				
Total value of production	$	63,343,949	71,807,951	100,000,000
Lead	$	17,674,884	23,489,335	
Zinc	$	19,431,921	21,143,086	
Coal	$	6,454,360	6,220,470	
Gold	$	7,150,451	4,797,602	
INTERNAL TRADE:				
Index of wholesale sales	1935–39=100	226.5	271.9	290.0
Index of retail sales	1935–39=100	190.9	221.5	242.5
Index of retail department stores	1935–39=100	194.3	228.2	254.5
Railway freight loaded	ton	8,399,597	8,171,456	10,500,000
Consumption of electric power	000 kw. hr.	2,788,577	2,820,118	2,900,000
Construction, building permits	$000	24,672	42,866	40,000
Bank debits	$000	4,416,364	5,367,594	6,500,000
Index of employment	1926=100	175.1	166.6	195.0
Salaries and wages paid	$000	383,700	403,162	430,000

Education.—During the school year ending June 30, 1946, 130,605 students were enrolled in the elementary (89,647), junior high (23,057), superior (2,949), and high (14,952) schools of the province. Teaching staffs comprised 2,931 teachers in elementary, 889 in the junior high and 684 teachers in superior and high schools.

Communication.—Total highway mileage as of March 31, 1946, excluding the Alaska highway, amounted to 22,027 mi., of which 9,541 mi. were surfaced, 9,758 mi. were improved earth, 2,727 mi. were unimproved earth roads. By the end of 1946 the new highway extending from Prince George to Dawson Creek, connecting with the Alaska highway at that point was well under way, and the 81-mi. Hope Princeton highway had moved forward.

Railway mileage in 1945 amounted to 3,886 mi. of single track.

During 1946 approximately 4,316,952 tons of cargo were loaded at British Columbia ports for foreign countries while 1,751,922 tons of cargo from foreign countries were unloaded at local ports. In the same year, the total number of telephones, 179,371, included 62,107 on automatic switchboards.

Manufacturing, Agriculture, Mineral Production.—Preliminary provincial departmental estimates for the year 1947

indicated that the net value of production in all of the primary industries surpassed the comparative totals for 1946; the details are shown in the table. (G. T. H.)

British East Africa.

The term British East Africa covers the territories of Kenya, Uganda, Tanganyika (mandated territory, now under United Nations trusteeship) and the Zanzibar protectorate; Somaliland may also be included for purposes of convenience. Kenya: area 224,960 sq.mi.; pop. (est. Dec. 1945) 4,064,675; capital: Nairobi (pop. 108,900); chief port: Mombasa (pop. 95,000). Uganda: area 93,981 sq.mi.; pop. (est. 1944) 3,956,654; capital: Entebbe. Tanganyika: area 362,688 sq.mi.; pop. (est. 1944) 5,499,681; capital: Dar es Salaam. Somaliland: area 68,000 sq.mi.; pop. (1944 est.) 700,000; capital: Berbera. Zanzibar Protectorate (including the islands of Zanzibar and Pemba off the coast of Tanganyika): area 1,020 sq.mi. (Zanzibar island, 640 sq.mi.); pop. (1945 est.): 250,000 (Zanzibar, island, 150,000); capital: Zanzibar, town (est. 50,000). The great majority of the population throughout British East Africa is of African descent. Kenya, and to a lesser degree Tanganyika, differs from the other territories in containing substantial European and Asiatic communities. The population of Zanzibar also includes a substantial Indian element. In Kenya the European community is estimated at about 23,700, Indians at 75,100 and Arabs at 26,200. Europeans in Tanganyika, including Polish and other refugees, number approximately 16,000; Asiatics (including Indians and Arabs) about 46,500. Many different languages are spoken in East Africa; but the dialect commonly known as Swahili (an admixture of Arabic, Persian and various African tongues) is used to some extent as a *lingua franca* throughout the whole region. The framework of the administration in most territories is of the normal British colonial pattern. Executive authority is vested in a governor appointed by the crown and assisted by executive and legislative councils. The system of indirect rule, or administration through properly constituted native authorities, is widely employed. In Zanzibar the government is administered, under the advice of a British resident, by the sultan of Zanzibar, a ruler of the Arab Al-Busa'id dynasty which has reigned in the island for more than two centuries. Governors: Kenya, Sir Philip Mitchell (appointed 1944); Uganda, Sir J. Hathorn Hall (appointed 1944); Tanganyika, Sir William Battershill (appointed 1945); Somaliland, under military administration; resident in Zanzibar, Sir Vincent Glenday (appointed 1946).

History.—In the political and constitutional sphere the outstanding question that came under discussion in 1947 in respect to East Africa was that of interterritorial organization as between Kenya, Uganda and Tanganyika. The three territories form a solid geographical bloc, they maintain a common customs and excise tariff (with free trade *inter se*) and they are served by interlocking communications systems. Proposals for interterritorial reorganization had been published in Dec. 1945. Revised proposals, following upon discussions of the earlier plan, were published in Feb. 1947. In broad outline, they provided for the establishment of (1) an East African high commission consisting for the time being of the officers administering the governments of Kenya, Uganda and Tanganyika; (2) an East African central assembly; and (3) an executive organization supported in appropriate cases by interterritorial and consultative bodies. It was proposed that existing advisory and consultative bodies concerned with production and supply, industry, research and publicity should be retained; and that a new advisory board, a post and telegraph board and a transport advisory board should in due course be created. The revised proposals were endorsed by a majority of each of the three local legislative councils; they were to be brought into effect at the beginning of 1948 for an experimental period of four years.

A conference of African governors was held in London in Nov. 1947, under the secretary of state's chairmanship, in which the governors of both East and West Africa took part. This conference discussed African affairs under the three main heads of (1) political and administrative, (2) economic and (3) social. It followed upon a conference of colonial officials held at Cambridge the preceding August, and it prepared the way for a conference to be held in 1948, at which elected representatives of the African peoples would be brought into the discussion.

Among the economic questions arising during the year none was more important than that of the East African groundnut scheme. A comprehensive paper on the subject was published by the British government in Feb. 1947, embodying the report of the special mission sent in the previous year to investigate the practicability of the mechanized production of groundnuts in east and central Africa. The government accepted the view of the mission that the scheme was a practicable one and could be carried out on a large scale. They considered that the most efficient instrument for its execution would be "a government-owned and -financed corporation created by statute with clearly defined powers and duties and with its own separate organization and a responsible board of directors answerable to the government but with the fullest scope for initiative."

There was much other activity in the economic field. A report known as *The Uganda Electricity Survey, 1947* was published in the summer of 1947. Its recommendations, which were submitted to the Uganda legislative council for approval, provided for the construction of a hydroelectric power station at Owen Falls (Lake Victoria) capable of generating 75,000 kw. The estimated cost exceeded £4,000,000. It was considered that, in addition to increasing the production of power, the scheme would result in substantial economies. Progress was made with the construction of a new meat-canning factory in Tanganyika, the establishment of which had been under consideration since 1942. The factory would not only relieve the pressure upon the existing Athi River factory in Kenya, but would provide a market and a channel of outlet whereby livestock surplus to the internal consumer requirements of Tanganyika could be readily disposed of. Grants sanctioned during the year under the Colonial Development and Welfare act included £20,000 for agricultural research in East Africa; £29,000 for experiments with DDT and other insecticides; £300,000 for Makerere college (Uganda); £117,000 for hydrological research in Uganda; and £140,000 for the development of the forest resources of Tanganyika.

A strike of African employees, affecting about 15,000 persons, occurred at Mombasa (Kenya) in Jan. 1947. It was announced in February that an ordinance had been enacted in Kenya providing for compensation to workmen for injuries suffered in the course of their employment. An application from the East African governors' conference for assistance toward a scheme (estimated to cost £1,775,000) for the construction of East African main trunk roads was approved in principle. A Town and Country Planning bill was introduced in the Uganda legislative council.

Finance and Trade.—Currency throughout British East Africa is controlled by the East African Currency board in London. The standard coin is the East African shilling. A note issue is also maintained. In Somaliland the Indian rupee is in circulation as well as the East African shilling. Estimated revenue (1946): Kenya £9,020,000; Uganda £3,891,000; Tanganyika £4,996,000; Somaliland £770,000; Zanzibar £718,000. Expenditure: Kenya £8,720,000; Uganda £3,566,000; Tanganyika £4,778,000; Somaliland £770,000; Zanzibar £741,000. Imports (1946): Kenya and Uganda £22,649,000; Tanganyika £8,195,000; Zanzibar £1,978,-

000. Exports: Kenya and Uganda £20,594,000; Tanganyika £9,360,000; Zanzibar £2,164,000. The resources of all the British East African territories are in the main agricultural, though minerals are assuming a rapidly increasing importance in Tanganyika. Kenya, with altitudes varying from sea level to more than 9,000 ft., provides soil suitable for a wide range of crops. Coffee, maize, sisal and pyrethrum (a valuable insecticide) are all grown in substantial quantities and figure prominently in the domestic exports of the colony. There is also a large export trade in animal products (hides and skins). Cotton is the chief export product of Uganda. The principal exports of Tanganyika include sisal, hides and skins, coffee, cotton and gold. The discovery of diamonds and lead in the territory points to a further source of mineral wealth. Somaliland is for the most part a pastural country; settled cultivation is rare and production loosely organized. The only exports of any importance are skins and livestock. The agricultural produce of Zanzibar for export purposes is confined in the main to cloves and coconut products. The clove industry has long been the backbone of the local agricultural economy. (J. E. SH.)

British Empire. The governments of the British empire and the governors and premiers were as follows on Dec. 31, 1947:

British Empire

Country	Area Sq. mi. (approx.)	Population (000's omitted)	Capital	Status	Rulers, Governors and Premiers
Europe					
Great Britain and N. Ireland	93,371	48,367*	London	Kingdom	George VI, King Prime Minister of Great Britain: C. R. Attlee Governor of Northern Ireland: Earl Granville Prime Minister of Northern Ireland: Sir Basil Brooke
Channel Islands	75	79†	St. Helier St. Peter Port	Part of kingdom of Great Britain and N. Ireland	Jersey: Lt. Gen. Sir A. E. Grassett Guernsey: Lt. Gen. Sir Philip Neame
Eire	26,602	2,953‡	Dublin	Republic associated with the British Commonwealth of Nations	President: Sean O'Kelly Prime Minister: Eamon de Valera
Gibraltar	2	20§	Gibraltar	Colony	Lt. Gen. Sir Kenneth Anderson
Isle of Man	221	51§	Douglas	Part of kingdom of Great Britain and N. Ireland	Air Vice-Marshal Sir Geoffrey Bromet
Malta	122	285†	Valletta	Colony	Sir Francis Douglas
Asia					
Aden and Perim	80	86‡		Colony	Sir Reginald Champion
Aden Protectorate	112,000	630§		Protectorate	
Bahrein Islands	213	90‖	Manama	Protectorate	A. C. Galloway (Brit. political agent)
Borneo:					
North Borneo (with Labrian)	29,417	310†	Sandakan	Colony	Edward Twining
Brunei	2,226	41†	Brunei	Protectorate	W. J. Peel (Brit. resident)
Sarawak	50,000	600†	Kuching	Colony	Sir Charles Arden Clarke
Burma	261,749	16,824‖	Rangoon	Dependency	Sao Shwe Thaik (Provisional president)
Ceylon	25,332	6,651‡	Colombo	Colony	Sir Henry Monck-Mason Moore
Cyprus	3,572	435¶	Nicosia	Colony	Lord Winster
Hong Kong	391	1,072◇	Victoria	Colony	Sir Alexander Grantham
India	1,221,000	320,000†	Delhi	Dominion	Earl Mountbatten of Burma Premier: Pandit Jawaharlal Nehru
Malaya:					
Malayan Union	50,962	4,124‖	Kuala Lumpur	Protectorate	Sir Edward Gent
Singapore	1,282	1,435‖	Singapore	Colony	Sir Franklin Gimson
Pakistan	361,000	70,000†	Karachi	Dominion	Mohammed Ali Jinnah Premier: Liaquat Ali Khan
Palestine	10,159	1,750¶	Jerusalem	Mandate	Lt. Gen. Sir Alan Cunningham, High Commissioner
Africa					
Anglo-Egyptian Sudan	967,500	6,591δ	Khartoum	Condominium	Sir Robert Howe
Basutoland Protectorate	11,716	590§	Maseru	Protectorate	Sir Evelyn Baring, High Commissioner
Bechuanaland Protectorate	275,000	284‡	Mafeking	Protectorate	
Gambia	4,074	221□	Bathurst	Colony	A. B. Wright.
Gold Coast, including British Togoland	91,843	3,963δ	Accra	Colony and protectorate; Brit. Togoland: trusteeship territory	Sir Gerald Creasy
Kenya	224,960	4,065¶	Nairobi	Colony and protectorate	Sir Philip Mitchell
Mauritius (and Dependencies)	807	433◇	Port Louis	Colony	Sir Donald Mackenzie-Kennedy
Nigeria, including British Cameroons	372,674	22,000¶	Lagos	Colony and protectorate; Brit. Cameroons: trusteeship territory	G. Beresford Stooke
Nyasaland	47,949	2,231†	Zomba	Protectorate	G. W. T. Colby
Rhodesia, Northern	290,320	1,678†	Lusaka	Protectorate	Sir Gilbert Rennie
Rhodesia, Southern	150,333	1,778*	Salisbury	Self-governing colony	Maj. Gen. Sir John N. Kennedy Premier: Sir Godfrey M. Huggins
St. Helena, Ascension and Tristan da Cunha	126	5◇	Jamestown	Colony	George Andrew Joy
Seychelles	156	35†	Victoria	Colony	Dr. Percy Selwyn-Clarke
Sierra Leone	27,925	2,000§	Freetown	Colony and protectorate	Sir Hubert Stevenson
Somaliland Protectorate	67,936	700◇	Berbera	Protectorate	(Under military administration)
South-West Africa	317,725	321‖	Windhoek	(See Trusteeship Territories)	Col. P. I. Hoogenhout, Administrator
Swaziland	6,705	187‡	Mbabane	Protectorate	Sir Evelyn Baring, High Commissioner
Tanganyika	362,688	5,499◇	Dar-es-Salaam	Trusteeship territory	Sir William Battershill
Uganda	93,981	3,957◇	Entebbe	Protectorate	Sir John Hathorn Hall
Union of South Africa	472,550	11,392‡	Pretoria (seat of government) Cape Town (seat of legislature)	Dominion	Major G. B. van Zyl Premier: Field Marshal Jan C. Smuts
Zanzibar (and Pemba)	1,020	250¶	Zanzibar	Colony and protectorate	Sir Vincent Glenday (British resident)
America					
Bahamas	4,400	69▲	Nassau	Colony	Sir William Murphy
Barbados	166	193‡	Bridgetown	Colony	Sir Hilary Blood
Bermuda	19	34¶	Hamilton	Colony	Sir Ralph Leatham
British Guiana	89,480	376‡	Georgetown	Colony	Sir Charles Woolley
British Honduras	8,867	59‡	Belize	Colony	Edward Hawkesworth
Canada	3,694,863	12,582*	Ottawa	Dominion	Field Marshal Viscount Alexander of Tunis Premier: W. L. Mackenzie King
Falkland Islands and Dependencies	7,681	3▲	Port Stanley	Colony	G. M. Clifford
Jamaica	4,765	1,289‡	Kingston	Colony	Sir John Huggins
Leeward Islands	423	109‡	St. John	Colony	W. A. MacNie (acting governor)
Newfoundland and Labrador	152,734	318δ	St. John's	Colony, constitution suspended	Sir Gordon Macdonald
Trinidad and Tobago	1,980	558‡	Port of Spain	Colony	Sir John Shaw
Windward Islands	821	252‡	St. George's	Colony	Sir Arthur Grimble
Australia and Oceania					
Commonwealth of Australia	2,974,581	7,581+	Canberra	Dominion	William John McKell Premier: Joseph Benedict Chifley
Fiji	7,055	260*	Suva	Colony	Sir Brian Freeston
New Guinea	93,000	675◇	Rabaul	Trusteeship territory	Col. J. K. Murray, Administrator
New Hebrides	4,633	43‖	Vila	Condominium	Sir Brian Freeston, High Commissioner
Nauru	8	1*		Trusteeship territory	Mark Ridgway, Administrator
New Zealand	103,416	1,793*	Wellington	Dominion	Lt. Gen. Sir Bernard Freyberg Premier: Peter Fraser
New Zealand Dependencies	519	20‖			
Norfolk Island	13	1□		Australian dependency	Administrator: Maj. Gen. Sir Charles Rosenthal

British Empire (Continued)

Country	Area Sq.mi. (approx.)	Population (000's omitted)	Capital	Status	Rulers, Governors and Premiers
Australia and Oceania (Continued)					
Pacific Islands (Solomon, Gilbert and Ellice, Tonga, Pitcairn Isls.)	12,997	169•		Colonies and protectorate	Sir Brian Freeston, High Commissioner
Papua	90,540	339♀	Port Moresby	Part of Commonwealth of Australia	H. L. Murray, Administrator
Western Samoa	1,133	71□	Apia	Trusteeship territory	Lt. Col. F. W. Voelcker, Administrator

*Est. 1947. †Est. 1946. ‡Census 1946. §Est. 1939. ‖Est. 1941. ¶Est. 1945. ♀Est. 1940. δEst. 1942. □Census 1945. ♀Est. 1944
^Est. 1943. +Census 1947. •Estimates 1938–45.

British Guiana. The only British colonial territory on the mainland of the South American continent. It is bounded on the north by the Atlantic ocean, on the south and southwest by Brazil, on the east by Surinam, and on the northwest by Venezuela. Area: 89,480 sq.mi.; pop. (1946 census): 376,146, including about 164,000 East Indians, 137,000 Negroes, 9,500 aborigines, 8,450 Portuguese and 3,650 Chinese. Chief towns: Georgetown (cap. 94,358); New Amsterdam (9,588). Religions (1931 census): 192,340 Christians (the Church of England being the largest separate community) and 118,593 non-Christians (mostly Hindus). Executive authority is vested in a governor appointed by the British crown and assisted by an executive and a legislative council. The legislative council consists of the governor (as president) and 3 other official members, 7 nominated members and 14 elected members. The executive council includes four officials and five non-officials. Governor: Sir Charles Woolley (appointed 1946).

History.—Economic questions were the main preoccupation in British Guiana during the year 1947. In the past the colony was mainly dependent upon sugar, but it was recognized that in future there would be a need for a more diversified form of economy. A sketch plan of development was drawn up in 1943, with the object of ensuring the best possible use of the colony's natural resources and of encouraging a greater degree of self-subsistence. The program contemplated a total expenditure of £2,500,000 spread over a period of 20 years. In 1946, after the allocation of funds under the Colonial Development and Welfare act, 1945, was announced, the British Guiana government set up a committee under its economic adviser to draw up a detailed program of development for the colony. This program had not been completed in 1947, but in the meantime a number of projects were already in course of execution, with financial assistance under the act. By the end of 1945 grants were made to a total value of more than £1,000,000 for irrigation and drainage projects. A further grant of £81,127 for the same purpose was made in May 1947. In Jan. 1947 it was announced that the economic potentialities of British Guiana and British Honduras (*q.v.*) were to be re-examined, and that, as a first step, a commission would be appointed to inquire into the possibilities of settlement in those territories, taking into consideration the requirements of the existing population and the need to provide outlets for surplus populations from the West Indian islands as well as for persons displaced from their homes in Europe as a result of the war. The commission was duly appointed and proceeded with its investigations. The special problems of the largely undeveloped interior of British Guiana continued to engage the attention of an interior development committee set up in 1944. Other questions under investigation included the possibilities of hydroelectric development, the expansion of fisheries and the promotion of secondary industries in general. The development of air transport was under active examination. Questions of labour and the development of trade unions were also much to the front.

Finance and Trade.—The currency of British Guiana is sterling, the monetary unit of account being the local dollar at the fixed statutory rate of $4.80 to the £. Revenue (1946) £2,218,187; expenditure £2,820,711. Imports (1946) £5,597,000; exports £5,634,000. The major products of the colony are sugar and bauxite, in both of which commodities there is a large export trade. Other articles of export are gold, diamonds, wood and timber, balata (a kind of gutta-percha) and copra. (J. E. SH.)

British Honduras. A British colony on the east coast of Central America, bounded on the north, east and south and west, respectively, by the Yucatan peninsula, the Caribbean sea and Guatemala. Area (including certain islands): 8,867 sq.mi.; pop. (1946 census): 59,149. Languages: English, Spanish and Maya. Capital and principal port: Belize (pop. 21,837). Executive authority is vested in a governor appointed by the British crown and assisted by an executive and a legislative council. The legislative council, as constituted in 1936, consists of the governor as president, three ex officio and two nominated members, two unofficial members nominated by the governor and six unofficial members elected by five constituencies. The executive council consists of the governor and official and unofficial members. Governor in 1947: Edward Gerald Hawkesworth.

History.—The Development Planning committee for British Honduras produced its report early in 1947. The report contained recommendations for the development of the economic resources of the colony for the next five to ten years, and for an expanded program of social services. A delegation from British Honduras visited London during the year. They were received by the secretary of state for the colonies, who discussed with them the political and economic conditions and aspirations of the colony. Experiments in rice production, and in other branches of agricultural activity, were carried out locally. The long-standing boundary dispute with the republic of Guatemala continued, throughout the year, to form the subject of correspondence between the British and Guatemalan governments. The proposal that the question should be referred to an international court of arbitration had not been carried into effect by the end of November. The dispute remained unresolved at the end of 1947. British Honduras, like the other British "continental" territory in the Caribbean region (British Guiana), took part in the conference held in Jamaica in Sept. 1947 to consider the question of closer union between the British Caribbean territories (*see* JAMAICA). Substantial grants from the British treasury were sanctioned in 1947, under the Colonial Department and Welfare act, for purposes of road construction in British Honduras. A grant of £43,425 was allocated in May for the road from Belize to Cayo in the interior; and a further grant of £114,500 was approved in the following July for the construction of a road from Belize to Hector Creek.

Finance and Trade.—The monetary unit is the local dollar, equal in theory to the U.S. dollar but in practice closely linked to sterling. Revenue (1946): £514,000; expenditure £542,000. Imports (1946) £1,683,000; exports £1,296,000. The natural resources of the colony consist almost entirely of agricultural and forest products.

The export of mahogany, for long the main basis of the trade of British Honduras, had undergone considerable diminution. Other articles of export include fruit, chicle (an essential raw material of chewing gum) and copra.

(*See* also GUATEMALA.) (J. E. SH.)

British Isles: *see* GREAT BRITAIN & NORTHERN IRELAND, UNITED KINGDOM OF.

British Legion. Membership in 1947 was more than 1,000,000. In addition the women's section numbered nearly 500,000. Branches exceeded 5,000 and more than 4,000 service committees administered to the needs of ex-service men and women. Although the annual income from Poppy day was almost £1,000,000, reserves built up during the war years were being drawn on to meet demands on the benevolent fund, so that expenditure was £250,000 over income. There were 6,500,000 men and women who served in World War II added to the 5,000,000 of World War I, who with their dependents were entitled to assistance from the legion.

The acquisition of eight large houses with grounds was completed; some for the use of the elderly, others for convalescents. The legion sanatoria continued their work of treatment and aftercare. Ex-service men paralyzed by spinal injuries and others suffering from psychoneurosis were subjects of special study and assistance. The legion also set up in 1947 for a year's trial a unit for the intensive treatment of rheumatic diseases. The results in 300 cases were so satisfactory that the ministry of health took over the unit, transferred it to the North-West hospital, London, and agreed to open similar units elsewhere. The legion's work on pensions benefited thousands of ex-service men and women throughout the country. During the year Sir Ian Fraser, M.P., was elected president and Lt. Col. Gordon Larking, national chairman. (J. C. As.)

British Malaya: *see* MALAYAN UNION AND SINGAPORE.
British Pacific Islands: *see* PACIFIC ISLANDS, BRITISH.
British Possessions in the Mediterranean: *see* CYPRUS; GIBRALTAR; MALTA.
British Somaliland: *see* BRITISH EAST AFRICA.

British South African Protectorates.

Under this heading are grouped the three British protectorates of Bechuanaland, Basutoland and Swaziland, of which certain essential statistics are given in the table. *See* BRITISH EMPIRE for population and capital towns. High commissioner: Sir Evelyn Baring. For other territories of British South Africa, *see* SOUTH AFRICA, THE UNION OF.

History.—After the impetus given to production and service by wartime demands, peacetime development schemes in these protectorates were slow in getting under way, particularly if viewed through the eyes of the native soldier who had to readjust himself to his old surroundings. It would be long, for example, before plans against soil erosion could make themselves felt, and meanwhile the population pressure in Basutoland and Swaziland became worse.

In Feb. 1947, Sir Godfrey Huggins, prime minister of Southern Rhodesia, went to London to arrange for the nationalization of the Rhodesia-Bechuana-Union railway line. It was hoped to relieve the owners from the necessity of finding new capital, estimated at £20,000,000 of old debenture debt and £6,000,000 new money for re-equipment purposes. Britain refused to burden Northern Rhodesia or Bechuanaland with part of this sum but agreed to assist in raising a loan of £30,000,000, Bechuanaland guaranteeing up to £1,500,000 of any deficit. The previous owners, the Rhodesia Railways trust, were paid in cash the equivalent of about 25 years of possible dividends; *i.e.*, £3,150,000. Bechuanaland itself was represented on the control authority of the nationalized line.

The three protectorates were visited by King George VI during his tour of South Africa. An elaborate and colourful parade was held at Maseru, where many thousands of native horsemen attended the *pitso*, or council of state, and witnessed the investiture of their queen, Mantsebo Seeiso, with the Order of the British Empire. This took place on March 12, the national holiday. It was estimated that 100,000 natives took part in this ceremony. In Swaziland the royal party did not visit the capital, Mbabane; the paramount chief received them instead at Goedegun; the king was given an opportunity of seeing a force of about 4,000 Swazi warriors in their own setting. The visit to the largest (if not best-developed) protectorate, Bechuanaland, was limited to a crossing by train. The chiefs of Bechuanaland continued to protest against the penetration of the Union of South Africa into the mandated territory of South-West Africa. They still hoped that either Britain or the United Nations itself would take it in trusteeship and thus enable a railway link-up of their land-locked country with the Atlantic; this could be effected by a continuation of the line from Gobabis, the present railhead in South-West Africa, via Ghanzi, the European settlement 200 mi. away and well inside Bechuanaland, to Matetsi in Southern Rhodesia, thus skirting Ngamiland (where there is sufficient rainfall) and opening up the Ngwato reserve (where coal had been found but could not be mined): only thus could Chief Tshekedi hope to introduce home industry to his country. The refusal of the Union of South Africa to surrender its control of South-West Africa came, therefore, as a severe blow to Bechuanaland; the protectorate feared that it would remain without any proper outlet to the Atlantic and would be burdened with an additional 500 mi. of frontier, behind which the Union's native policy of segregation, etc., would become permanent.

(F. W. PK.)

British South African Protectorates

Territory and Area in sq.mi.	Principal Products (in short tons)	Imports and Exports (in £)	Road and Rail	Revenue and Expenditure (in £)	Education Elementary and Secondary
BASUTOLAND 11,716	(1945–46) wheat 32,010 maize (1944) 70,000 wool (1944 export) 4,243	(1942) imp. 1,033,328 exp. 459,509	rds. 502 mi.	(1945–46) rev. 723,934 exp. 672,234	(1944) European schools 7, scholars 85; government and mission schools 922, scholars 85,429
BECHUANALAND c. 275,000	gold and silver (1945): value £95,202	In customs union with South Africa; no accurate figures available	rds. 2,048 mi. rly. 502 mi.	(1944–45) rev. 315,000 exp. 301,800	(1945) European schools 12, Negro 3, native 130; scholars c. 6,000
SWAZILAND 6,704	gold (1940) 0.037 tin ore (metal content) (1940) 110 maize (1938) 6,490	In customs union with South Africa	rds. 654 mi.	(1945–1946) rev. 305,490 exp. 462,551	(1946) European schools 7, scholars 495; Negro 3, scholars 191; native 204, scholars 10,833

British West Africa. The term includes the four British colonial territories on the west coast of Africa, viz: Nigeria, the Gold Coast, Sierra Leone and the Gambia. (The former-mandated territories of British Togoland and the British Cameroons are administered as trusteeship territories as part of the Gold Coast and of Nigeria, respectively.) Unlike the three main East African territories (Kenya, Uganda and Tanganyika) the four West African colonies are not contiguous, being separated by tracts of French colonial territory and depending in the main upon sea transport for their communications *inter se*. Nigeria: area 372,674 sq.mi.; pop. (1945 est.) 22,000,000; chief towns: Lagos (cap. 126,108), Ibadan (387,133), Kano (89,162), Ogbomosho (86,744), Iwo (57,191). Gold Coast: area 91,843 sq.mi.; pop. (1942 est.) 3,962,692; chief towns: Accra (cap. 78,858), Kumasi (47,054), Sekondi (23,847), Tamale (21,303). Sierra Leone: area 27,925

sq.mi.; pop. (1939 est.) 2,000,000; capital: Freetown (1945 est.): 87,000, Gambia: area 4,074 sq.mi.; pop. (1945 census) 220,509; capital: Bathurst (21,152). The great majority of the population of British West Africa is of African descent. For the most part they are pagan in religion, though the bulk of the inhabitants of the northern provinces of Nigeria are Moslem. The nearest approach to a *lingua franca* in West Africa is Hausa (an African language with a considerable infusion of Arabic words), but it is far from being understood everywhere. Each territory has its own constitution: in all four territories executive authority is vested in a governor (appointed by the British crown) who is assisted by executive and legislative councils. The system of indirect rule is widely employed. Governors: Nigeria, G. Beresford Stooke (appointed 1947); Gold Coast, Sir Gerald Creasy (appointed 1947); Sierra Leone, Sir Hubert Stevenson (appointed 1941); Gambia, A. B. Wright (appointed 1947).

History.—A notable feature of the year 1947 was the development of closer co-operation between British West Africa and neighbouring countries under French and Belgian colonial administration. Arthur Creech Jones, the British secretary of state for the colonies, laid special emphasis on this development in a speech delivered in the house of commons on July 29, 1947, during a debate on colonial affairs. "We have been developing," he said, "direct collaboration with the other colonial powers, and an important step forward in our co-operation with France and Belgium was taken at a meeting in Paris between representatives of the three governments towards the end of May." Agreement was reached at the Paris meeting on a three-year program of conferences in technical matters between the British, French and Belgian colonial authorities. A program of eight such conferences—to be held in various African centres—was arranged, some of them to be preceded by preliminary discussions in London, Paris or Brussels. They would range over a wide field, covering such subjects as soil conservation, rural economy, nutrition, labour, education, health and the campaign against insect pests. An Anglo-French communications conference took place at Dakar in May 1947. It was attended by technical experts from all four British West African territories and from the territories of French West Africa, the Cameroons and Equatorial Africa. The British colonial office and the ministry of overseas France were represented; Portuguese "observers" were also present. (For the African governors' conference of Nov. 1947 *see* BRITISH EAST AFRICA.)

On the economic side, there were several important developments. The report of a mission appointed to inquire into the production and transport of vegetable oils and oil seeds produced in the British West African colonies was published during the year. The report recommended a number of improvements in methods both of production and of transport. It was announced in Feb. 1947 that an investigation into the hydroelectric potentialities of the Volta river (Gold Coast) had been in progress for some months and that the result was expected to become available in a year's time. A statement was made in the same month regarding the establishment by the Nigerian government of a Cameroons development corporation under legislation enacted in the previous December. The corporation was to concern itself, in the first instance, with banana cultivation in the Cameroons, but would proceed later to deal with other local products. Large-scale grants to Nigeria were sanctioned under the Colonial Development and Welfare act in the course of the year. They included £781,883 for agricultural development, £570,171 for education, £358,113 for forestry and £330,280 for veterinary services. Smaller grants included £57,750 for the expenses of a nutrition field working party in the Gambia and £29,000 for agricultural machinery in the same territory.

The new constitution for Nigeria, sanctioned in 1946, came into force on Jan. 1, 1947. It was formed with the object of promoting constitutional unity under a strong central government, while retaining a large measure of local autonomy in the principal regions. It provided for the establishment of regional councils as a means of bridging the gulf between the people and the central government, of decentralizing powers and of giving the native administrations a recognized place in the constitutional machine. The new legislation council (which had an unofficial and African majority) held its first meeting in March 1947 following upon meetings of the newly formed regional councils in January and February. The revised constitution was criticized in some quarters as not sufficiently democratic.

Finance and Trade.—The unit of currency throughout British West Africa is the pound, maintained at par with sterling by the West African Currency board operating in London. Revenue (1946): Nigeria £13,717,000; Gold Coast £6,222,000; Sierra 416,000; Gold Coast £6,091,000; Sierra Leone £1,989,000; Gam-Leone £2,198,000; Gambia £610,000. Expenditure: Nigeria £13,-bia £560,000. Imports (1946): Nigeria £25,685,000; Gold Coast £17,464,000; Sierra Leone £3,961,000; Gambia £949,000. Exports: Nigeria £25,358,000; Gold Coast £20,362,000; Sierra Leone £2,644,000; Gambia £696,000. As in the case of East Africa, the resources of the British West African territories are primarily agricultural; but the area also contains important mineral deposits (tin in Nigeria, gold and manganese in the Gold Coast and diamonds in Sierra Leone). Apart from tin and rubber, the main articles of export from Nigeria are cocoa, groundnuts, palm kernels, palm oil and hides and skins. In the Gold Coast the staple crop, and by far the largest article of export, is cocoa. There is also a considerable export trade in gold and manganese. Sierra Leone's main exports are diamonds and palm kernels. The predominant export crop of the Gambia is the groundnut. (J. E. SH.)

British West Indies: *see* BAHAMAS; BARBADOS; JAMAICA; LEEWARD ISLANDS; TRINIDAD; WINDWARD ISLANDS.
Broadcasting: *see* RADIO; TELEVISION.

Bromine.

The United States production of bromine reached a peak figure of 51,056 short tons in 1944 but declined to 39,855 tons in 1945 and 21,392 tons in 1946. The drop in 1945 was the first to occur since the early 1930s when the use of bromine was greatly expanded for the production of antiknock compounds for gasoline. More than 80% of the 1946 output of bromine was used for antiknock compounds and during World War II the percentage was even higher. (G. A. RO.)

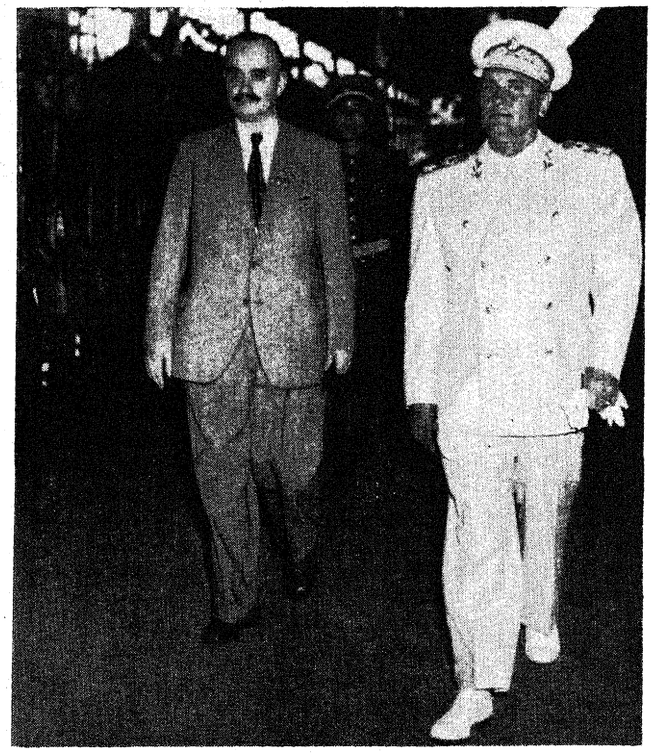
Brookings Institution: *see* SOCIETIES AND ASSOCIATIONS.

Broomcorn.

The U.S. broomcorn crop of 1947 was estimated at 32,800 tons, compared with 43,500 tons in 1946 and an average of 41,920 tons in 1936–45. Acreage planted in 1947—226,000—was nearly 30% below that of 1946; the yield of 290 lb. per acre was about the same as in 1946. Hot, dry weather reduced the crop in Oklahoma and Kansas. The leading producing state, as usual, was Oklahoma; Colorado had an average crop, one-third less than in 1946. The Texas crop was above average. Broomcorn prices were higher than in 1946 and fairly steady. (J. C. MS.)

Brozovich or Broz, Josip (Tito)

(1892–), Yugoslav statesman and soldier, was born in 1892 in the village of Kumrovec, near Zagreb, son of a blacksmith. He served as a private in the Austro-Hungarian army in World War I and in 1915 went over to



MARSHAL TITO (right) escorting Georgi Dimitrov, Bulgarian prime minister, past an honour guard on the latter's arrival in Belgrade July 27, 1947. The leaders met to confer on political and economic affairs

the Russians. Prisoner of war until 1917, he joined the Red army and fought with it against anticommunist Russian armies. In 1920 he was sent by the Comintern to Yugoslavia to organize the Communist party there. He was arrested many times, and in 1928 he was charged with conspiracy and sentenced to six years' imprisonment. Released in 1934, he went to Moscow, but soon returned to Yugoslavia to supervise the activities of the illegal Communist party. In 1936 he was sent to Paris and helped to organize the transport to Spain of volunteers of many nations joining the international brigades. In 1937 he became secretary general of the Yugoslav Communist party and remained in the country, using many aliases. When World War II started, he was in Belgrade as Slavko Babich, engineer. After the Germans attacked the U.S.S.R. he started guerrilla warfare in Yugoslavia, mainly in Bosnia. In Nov. 1942, using now the pseudonym of Tito, he organized a Yugoslav committee of liberation which formulated a program for a federal Yugoslavia. In the first months of 1945 all Yugoslavia was liberated and on March 7, 1945, Tito, who in the meantime had appointed himself marshal, became officially prime minister and minister of defense of Yugoslavia and commander-in-chief of its armed forces. In March 1946 he made a state visit to Warsaw and Prague, in Nov. 1947 to Sofia and in December to Budapest and Bucharest, signing on each occasion a bilateral treaty of friendship and mutual aid. Addressing the convention of the Union of Ex-Freedom Fighters in Belgrade, on Sept. 30, 1947, he said that the Truman doctrine was "nothing else but an endeavour to provoke war in Europe."

Brunei: *see* NORTH BORNEO.

Bryn Mawr College. A resident college for women at Bryn Mawr, Pa. In 1947 Bryn Mawr added to its academic program courses in problems of political and governmental reconstruction in postwar Europe, and the epoch of scientific rationalism, and the departments of biology and geology introduced a new interdepartmental course, the development of scientific thought. The latter course covers the development of scientific ideas and techniques in chronological sequence, and their origins, interrelationships, and impact on other intellectual activities of various periods. Under the Mary Flexner lectureship, Arnold J. Toynbee, author of *A Study of History,* was in residence at the college for six weeks and gave a series of six public lectures on "Encounters Between Civilizations," which lectures were to be incorporated in the final volumes of his book. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (K. E. M.)

Bubonic Plague: *see* PLAGUE, BUBONIC AND PNEUMONIC.

Buckwheat. The U.S. buckwheat crop in 1947 was estimated at 7,334,000 bu., compared with 7,124,000 bu. in 1946 and an average of 6,954,000 bu. during 1936–45. Acreage was increased about 33% to 518,000, but the yield was lower—14.2 bu. per acre compared with 18.2 bu. in 1946. Prices

U.S. Buckwheat Production in Leading States, 1947, 1946 and 10-year Average 1936–45

(In thousands of bushels)

State	1947	1946	10 yr. average	State	1947	1946	10 yr. average
Pennsylvania	1,938	2,394	2,299	Wisconsin	330	266	220
New York	1,526	2,147	2,289	Indiana	252	90	146
Ohio	651	340	258	Illinois	208	80	78
Minnesota	648	588	365	Tennessee	160	165	46
Michigan	641	243	401	West Virginia	140	152	231

rose steadily from $1.39 per bushel in Feb. 1947, to $1.85 in July and $2.01 in December. Buckwheat had declined in importance and was grown chiefly as a catch crop in unfavourable seasons. About two-thirds of the crop was used for livestock feed and less than one-third was sold for meal or for mixed feeds. (J. C. Ms.)

Budget, National. The U.S. budget submitted to congress by Pres. Harry S. Truman on Jan. 12, 1948, recommended expenditures for the fiscal year 1949 of $39,669,000,000 and revenues of $44,477,000,000. The corresponding figures for the preceding fiscal year were $37,728,000,000 and $45,210,000,000. Thus, the budget was based on the expectation that government expenditures would increase over those of fiscal 1948 by a little less than $2,000,000,000, while government revenues would decrease by almost $750,000,000.

For national defense alone, an estimate of $11,025,000,000 was presented, the largest single item among the various categories of government expenditures. By contrast, the estimated expenditures on national defense in fiscal 1948 were $10,746,000,000. This increase was accounted for mainly by three items: increased procurement of aircraft; provision of $400,000,000 for universal military training and increased expenditures for military stock-piling. These three items together amounted to considerably more than the increase shown in the budget, as there were decreases in terminal-leave payments and other World War II liquidation expenses.

The other two major items in the budget associated with previous wars or the prevention of future wars were veterans' services and benefits and international affairs and finance. The budget proposals for the latter item showed a substantial increase to $7,009,000,000, compared with $5,533,000,000 in fiscal 1948. By far the largest item of international expenditures was the European recovery program (*q.v.*) known as the Marshall plan. In addition, expenditures for foreign relief and for aid to the occupied areas were expected to increase largely because of higher prices, the poor crops in Germany and the damage to

Table I.—*Summary of Budget Receipts and Expenditures, United States*

Based on existing and proposed legislation

Description	Actual, 1947	Estimate, 1948	Estimate, 1949
Budget receipts:			
Direct taxes on individuals	$20,408,000,000	$22,793,000,000	$23,322,000,000
Direct taxes on corporations	9,676,000,000	9,548,000,000	10,158,000,000
Excise taxes	7,270,000,000	7,320,000,000	7,476,000,000
Employment taxes:			
Existing legislation	2,039,000,000	2,409,000,000	2,493,000,000
Proposed legislation	—	—	350,000,000
Customs	494,000,000	394,000,000	378,000,000
Miscellaneous receipts	4,831,000,000	4,373,000,000	2,322,000,000
Deduct:			
Appropriation to federal old-age and survivors insurance trust fund:			
Existing legislation	1,459,000,000	1,627,000,000	1,672,000,000
Proposed legislation	—	—	200,000,000
Appropriation to health insurance trust fund:			
Proposed legislation	—	—	150,000,000
Total budget receipts	43,259,000,000	45,210,000,000	44,477,000,000
Budget expenditures:			
National defense	14,280,000,000	10,746,000,000	11,025,000,000
Veterans' services and benefits	7,370,000,000	6,632,000,000	6,102,000,000
International affairs and finance	6,540,000,000	5,533,000,000	7,009,000,000
Social welfare, health and security	1,379,000,000	1,960,000,000	2,028,000,000
Housing and community facilities	403,000,000	113,000,000	38,000,000
Education and general research	76,000,000	77,000,000	387,000,000
Agriculture and agricultural resources	1,248,000,000	614,000,000	905,000,000
Natural resources not primarily agricultural	628,000,000	1,179,000,000	1,626,000,000
Transportation and communication	587,000,000	1,563,000,000	1,646,000,000
Finance, commerce and industry	237,000,000	372,000,000	190,000,000
Labour	120,000,000	97,000,000	116,000,000
General government	1,318,000,000	1,473,000,000	1,157,000,000
Interest on the public debt	4,958,000,000	5,200,000,000	5,250,000,000
Refunds of receipts	2,897,000,000	2,049,000,000	1,990,000,000
Reserve for contingencies	—	120,000,000	200,000,000
Adjustment to daily treasury statement basis	464,000,000	—	—
Total budget expenditures	42,505,000,000	37,728,000,000	39,669,000,000
Excess of budget receipts	754,000,000	7,482,000,000	4,808,000,000

Japanese agriculture caused by extensive storms. It was further pointed out by the president that the obligations of the United States in Europe would be increased because the United Kingdom could no longer pay the dollar costs of supplies needed for Germany.

Veterans' benefits and services comprised one of the few major items of the budget to show a significant decline from 1948 to 1949. As compared with the total of $6,632,000,000 for the 1948 fiscal year, the budget recommendations for 1949 amounted to $6,102,000,000. Essentially, the president explained the reduction in expenditures in terms of reduced needs rather than as a limitation of the benefits to be available to veterans. He did recommend, however, that the Veterans' administration be given authority to prevent the provision of "training for avocational or leisure time activity at high cost to the government and without commensurate benefit to veterans." It was expected that college, school and job training would reach a peak in fiscal 1948 with an average of 2,250,000 veterans enrolled, while for fiscal 1949 the average enrolment would decline to 1,730,000. In addition, the number of veterans drawing unemployment and self-employment allowances was expected to decline from 625,000 to 390,000. On the other hand, various aspects of aids to veterans were expected to require increased expenditures. It was estimated that claimants for compensation and pension payments to veterans and to their dependents would increase slightly and that higher prices would require greater expenditures for hospital construction and operating expenses of medical services.

Under the general category of social welfare, health and security, the president made broad recommendations, involving an increase in expenditures from $1,960,000,000 in 1948 to $2,028,000,000 in fiscal 1949. He recommended that coverage under the old-age and survivors insurance program be extended to all gainful workers including agricultural and domestic employees, farmers and other self-employed persons. He asked for provision of a national system of health insurance and improved facilities for public health and medical care. With respect to unemployment compensation, the president suggested that coverage be extended to employees of small business and as many other groups as feasible and, in addition, requested that federal aid under public assistance programs be broadened to include general assistance and allotment of federal grants in order to relate them to the financial resources and needs of each state.

As the broadening of the social insurance schemes was coupled with recommendations for higher taxes, not only expenditures but receipts would increase. For the immediate future, the increases in payroll contributions would be larger than the increases in benefits, a situation which the president considered useful as an anti-inflation measure.

Budgeted outlays for housing and community facilities were reduced substantially in the 1949 budget to $38,000,000 from the previous year's figure of $113,000,000. The reduction came primarily in smaller outlays on war housing and veterans' reused housing, as well as from smaller obligations to be undertaken by the Reconstruction Finance corporation. On the other hand, the president proposed legislation on a long-range housing program and requested an appropriation of $40,000,000 for that purpose. This program was based on the belief that both private enterprise and local agencies require greater assistance from the government in order to provide adequate housing on a continuing basis for all segments of the population. The appropriation requested for the fiscal year 1949 was expected only to prepare the way for loans and grants at a later time for such programs as low-rent housing, urban redevelopment, farm housing and large-scale rental housing.

Under the general category of education and general research, the budget showed a sharp increase in federal expenditures. Whereas these amounted in 1948 to only $77,000,000, it was proposed that these outlays for 1949 be increased to $387,000,000. While there were minor increases in the existing programs relating to education and general research because of rising costs and the expansion of some activities already authorized by congress, the bulk of the increase was accounted for by new programs proposed by the president. The most important, quantitatively, was a proposal to provide grants to the states for the improvement and extension of elementary and secondary education. The other proposal concerned the creation of a national science foundation which had already been agreed to in principle by congress but not in a form which was acceptable to the president.

Although the budget message emphasized that agriculture was in the best financial condition in history, with both farm prices and farm income at record levels, it was anticipated that greater expenditures under the category of agriculture and agricultural resources would be required. The increase shown in the budget was from $614,000,000 in 1948 to $905,000,000 for the fiscal year 1949. According to the budget message, this change was principally the result of the erratic character of expenditures for the supply and purchase programs of the Commodity Credit corporation. Supplementary material was provided to show that the contract to purchase Cuban sugar largely accounted for net expenditures of $264,000,000 in the fiscal year 1947 and that the subsequent sale of this sugar was largely responsible for the net receipts that were expected for fiscal 1948. Since these net receipts would not recur in 1949, they made a substantial difference between the total expenditures shown for the two fiscal years.

In other respects, the president was expecting agricultural

expenditures to be reduced. He proposed a change in legislation with respect to the parity formula and the level of price support for agricultural products which would effect a saving of $50,000,000, and also recommended a reduced scale of payments to farmers under the conservation and land use program. It was emphasized that the high level of agricultural prices would mean that only small cash outlays would be needed for the programs designed to support prices of agricultural products and regularize supplies. Small increases were requested for the Farmers Home administration and for the Rural Electrification administration, the activities of both of which had been drastically curtailed during World War II.

Table II.—*Government Receipts and Expenditures—Great Britain*

(£ millions)

Receipts	Actual receipts 1946-47	Estimate for 1947-48
Income tax	1,156	1,150
Surtax	76	80
Death duties	148	155
Stamps	38	40
Profits tax	32	200
Excess profits tax	325	
Other inland revenue	1	1
	1,777	1,626
Customs	621	666
Excise	564	634
	1,184	1,300
Motor duties	49	50
Total tax revenue	3,010	2,976
Sales of surplus war stores	156	95
Receipts for trading services	59	55
Wireless licences	10	11
Crown lands	1	1
Receipts from sundry loans	27	21
Miscellaneous	78	270
Total ordinary revenue	3,341	3,429

Expenditures	Exchequer issues 1946-47	Estimate 1947-48
Interest and management of national debt	499	525
Payments to North Ireland exchequer	20	23
National land fund	50	—
Other consolidated fund services	9	8
	578	556
Supply services:		
Defense votes*	1,653	899
Civil votes (excluding ministry of supply [Defense])	1,652	1,698
Revenue departments	—	—
Total supply	3,332	2,625
Total ordinary expenditures	3,910	3,181
Self-balancing revenue and expenditure:		
Post office	131	144
E.P.T. refunds (part deducted for tax)	151	49

Slight discrepancies in totals are due to rounding figures.
*Including, in 1946–47, the whole expenditure charged on ministry of supply vote; but in 1947–48, excluding the civil portion of that ministry's expenditure.

For the government's programs and services relating to natural resources other than agricultural, the budget showed an increase in expenditures of about $450,000,000 above the level of $1,179,000,000 estimated for fiscal 1948. The increased expenditures were concentrated in three governmental functions respecting natural resources. The largest of these, accounting for more than $200,000,000, was an increase to the Atomic Energy commission. The second was an increase requested for the flood control program, part of the civil functions of the army corps of engineers. Congress had previously provided for an acceleration of this program. The budget figure was stated as the amount required to carry forward projects under way in fiscal 1948.



COPIES of Pres. Truman's 1947 budget message being delivered to congress on Jan. 10 by Herbert Miller, record clerk of the White House

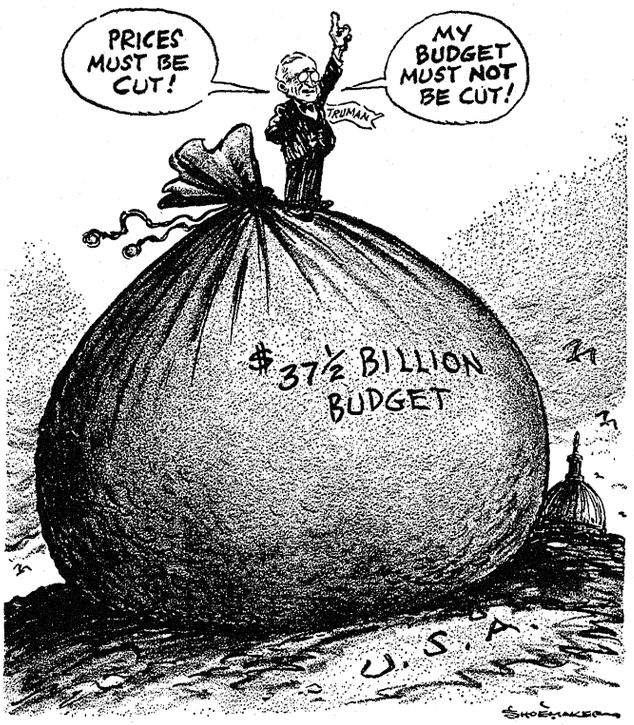
The third item was for the continuance of projects being carried out by the bureau of reclamation, at a rate which would yield irrigation and power benefits without undue delay.

In the field of transportation and communication, the increase requested was relatively small considering the magnitude of total expenditure and was requested in order to expand the activities of the Public Roads administration and the Civil Aeronautics administration. Offsetting decreases under this general function were the result of lower construction activity for the coast guard and reduced activities of the maritime commission.

One of the few functional components of the budget to show a substantial decline was finance, commerce and industry, for which expenditures of $372,000,000 were to be reduced to $190,000,000. This decline was in essence a bookkeeping entry since it arose primarily because of the payment in 1948 of war damage insurance profits to the miscellaneous receipts of the treasury. So far as the substantive items under this category of expenditures were concerned, however, the trend was generally upward. The most important item concerned expenditures to finance proposed anti-inflation legislation. There was also a recommendation that funds be provided the department of commerce to conduct a new census of business and other surveys. A small increase was requested for various activities connected with labour, largely designed to restore some of the reduction that was effected by congress in the preceding year. The expenses for general government operations were little changed, apart from the costs of handling surplus property disposal.

Despite the fact that there was a decrease in the public debt in 1948 and a further decrease anticipated for fiscal 1949, it was expected that interest on the public debt would continue to rise slightly. This was essentially caused by a shift in the composition of the debt away from the types of securities carrying lower rates to securities carrying higher interest rates. Other factors accounting for the increase in interest costs were the greater age of savings bonds carrying higher accrual rates of interest and the increase in short-term interest rates which occurred during 1948.

As already noted, a decline in total budget receipts was anticipated on the revenue side of the president's budget, from $45,210,000,000 in 1948 to $44,477,000,000 in fiscal 1949. The president stated that the estimate of receipts assumed continuation of a high level of business activity and of national income and, furthermore, assumed that any further inflation would be held in check by an effective anti-inflation program. Hence, the decline in budget receipts was not to be due to any significant change in tax revenues but resulted principally because of an



"DOUBLE TALK" was what Pres. Truman's 1947 policy for domestic finances sounded like to Shoemaker of the *Chicago Daily News*

estimated reduction of $2,000,000,000 in miscellaneous receipts from the sales of surplus property. The question of a general reduction in taxation was dismissed on the grounds that a substantial budget surplus was one of the most effective weapons in fighting inflation. The president had recommended that the personal income tax be reduced by $40 for each taxpayer and for each of his dependents, and he repeated in the budget message his belief that some readjustment was required to afford relief to many families suffering hardship from the tax structure. However, the proposed reduction in the personal income tax was to be offset by an increase in the corporation income tax or by the imposition of an excess profits tax so that government revenues would be unchanged.

Since the revenues of the government were expected to be greater than its expenditures, it was anticipated that a sizable surplus would be available for a further reduction of the public debt. There had been a small surplus in the fiscal year 1947, and for fiscal 1948 a substantial surplus was estimated, amounting to $7,482,000,000. For the following fiscal year, the budget surplus was estimated at $4,808,000,000. The president stated that, as long as employment and income were at record levels, full opportunity should be taken to apply this surplus to debt retirement.

(*See* also DEBT, NATIONAL; INCOME AND PRODUCT, U.S.; TAXATION; UNITED STATES.)

Great Britain.—The budget of Great Britain for the fiscal year 1947-48 showed little change on the revenue side and a further decline on the expenditure side. Revenues were expected to total £3,429,000,000, as compared with £3,341,000,000 in fiscal 1946–47. Some minor changes in taxes were proposed which were expected to raise the revenue total to £3,451,000,000.

On the expenditure side of the budget, the only significant change was a further marked cut in outlays for national defense. This item had already been reduced in the fiscal year 1946–47 to £1,653,000,000 as against £4,410,000,000 during the last war year. Estimated expenditures were to be cut to £899,000,000. If account was taken of the proposed tax changes, the budget showed a surplus of approximately £270,000,000. (M. GT.)

Buhl Foundation: *see* SOCIETIES AND FOUNDATIONS.

Building and Construction Industry.

Steadily rising costs and several acute materials shortages raised havoc with the construction industry in 1947. In spite of these factors the volume of residential and industrial construction increased, but commercial construction declined. According to the bureau of labour statistics there were 89,300 more home units started in the first nine months of 1947 than in the same period in 1946, bringing the total started in this period to 615,000. Greatest progress was made in home completions which reached 576,000, doubling those in the first nine months of 1946. Whereas single family or row houses started in 1946 took from seven to nine months to complete, most houses of this type were completed in four or five months in 1947.

It was estimated that by the end of October, $11,938,000,000 had been spent for construction of all types, including public and private and new and major repair work. This was 25.8% above expenditures in the first ten months of 1946. But this dollar volume rise reflected spiralling construction costs and therefore could not be interpreted as a proportionate increase in amount of building.

The comparatively large industrial program consisted in the first six months chiefly of completions of contracts let in 1946 when materials supply seemed to be easing and the full impact of uncontrolled costs had not been felt. New contracts did not materialize in sufficient volume to bring about the usual seasonal rise in industrial expenditures normally occurring between August and September, but industrial starts rose in the fall. Public expenditure flowed mainly into new schools, highways, flood control and irrigation works.

Increases in the volume of home building did not follow the normal seasonal curves. There was a marked slump in the spring, usually the season for increased starts, and there was a marked increase in the late summer and early fall when the number of starts usually decline. The spring slump was occasioned by a buyers' panic because of higher prices. In New York city, home building shrank from 1,120 new dwelling units

Estimated Construction Expenditures, First Ten Months of 1946 and 1947

Type of Construction	Expenditures (in millions) first ten months 1947*	1946	Percentage of change from 1946 to 1947 first ten months
Total construction	$11,938	$9,489	+25.8
New construction†	10,275	7,998	+28.5
Private construction	7,871	6,283	+25.3
Residential building (nonfarm)	3,779	2,528	+49.5
Nonresidential building (nonfarm)	2,602	2,746	− 5.2
Industrial	1,436	1,352	+ 6.2
Commercial	692	948	−27.0
All other	474	446	+ 6.3
Farm construction	410	320	+28.1
Public utilities	1,080	689	+56.7
Public construction	2,404	1,715	+40.2
Residential building	163	268	−39.2
Nonresidential building (except military and naval facilities)	402	269	+49.4
Industrial‡	25	72	−65.3
All other	377	197	+91.4
Military and naval facilities	162	155	+ 4.5
Highways	953	573	+66.3
Sewer and water	250	156	+60.3
Conservation and development	307	194	+58.2
All other public	167	100	+67.0
Minor building repairs§	1,663	1,491	+11.5
Residential building (nonfarm)	531	443	+19.9
Nonresidential building (nonfarm)	605	630	− 4.0
Farm	527	418	+26.1

*Preliminary.
†Estimates of new construction were prepared jointly by the Bureau of Labor Statistics and the Office of Foreign and Domestic Commerce, and include expenditures for new construction, major additions, and alterations.
‡Excludes expenditures to construct facilities used in atomic energy projects.
§Covers privately financed structural repairs of the type for which building permits are generally required, and also maintenance work on farms.
Source: *Construction*, Series release Nov. 8, 1947, U.S. Dept. of Labor, Bureau of Labor Statistics.

started in March to 630 started in April. (April 1946 had 2,650 starts in the same area.)

Rumours that selling prices would soon drop were halted by the fact that construction costs continued to rise. Prospective buyers saw no actual prospect of lower prices and feared constantly rising prices so by July there was a new wave of buying which continued through the fall. The 85,700 new permanent homes started in July broke records of 20 years' standing and approached the 1925 all-time high. The new buying wave encouraged builders to make an unusual number of fall starts. Private builders marked a high never before reached in September by starting at least 88,000 new permanent homes.

It was estimated that 825,000 new dwelling units were started in 1947 in areas where building permits recorded construction. It was also estimated that a large number of units were built in peripheral districts surrounding urban communities where building permits were not required. Many of these homes, built by individuals for their own use (often by themselves with the assistance of family and friends) were stopped during construction because of high costs which exceeded the amount of money the family could afford or because of material shortages.

The greater number of the estimated 825,000 units started were in suburban areas, small towns and villages where land costs were more favourable.

By October there were four acute material shortages—nails, millwork, gypsum-lath and soil pipe. These shortages slowed construction and their continuance threatened stoppages in many areas. An active "gray market" evidenced itself. Because price controls had been repealed and no law was violated, "gray" was used instead of "black" to describe this market where nails and millwork could be bought at extortionately high prices from merchants and salesmen and others who had previously not sold them at all or to any great extent. Nails could be bought from concerns which did not previously handle nails, but traditional dealers could not get them. The regular price for nails in October was just under $5.00 a keg; the gray market price ranged from $7.70 to $14 a keg. Some builders were using aluminum nails at 60 cents a pound. The following explanations were given for the gray market in nails:

1. Many manufacturers of nails, in their endeavour to secure scrap steel, paid for it in nails and not in cash. Then these nails found their way into the gray market.

2. Many prefabricators who had to curtail or close down were putting products which they were holding in warehouses upon the market at high prices.

3. Steel manufacturers were not producing the nails that the market required because nails were not a profitable item of production.

Rough shop lumber prices mounted. While some old-line lumber producers held them in line, others skyrocketed them. One company sold No. 3 shop and better kiln-dried ponderosa pine at $71.50 per 1,000 delivered, while another sold it at $130 a thousand F.O.B. mill, which meant that when it was kiln-dried and delivered the price was about $172 per 1,000.

Retail lumber dealers were short of millwork because millwork manufacturers had to curtail production for lack of lumber. Many attributed the millwork lumber shortage to lack of boxcar facilities to deliver the lumber to the mills.

The gypsum-lath shortage was caused by shortages of paper and of plant facilities. Fuller production was anticipated for 1948 because two new plants were completed in 1947.

Material shortages, however, were not the only cause of construction difficulty nor the only price booster. There was a general rise. Material prices had risen 17% from Oct. 1946 when OPA controls were lifted to Dec. 1946. From Dec. 1946 to April 1947 they rose another 13%. In his message to congress on the domestic economy on Nov. 17, President Harry S. Truman stated that, "Since the middle of 1946 . . . building materials have gone up 42%."

Wage rates of union workers in the building trades advanced 15% in the year ending July 1, 1947, and continued to rise. Employment in the construction industry rose to about 1,925,000 in September, a rise of 10% over Sept. 1946.

Labour difficulties were emphasized in the press. On Feb. 1, 1947, President Truman announced a no-strike, no-lockout agreement between the Associated Contractors of America and the Building and Construction Trades department of the American Federation of Labor for settling labour disputes in the home, highway, heavy and specialized construction fields. This agreement probably avoided some strikes but it was not entirely successful. Fear of repeated wage rises caused contractors to pad bids for contemplated public construction, making costs prohibitive to public agencies. In an effort to remove this factor of uncertainty the mayor of New York city started negotiations to obtain a two-and-one-half year wage stabilization agreement in the New York building industry. Negotiations started early in the year were reported "progressing" in mid-November. Builders complained more bitterly of the effect of labour slowdowns than of high hourly rates.

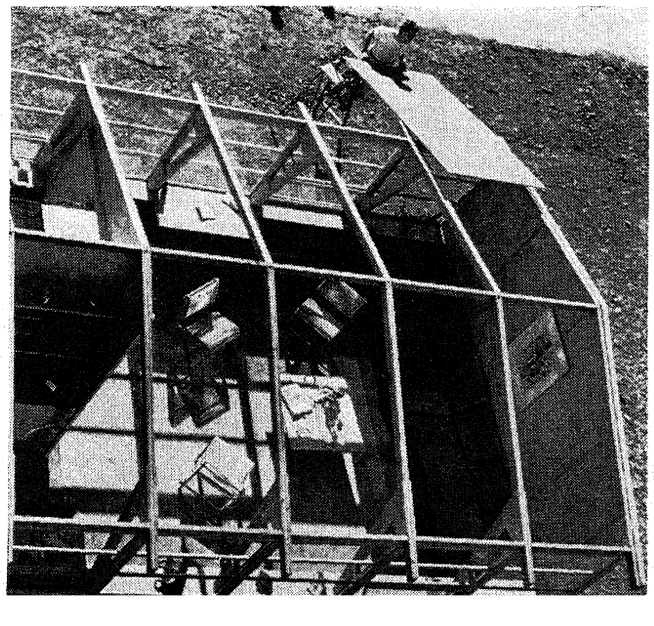
Apprentice-training programs increased 26% with 2,608 training plans in action in September and 103,640 apprentices in training.

There were more vocal protests than usual against restrictive building codes which forced unnecessary expenditures, but not many local codes were changed.

The National Electrical Contractors association and the International Brotherhood of Electrical Workers set up the National Electrical Benefit board to operate the first industry-wide pension plan in the building field to which employers would contribute.

In May congress eased the space restrictions on new housing from 1,500 to 2,000 sq.ft. In June congress passed the Wolcott decontrol bill which removed all construction restrictions. Having failed to pass any new legislation to encourage new construction to alleviate the acute housing situation, congress authorized a 14-member joint senate-house committee to investigate housing. Starting in September, the committee under the chairmanship of Representative Ralph Gamble of New York and the vice-chairmanship of Senator Joseph R. McCarthy of Wisconsin held hearings in every section of the country.

THE CALIFORNIA CABIN, a small prefabricated house popular in the southwestern U.S. during 1947. The basic three-room unit consisted of six standardized sections and could be completed by one man in six days. Most wall space was window





PREFABRICATED concrete parts of Airey houses, at a supply yard in Essex, England; 20,000 of these dwellings, which came in two styles, were on government order in 1947, to ease the British housing shortage

Chairman Gamble listed as "primary questions" confronting the committee the following: cost factors and cost reduction in housing; taxation of real estate; effect of existing housing legislation on the shortage and high cost of housing; slum clearance; disabled veteran housing; organization of enterprise in housing; multiple-unit housing construction; building codes; capital supply and financing of housing; distribution and stocking of building materials; rural housing; and effects of purchaser pressure for housing.

Representative Ralph W. Gwinn of New York headed the house labour subcommittee investigating malpractice charges against unions and other segments of the building industry. This committee also circuited the country, holding hearings.

These various committees were expected to report and to make recommendations to congress early in 1948. (*See* also BUSINESS REVIEW; HOUSING; UNITED STATES.)

BIBLIOGRAPHY.—Reports of the Bureau of Labor Statistics, Housing and Home Finance Agency, the National Committee on Housing; *The Architectural Forum.* (D. RN.)

Great Britain.—The cold weather of the first three months of 1947 restricted work very seriously and disposed at once of the setting of ambitious targets. The long dry summer and fine autumn, however, enabled good progress to be made with the large numbers of houses started in the previous year and the monthly totals of houses completed rose steadily from 8,975 in March to 17,608 in September. Attention continued to be focused on the building of houses, although nearly half the labour force of the industry continued to be engaged on industrial building whose progress was, in the main, comparable to that of housing.

Output of individual operatives remained a source of complaint for those responsible for production. Questions of wages and incentives were earnestly debated throughout the year in the joint industrial council of the industry until, in October, it was announced that an increase of 3*d.* per hour had been agreed and a return to a payment-by-results scheme arranged. It was, however, by no means clear that a method had been found of overcoming the many obstacles to the satisfactory working of such a scheme.

Employers in London adopted a training-within-industry scheme to assist with the training of foremen; and, at all levels in the industry, increasing interest was shown in this work.

Supplies of materials continued to be very uncertain. The loss of production during February and March affected building materials very seriously with the result that, when building could start again, it was hampered by shortage of supplies. Steel for large buildings was scarce and it was not unknown for dollars to be spent in importing steel for high priority building.

Finally, the arrangements to meet the economic crisis indicated that the building labour force would be reduced and the building program lightened. The end of the year, therefore, found the outlook less certain than in the immediate postwar period, though there were many who felt that there was gain as well as loss in spreading the expansion of the industry over a longer period. (D. A. G. R.)

Bulganin, Nikolai Alexandrovich (1896–), soviet politician and army officer, was a textile worker before the revolution. At the start of World War II he was chairman of the Moscow city soviet and was made a member of the city's military council after the German invasion.

Thereafter, his rise in the soviet state hierarchy was rapid. Enjoying the confidence of Premier Joseph Stalin, he was made a lieutenant general in the red army in 1942. Later he was

promoted to an army general, and in late 1944 he was given the post of vice-commissar of defense. On Nov. 22 of that year, he was also made a member of the Soviet Union's 18-man defense council.

Shortly after taking his new post, Bulganin was dispatched to Poland to co-ordinate red army strategy in that theatre. In this post, he was said to have demonstrated his competence as a military "trouble-shooter," and in 1946, after the war, he was made vice-minister of the armed forces and was also elected to the politburo, the "super-cabinet" generally credited with running the soviet state machinery.

On March 3, 1947, Stalin stepped down as minister of the armed forces because of "the excessive pressure of his main work" and named Bulganin as his successor; two days later, Bulganin was also made a deputy premier.

Bulgaria. A republic in the eastern part of the Balkan peninsula. Area: 42,796 sq.mi.; pop. (census 1946): 7,022,206. Chief towns (pop. 1946): Sofia (cap. 434,888); Philippopolis (Plovdiv) (125,440); Varna 77,792; Russé (Ruschuk) (53,420); Burgas (43,684); Stara Zagora (37,057); Sliven (35,553). Religion: mainly Greek Orthodox, with about 800,000 Moslems. President of the republic: Mincho Neychev; prime minister: Georgi Dimitrov.

History.—A two-year plan for the Bulgarian economy was introduced at the January session of the *Sobranie*. Special emphasis was laid on the electrification schemes for the country. During the two-year period 12 thermoelectric and 16 hydroelectric centres and 16 transformer subcentres were to be set up. A dam was opened in March at Koprinka which would feed three power stations totalling 50,000,000 kw.hr., and in the August trade treaty with the U.S.S.R. it was stated that the latter would deliver one power station to Bulgaria. The two-year plan paid great attention to agriculture. By the end of 1948 Bulgaria was to have 50 machine tractor stations, and in the same period the number of labour co-operatives (voluntary collective farms) was to be doubled.

The food situation was difficult, a result of the heavy drought of 1946. Bread rations were reduced in January, March and June. In April price reductions of industrial goods were decreed, varying from 10% to 30%, doubtless in the hope of giving the peasants a further incentive to part with their produce. In March all bank notes over the value of 200 leva had to be handed in. The governor of the National bank put forward a claim to examine foreign missions' accounts. Bulgarian foreign trade during the year was principally with the U.S.S.R. which in exchange for tobacco and raw materials supplied some industrial equipment and "technical assistance." Prices were as usual kept secret.

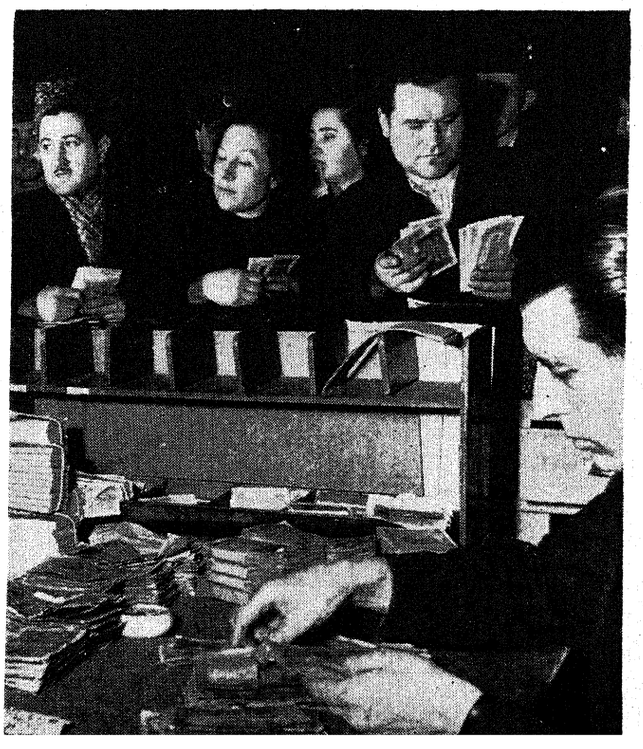
On June 6 Nikolai Petkov, president of the Agrarian party, was arrested and charged with "conspiring with subversive foreign and domestic elements to overthrow the existing government." On June 11 the U.S. government issued the first of a series of protests, pointing out that Petkov "has evoked deep sympathy in the United States because he has openly fought for the acceptance and perpetuation of civil liberties in his own country—principles that were agreed to at Yalta, that underlie the terms of the armistice with Bulgaria, and that Article II of the peace treaty signed with Bulgaria was designed to protect and insure." Next day 23 deputies of the Agrarian party, charged with being "tools" of their imprisoned leader, were forced to resign from the national assembly.

After a nominal trial in the soviet manner, Petkov was found guilty of conspiracy and sentenced to death on Aug. 16. Both the U.S. and British governments protested to Lt. Gen. Alexander Cherepanov, acting chairman of the Allied (Soviet) Control commission, terming the trial a "gross miscarriage of justice." Gen. Cherepanov replied that he was powerless to intervene, since the trial was a "purely internal Bulgarian affair." On Aug. 23 the U.S. ambassador to Moscow, W. Bedell Smith, delivered a note to the soviet government requesting immediate consultations among the three Yalta powers with a view to staying Petkov's execution. The soviet reply reiterated Cherepanov's position and expressed "full respect and confidence toward the Bulgarian court set up by the Bulgarian people as a guardian of justice." Great Britain supported the United States in rejecting the soviet reply. Petkov was hanged on Sept. 23. At the request of the communists, the national assembly had meanwhile dissolved the Agrarian party and prohibited its 84 deputies from engaging in further political activity. The legal opposition in Bulgaria was thus reduced to the impotent Social Democratic party, represented by 8 deputies in an assembly totalling 465. Both the socialist and Agrarian newspapers had been suppressed the preceding June.

Two weeks after the execution of Petkov the trial of Gen. Kyril Stanchev began. Stanchev had played a prominent part in organizing the revolution of Sept. 9, 1944, which caused Bulgaria to break with Germany, and had commanded with distinction one of the Bulgarian armies that had subsequently fought with the Allies. Stanchev was tried for conspiracy, and received a sentence of life imprisonment.

The British government recognized the Bulgarian government on Feb. 13, and the United States resumed full diplomatic relations with Bulgaria on Oct. 1. On Aug. 25 the Bulgarian parliament ratified the peace treaty. Bulgarian spokesmen, however, repeatedly stated that they had not renounced the claim to part of the Aegean coast. Bulgaria's relations with Greece were uniformly bad, as shown by the whole course of the U.N. investigations on Greece's northern frontier. With Yugoslavia relations were good; in August Dimitrov visited Marshal Tito, and a mutual assistance pact was drafted between the two countries. This provided for abolition of visas, co-ordination of rail and other communications and of electrification policy, and the renunciation on the part of Yugoslavia of $25,000,000 worth of reparations. The pact also provided for "agreed activity" with

BULGARIAN CITIZENS turning in royalist currency for new government bank notes, which were placed in circulation on March 10, 1947



regard to "the frequent frontier provocations of Greek monarcho-fascists," and "a Danube river regime which concerns only riparian Danubian states." On Nov. 29, when Tito revisited Dimitrov in Bulgaria, the treaty of mutual assistance was signed. On Dec. 14, during a visit to Bulgaria of the Albanian prime minister, a similar treaty was signed by Dimitrov and Enver Hoxha. Dimitrov announced that Bulgaria would conclude mutual assistance treaties also with Rumania, Hungary, Czechoslovakia and Poland.

On Dec. 9, when the new constitution came into force, Mincho Neychev was elected president of the republic and Vasil Kolarov, the provisional president, was appointed foreign minister in the new Dimitrov cabinet. (H. S-W.; L. We.)

Education.—Elementary and secondary (1940–41): kindergarten schools 256, scholars 12,465; primary schools 5,568, scholars 662,952; secondary schools 2,260, scholars 376,091; vocational schools 421, scholars 50,803; special schools 16, scholars 2,940. Higher education (1942): superior institutions 12, scholars 15,576; University of Sofia, teaching staff 430, students 9,744.

Finance.—Revenue (est. 1946) 42,910,000,000 leva. Money and note circulation (Feb. 1947) 44,457,000,000 leva; bank deposits (1947) 109,500,000,000 leva. No current rate of exchange.

Trade and Communication.—Foreign trade: imports (1946) 17,514,000,000 leva; imports (Jan.–June 1947) 7,581,000,000 leva; exports (1946) 14,942,000,000 leva; exports (Jan.–June 1947) 9,184,000,000 leva. Roads (1945) 13,870 mi.; railways (1945) 2,402 mi.; radio sets (1945) 195,645; telephones (1945) 38,842.

Industrial and Agricultural Production.—Production (July 1946–June 1947) in short tons: coal 1,096,106; iron and steel 23,322; cotton 18,105. Harvest (1946) in short tons: wheat 1,638,389; rye 159,331; barley 1,799,388; oats 101,235; maize 492,828; tobacco 41,837; rice 11,255; sugar beets 243,026; sweet sorghum 56,615; soya 91,346; cotton (seed) 10,624, (yarn) 4,517; hemp (seed) 2,156, (yarn) 3,207; flax (seed) 374, (yarn) 488; beans 74,074; potatoes 52,082; lucerne 214,207; pimentos 143,313; tomatoes 89,797. Harvest (1947), preliminary estimates: wheat and rye 1,322,800; other grain crops 941,800. Industrial production index (1947) 135 (1937=100). Unemployed (May 1947) 23,200.

Bureau of Standards, National: *see* Standards, National Bureau of.

Burma. A British dependency, lying on the eastern side of the Bay of Bengal between India, China and Siam, which from Jan. 4, 1948, was to be an independent state, the Union of Burma. Area: 261,610 sq.mi.; pop. (est. 1941): 16,823,798. Chief cities (1941): Rangoon (cap. 500,800); Mandalay (163,527); Moulmein (70,000). Languages: Burmese and English; religion: Buddhist (85%). Provisional president, Sao Shwe Thaik, the Shan chief of Yawnghwe; prime minister, Thakin Nu.

History.—In Dec. 1946 the British government invited Burmese political leaders to London and a delegation of six, headed by U Aung San, carried on discussions in London in Jan. 1947. An agreement, which U Saw (Myochit party) and Thakin Ba Sein (Dobama Asi-Ayon party) refused to sign, was reached that the interim government should be conducted generally in the same way as the interim government of India and that a constituent assembly should be elected directly. At the elections held in April the Anti-Fascist People's Freedom league had a sweeping majority; several minor parties boycotted the election. In February a conference of frontier peoples was held at Panglong, in the Southern Shan States, and an agreement was reached on measures for co-operation between the Burmese and the frontier peoples.

The constituent assembly began its deliberations in June and adopted a resolution that the constitution should be that of an independent sovereign republic to be known as the Union of Burma. A goodwill mission headed by Thakin Nu went to London in June and their conversations with the British government turned principally on the arrangements for the transfer of power and the future relations between Burma and Great Britain. The British government agreed that the interim government should become the provisional government of Burma until the transfer should be completed and that the senior member of the cabinet should be designated prime minister and the other members ministers. It was also agreed that a treaty should be drawn up and that missions should be exchanged to deal with defense and other matters. On July 19 seven members of the executive council, including U Aung San, were assassinated in the council chamber. A new government was at once formed headed by Thakin Nu, president of the constituent assembly. Former Premier U Saw and many others were arrested; the country remained quiet.

The constituent assembly held its second session in July and completed its work in September. Thakin Nu paid another visit to London and signed a treaty on Oct. 17. The Union of Burma was to come into being on Jan. 4, 1948, on the transfer of power by the British in accordance with the 1947 act providing for the independence of Burma.

The union would have a president, a prime minister and other ministers, a chamber of deputies and a chamber of nationalities. The Shan state, the Kachin state and the Karenni state would form constituent units of the union. There would also be Karen and Chin affairs councils. The constituent units would be autonomous in certain spheres of government and they and the councils would have ministers in the union government.

The president would be elected by the two chambers in joint session. The president would appoint the prime minister on the nomination of the chamber of deputies. The prime minister and the members of his government would depend on a majority in the chamber of deputies. The life of the chamber of deputies, of probably about 250 members, would be four years unless dissolved earlier by the president. The chamber of nationalities was to have 125 members. Rights of equality, freedom, religion, culture, and education, rights to constitutional remedies and economic rights were written into the constitution. It was also provided that the state should direct its policy toward operation of all public utility undertakings and exploitation of all natural resources in the union by itself or local bodies or by peoples' co-operative organizations.

At the end of 1947 Burma was still suffering seriously from the physical results of World War II, and recovery was hampered by lawlessness in various areas—figures for murder, dacoity and robbery were high—and by strikes. The cost of living, though falling, was still at an index figure of 300 to 400 (1941=100) for food, clothing and miscellaneous items. On the other hand, roads and transport were improving, exports of rice and timber were rising steadily, and ministers spoke confidently of a speedy return to normal. (J. Ce.)

Education.—In 1940, total number of institutions 27,015, scholars 851,922; primary schools 5,679, scholars 384,060; middle 1,018, scholars 139,190; high 399, scholars 94,353; special 1,172, scholars 19,190; unrecognized institutions 18,745, scholars 212,663; university (Rangoon) 2,365 students; art college (Mandalay) 101.

Finance.—Budget (actual 1946–47): revenue Rs.283,840,700, expenditure Rs.429,207,500; (est. 1947–48): revenue Rs.319,403,000, expenditure Rs.356,357,000. Exchange rate: rupee (Rs.1)=1s. 6*d*. (30.155 cents U.S.); one crore=10,000,000 rupees; one lakh=100,000 rupees.

Trade and Communication.—Overseas trade in merchandise (April 1940–March 1941): imports £22,162,500; exports, including re-exports, £41,535,000. Communication (1940): roads for motor traffic, all weather, 6,811 mi.; seasonal 5,661 mi.; railways 2,060 mi.; inland waterways (approx.) 1,300 mi.

Agriculture and Mineral Production.—Production (1940–41) (in short tons): rice 6,720,000; groundnuts 179,200; sesamum seed 80,640; cotton 14,560; tobacco 53,435; teak 491,486. Minerals (1939): petroleum 331,069,920 U.S. gal.; (in short

tons) tin concentrates 6,093; tungsten concentrates 4,863; tin tungsten concentrates 6,264; refined lead 85,120; antimonial lead 1,322; zinc concentrates 66,640; copper matte 8,887; nickel speiss 3,244; silver 6,175,000 troy oz.; gold 1,206 troy oz. Estimates for 1946–47 (in short tons): Rice (in husk) 4,357,600; groundnuts (in shell) 112,000; sesamum 34,000; cotton (lint) 4,100. Mineral production was still very small owing to destruction caused by the war.

Buses: *see* AUTOMOBILE INDUSTRY; ELECTRIC TRANSPORTATION; MOTOR TRANSPORTATION.

Business Review. The year 1947 in the United States witnessed marked business expansion, an unprecedentedly high level of employment, rapidly rising prices and widespread antilabour feeling. Progress was made toward the better adjustment of the various sectors of the economy, and many of the retarding and disruptive factors of 1946 were less pronounced. There were fewer production delays occasioned by short supplies of strategic materials and parts, and a marked reduction in work stoppages caused by labour troubles and strikes. Most of the remaining wartime controls over the economy were removed, and new curbs were put on labour. The tempo of business activity was accelerated, reflecting continued high consumer demand in spite of rapidly advancing prices. Bank debits, an indicator of business activity, as reported by the board of governors of the federal reserve system, for the first 10 months of 1947 were 14% above the same period in 1946, and 29% above 1944.

In spite of the many tangible signs of returning business normality and peacetime prosperity, however, the year was characterized by surprise at the continued high level of business activity, uneasiness as to future prospects, and an emerging fear of inflation, which fear became a dominant concern during the second half of the year as the price rise gained momentum, bank loans expanded, consumer credit mounted, and the Marshall plan for aid to Europe approached realization. Reflecting this concern, President Truman late in the year urged the congress to concern itself with anti-inflation legislation, in effect, to re-establish some economic controls. Among the controls which the president strongly urged were: regulation of consumer and bank credit, and the distribution of commodities basically affecting the cost of living or industrial production; extension and strengthening of rent control; use on a selective basis of rationing and price control for essential cost of living items and essential industrial products; extension of authority over exports and transportation and continuation of the grain conservation program of the department of agriculture. On Dec. 9 the congress passed its own version of an anti-inflation measure, which extended the controls over exports and transportation and continued the grain conservation program, but for the rest, recommended a system of voluntary controls.

Commodity Prices.—Prices, both wholesale and retail, continued to rise throughout 1947 with only minor interruptions. The bureau of labour statistics index of wholesale commodity prices, other than foods and farm products, which stood at 105.6 in June 1946 rose to 124.7 by Dec. 1946, and stood at 137.3 by Aug. 30, 1947. Wholesale food prices which stood at 112.9 in June 1946 rose to 160.1 by Dec. 1946 and to 172.1 by Aug. 30, 1947. The index of farm products at wholesale rose from 140.1 to 168.1 between June and Dec. 1946 and by Aug. 30, 1947, had reached 181.7. For the year 1947, wholesale prices of commodities other than farm and food products averaged 23% above those of 1946, 37% above 1944, and 66% above 1939.

Retail prices followed wholesale prices upward. The consumers' price index of the bureau of labour statistics rose from 133.3 to 153.3 between June and Dec. 1946 and by Aug. 1947 had reached 160.3. Increases in food, clothing and house furnishings prices accounted for the bulk of the rise. The food index rose from 145.6 to 185.9 between June and Dec. 1946 and by Aug. 10, 1947 had climbed to 196.5. The rise in clothing prices, while less spectacular, was nevertheless substantial. The clothing price index rose from 157.2 to 176.5 between June and Dec. 1946 and to 185.9 by Aug. 30, 1947.

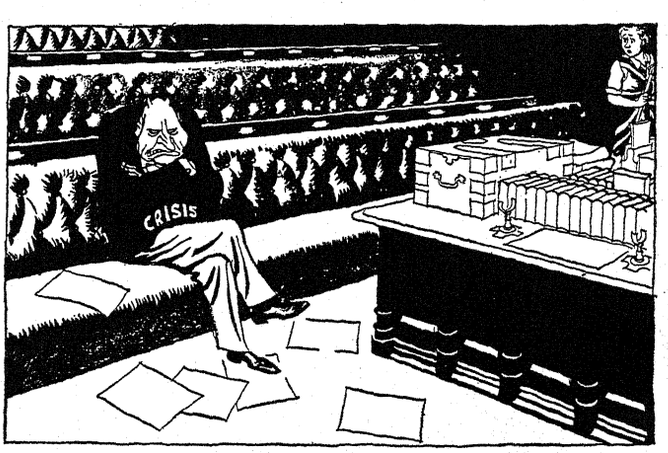
Factors on the demand side contributing to the very rapid rise in prices once price controls were removed were (1) the large volume of accumulated consumer demand, accompanied by a large and widely distributed volume of purchasing power arising from the high level of operations; (2) expansion in consumer credit; (3) resumption of inventory accumulation, especially at the distributive level; (4) European relief and reconstruction requirements, reflected in the tremendous increase in exports; and (5) on the supply side, the slowness in the upward trend in industrial production during 1947. (*See* also PRICE ADMINISTRATION, OFFICE OF; PRICES.)

Of all the major wartime price controls, rent control was the only one which remained in 1947, but by the middle of 1947, it, too, had been relaxed somewhat. The act passed by congress in late June 1947 provided for the extension of federal control of residential rents until March 1, 1948, and placed the administration of the act in the office of the housing expediter. This act removed controls from hotels and tourist accommodations, newly-built housing commenced on or after Feb. 1, 1947, and from all dwellings which at no time during the period Feb. 1, 1945, to Jan. 31, 1947, inclusive, were rented as housing accommodations. This new rent law permitted rents to be increased 15% above the existing maximum, providing the landlord and tenant mutually agreed on a lease extending through Dec. 1948.

The act also provided for local advisory boards with authority to increase rents, or order decontrol on an area basis, subject to revocation within 30 days by the housing expediter. Evictions were made subject to state laws. The act also removed all controls over building materials and construction, except over the use of materials for amusement or recreational purposes. The continuation of rent control was directly related to the short supply of dwelling units, and the slowness with which the construction industry was building new dwelling units.

Although residential construction was higher in 1947 than in 1946, it lagged far behind the demand for new houses. (*See* also BUILDING AND CONSTRUCTION INDUSTRY; HOUSING.)

National Income.—The growth in U.S. national income re-



"STILL IN SESSION," a cartoon by Illingworth in the *Daily Mail* (London), reflecting the gloomy crisis involving shortages, strikes and other problems shadowing both nationalized and private industries in Great Britain throughout 1947

flected the high level of business and industrial activity, and the growth in disposable personal income accounts, in part, for the pressure on prices. During the first quarter of 1947, national income was being produced at the annual rate of $197,600,000,000; during the second quarter at the rate of $200,100,000,000. Disposable personal income after federal, state and local taxes, during the first quarter of 1947, was at the rate of almost $170,000,000,000 per year, and by the third quarter it was at the rate of $178,700,000,000. Personal consumption expenditures were at the rate of $166,000,000,000 per year during the third quarter, and personal savings had dropped to $12,700,000,000. (*See* INCOME AND PRODUCT, U.S.)

Industrial Production.—Industrial production continued to expand throughout 1947, but the rate of expansion was low, in view of the relative freedom, as compared with 1946, from strikes, the more adequate supply and flow of raw materials and parts, the increase in foreign demand and the large effective consumer demand. The final removal of price controls, except on rents, late in 1946 was not followed by further rapid rise in industrial production in 1947 from the high levels reached by the end of 1946. In point of fact, the expansion in the physical volume of industrial production during 1946, while price controls remained, was far greater than in 1947 after price controls had been lifted. During the first 10 months of 1946, there was a gain of 28 points in the federal reserve board's adjusted index, and even after a November-December drop, there was a gain of 24 points for the year, from 156 to 180. In Jan. 1947, the index rose to 184 and hovered around 185 through August, rising to 190 in September and to 192 in October. Both durable and the nondurable goods industries slumped after the first quarter rise in 1947, the nondurable decline beginning in March, and the durable in April. By Sept. 1947, the nondurable goods index stood at 171, 5 points below January, and the durable goods index stood at 216, also 5 points below Jan. 1947. All of the durable goods industries, except iron and steel, were producing no more or less in Sept. 1947 than they were producing in January, and the increase in the iron and steel production index was only 3 points, from 192 in January to 195 in September. The lumber products and the stone, clay and glass products industries maintained a fairly constant level of production during the first three quarters of 1947, slightly above the level they had reached by the end of 1946. The machinery and the transportation equipment industries fell below their first quarter highs during both the second and third quarters of 1947. Of ten major nondurable goods industry groups, only four expanded production during the first three quarters of 1947—leather and leather products, tobacco products, printing and publishing and petroleum and coal products. Production in the chemical products industries and in the paper products industries was fairly constant throughout the first three quarters of 1947, at a level slightly higher than that reached by the end of 1946. Production declined in the textiles, manufactured goods products, alcoholic beverages and rubber industries during the first three quarters of 1947, with the most marked decline occurring in the textiles and the rubber products industries; the seasonably adjusted textiles index dropped from 172 in January to 158 in September; the rubber products index, from 247 in January to 212 in September. (*See* also articles on separate industries.)

Consumer Credit.—The last wartime control on consumer credit under regulation W, administered by the Federal Reserve Board, expired on Nov. 1, 1947, in accordance with the resolution of congress approved on Aug. 8, 1947. The extensive system of consumer credit control embodied in regulation W was introduced in Sept. 1941 as part of a program to control inflationary pressures on prices as consumer's goods became scarcer. Following the end of the war, there was some relaxation in the



RETAIL MERCHANTS of Newburyport, Mass., voluntarily cut prices 10% after Pres. Truman's appeal of April 10, 1947. Although other U.S. communities adopted the "Newburyport Plan," retailers of Newburyport abandoned it on May 20 because of wholesale price levels

extensive system of consumer credit controls embodied in regulation W. Until Nov. 1, 1947, however, a major part of the system of controls was retained by continuing the controls on instalment credit which prescribed minimum down payments and repayment terms. This was considered necessary because of the continued scarcity of the types of goods for the purchase of which instalment credit is primarily used, and, also, because of the general pressure on prices that was not removed by the ending of the war. In spite of the various restrictions on consumer credit, however, and the great increase in personal spendable incomes, the volume of consumer credit had expanded steadily throughout 1946 and 1947. By the end of Sept. 1947, one month before the lifting of the final restriction on instalment credit, the amount of consumer credit outstanding had risen to $11,400,000,000—an expansion of $6,600,000,000 from the wartime low in 1944 and $1,500,000,000 higher than the prewar peak in 1941.

Under the conditions of supply and demand that prevailed in 1947, the expansion in consumer credit was an added inflationary force. However, the expansion that had occurred in the whole economy mitigated considerably the inflationary influence of consumer credit expansion, for the volume of consumer credit, even at the high level of Sept. 1947, was lower relative to total personal consumption expenditures than at the previous peak

in 1941—about 7% in Sept. 1947 as compared with 12% in 1941.

Of the various forms of consumer credits, instalment credit, the most volatile of all the types of consumer credit, showed the greatest increase during the first nine months of 1947. The volume of instalment credit at the end of Sept. 1947, however, was still slightly below the prewar peak in 1941, whereas total consumer credit was substantially above the prewar peak. (*See* CONSUMER CREDIT.)

Table I.—*States Enacting Specified Types of Industrial Relations Laws in 1947*

Prohibition of closed shops or other types of union security agreements	Restriction of picketing and other strike activity	Prohibition of secondary boycotts	Restriction on jurisdictional disputes	Regulation of disputes in public utilities	Strikes by public employees	Registration and financial reports of labour unions
Arizona‡	Arizona	California	California	Florida	Michigan	Delaware
Arkansas	Connecticut	Delaware	Massachusetts	Indiana	Missouri	New Hampshire
Delaware	Delaware	Idaho	Michigan	Massachusetts	New York	North Dakota‡
Georgia	Georgia	Iowa	Missouri	Michigan	Ohio	
Iowa	Idaho	Minnesota	Pennsylvania	Missouri	Pennsylvania	
Maine*	Michigan	Missouri	Wisconsin	Nebraska	Texas	
Nebraska	Missouri	North Dakota‡		New Jersey		
New Hampshire†	North Dakota‡	Oregon		Pennsylvania		
North Carolina	Pennsylvania	Pennsylvania		Texas§		
North Dakota‡	South Dakota	Texas		Virginia		
South Dakota	Texas	Utah		Wisconsin		
Tennessee	Utah					
Texas						
Virginia						

*Permits the making or maintenance of "union shop" contracts.
†Union security contracts are prohibited only with respect to employers having five or less employees.
‡Inoperative until voted upon by the people at the 1948 general election.
§Relates only to picketing and sabotage.
Source: *Monthly Labor Review*, U.S. dept. of labour, Sept. 1947, p. 279.

U.S. Foreign Trade.—The foreign trade of the U.S. in 1947 was characterized by a phenomenal increase in merchandise exports, largely financed by credit previously extended to other nations by the United States, and by a disturbing widening of the gap between merchandise exports and imports. Enunciation in early June of the Marshall plan for the systematic extension of aid to war-devastated countries for the rebuilding of their economies was of tremendous importance to the future of U.S. foreign trade and to the domestic economy as well. A further event of great importance to the future of the foreign trade of the U.S. was the conclusion on Oct. 30, 1947, at Geneva of the General Agreement on Tariffs and Trade, probably the most significant accomplishment to date under the Reciprocal Trade Agreements program. In relation to the foreign trade of the United States, the Marshall plan was important because it was concerned with rebuilding the productive capacities of countries so that there would be commodities available to export in payment for imports; the General Agreement on Tariffs and Trade was important because it was concerned with tearing down the many artificial barriers to trade that had grown up over a period of time, especially during the depression period, when countries, including the United States, were struggling to protect their domestic markets for their home industries, which were able to



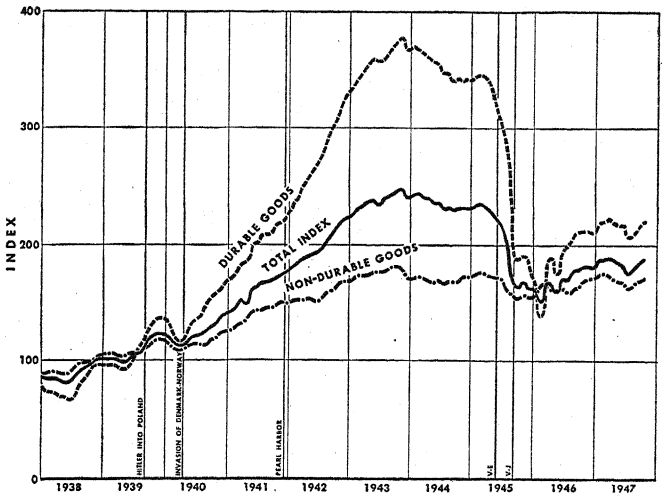
"THE UNTOUCHABLE" by Duffy of the *Baltimore Sun*. Speculation as to a possible business depression grew in 1947, as inflationary prices soared and real income dwindled

Table II.—*Business Indicators: Per Cent Change in Selected Business Indicators, United States, Selected Periods, 1939–1947*

Business Indicator	Per Cent Change—First 10 mos. 1947 From the Same Period: 1939	1944	1946	Per Cent Change Oct. 1947 from Oct. 1946
General business:				
Business activity[1]	+ 62	− 1	+ 12	+ 4
Bank debits[2]	+241	+ 29	+ 14	+ 19
Commercial failures[3]	− 77	+166	+229	+184
Personal income:				
Salaries and wages[4]	+166†	+ 5†	+ 12	+ 10
Agricultural (marketing)[5]	+240‡	+ 44‡	+ 29‡	+ 44¶
Total[4]	+169†	+ 19†	+ 12	+ 11
Civilian nonagricultural employment[3]	+ 43‡	+ 13‡	+ 7‡	+ 4¶
Unemployment[4]	− 73†	+ 18†	− 3	− 15
Employment and earnings—mfg.:[6]				
Total:				
Number employed	+ 56	− 9	+ 10	+ 5
Pay rolls	+227	− 5	+ 23	+ 17
Per production worker:				
Weekly earnings	+104	+ 6	+ 13	+ 11
Hourly earnings	+ 91	+ 19	+ 13	+ 11
Hours per week	+ 7	− 11	− (*)	0
Industrial production (physical volume):				
Durable goods[2]	+100	− 39	+ 16	+ 4
Steel[7]	+ 69	− 7	+ 32	+ 9
Nondurable goods[2]	+ 57	+ (*)	+ 5	+ 3
Total[2]	+ 69	− 22	+ 10	+ 4
Value construction contracts awarded:[8]				
Residential	+134	+775	− 3	+ 49
Nonresidential	+168	+215	− 7	+ 23
Public works and utilities	+ 66	+146	+ 12	+ 47
Total	+122	+291	− 2	+ 38
Distribution:[4]				
Department store sales	+167	+ 54	+ 7	+ 7
Chain store sales	+161‡	+ 59‡	+ 20‡	+ 23¶
Total retail sales	+159	+ 57	+ 13	+ 12
Consumer credit outstanding—total[2]	+ 68□	+133□	+ 32□	+ 32□
Wholesale prices:				
Other than farm and food[6]	+ 66§	+ 37§	+ 23§	+ 15♀
Prices received by farmers[5]	+190‖	+ 42‖	+ 20‖	+ 9♂
Total[6]	+ 96§	+ 46§	+ 25§	+ 14♀
Retail prices:				
Food[6]	+102	+ 41	+ 24	+ 12
Total cost of living[6]	+ 59	+ 26	+ 16	+ 10
Prices paid by farmers (excl. taxes & int.)[5]	+100‡	+ 38‡	+ 23‡	+ 20¶
Banking items of member banks:[2]				
Loans	+150‖	+ 85‖	+ 26‖	+ 19♂
Investments in U.S. govt. obligations	+272‖	− (*)‖	− 16‖	− 12♂
Total investments	+213‖	+ 4‖	− 14‖	− 10♂
Money in circulation[2]	+305‖	+ 26‖	+ (*)‖	+ (*)♂
Foreign trade (merchandise):[4]				
exports	+402‡	− 1‡	+ 56‡	+ 74¶
imports	+155‡	+ 43‡	+ 20‡	+ 27¶
Corporate profits after taxes	+240◇	+ 72◇	+ 36◇	+ 44▲

*Less than .5%. †On 12-month basis. ‡Nine months 1947 compared with same period other years. §Year 1947 compared with other years. ‖Eleven months 1947 compared with same period other years. ¶Sept. 1947, compared with Sept. 1946. ♀Dec. 1947, compared with Dec. 1946. ♂Nov. 1947, compared with Nov. 1946. □Estimated Dec. 1947, compared with Dec. of the other years. ◇Average for first six months of 1947 seasonally adjusted compared with annual average for other years. ▲Second quarter 1947, compared with record quarter 1946.

Sources: [1]*New York Times*. [2]Board of Governors of the Federal Reserve system. [3]Dun and Bradstreet, Inc. [4]U.S. department of commerce. [5]U.S. department of agriculture. [6]U.S. department of labour. [7]American Iron and Steel institute. [8]F. W. Dodge Corp.



INDUSTRIAL PRODUCTION of U.S. durable and nondurable goods, 1938–47, adjusted for seasonable variation (1935–39=100) (Source: Board of Governors of the Federal Reserve System)

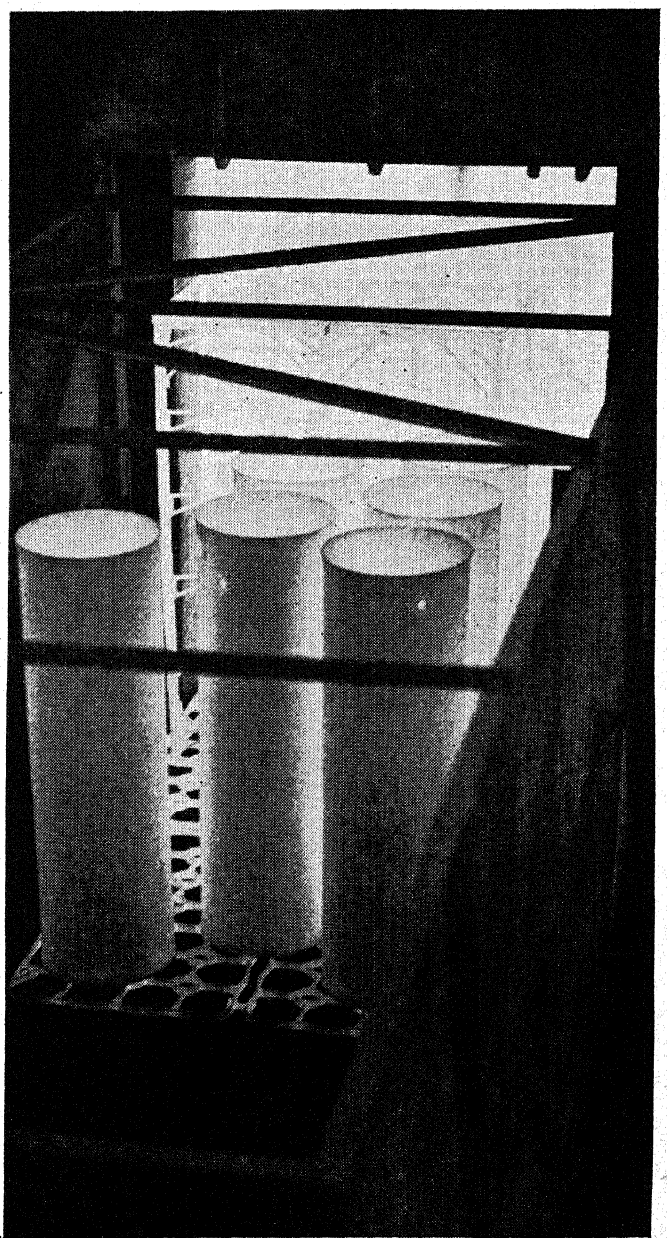
produce more than could be sold under the then existing conditions of consumer demand.

Supported, in large measure, by government credits which the U.S. had extended to countries in need of goods for rehabilitation and relief, the merchandise exports of the U.S. increased greatly throughout 1947. During each month of the first three quarters of the year, according to reports of the U.S. department of commerce, the value of merchandise exports exceeded $1,000,000,000, and the total for the 9-month period amounted to $10,800,000,000. The total for the year 1947 was just under $15,000,000,000. (*See* also EUROPEAN RECOVERY PROGRAM; INTERNATIONAL TRADE.)

Banking Developments.—An outstanding development of 1947 in relation to the U.S. domestic economy was the great increase in deposits and currency held by individuals. After declining slightly during the first quarter of 1947, deposits and currency held by individuals rose steadily through the third quarter. At the end of Sept. 1947, the total of privately held deposits and currency stood at $166,000,000,000, which was $21,000,000,000 larger than when hostilities ceased in Aug. 1945, and $103,000,000,000 above the level of 1939. The major factor in the 1947 expansion in privately held deposits and currency was the growth in bank loans. In the first half of 1947, commercial and industrial loans increased by $800,000,000, about the same growth as occurred in the corresponding period in 1946, but after June 1947, there was an intensified demand for business loans and, according to the Federal Reserve board, such loans by reporting member banks increased $2,100,000,000 from June 25 through Oct. 29, 1947. This use of bank credit by business continued to grow in spite of the fact that business profits were at record levels in 1947 and liquid assets high. (*See* also BANKING.)

Company Earnings.—Earnings of U.S. companies in 1947 reflected the record high levels of peacetime, production trade and national income and, in general, maintained the high level reached during the last quarter of 1946. In 1946, company earnings were characterized by a rapid rise quarter by quarter; in 1947, by a levelling off at the high level attained by the end of 1946. For the first 9 months of 1947, the combined net income of 375 leading corporations in the manufacturing, mining, trade and service industries amounted to $1,980,000,000, an increase of 77% from the corresponding period of 1946, according to a report of the National City Bank of New York. The magnitude of the increase was partly caused by the fact that net incomes during the first half of 1946, while rising, were low relative to the last two quarters of the year, reflecting in part work stoppages caused by labour difficulties and strikes. The 9 months' net income of these corporations were at an annual rate of 16.2% on an aggregate capital and surplus of $16,300,000,000; the rate in 1946 was 10% on $15,000,000,000.

Labour Legislation.—The overshadowing event on the labour front in 1947 was the enactment by congress on June 23, over the veto of President Truman, of the Taft-Hartley Labor-Management Relations act. Widespread antilabour feeling had developed during 1946, a year replete with bitter labour-management controversies and paralyzing work stoppages from strikes. The emerging public defection was organized and exploited in the November political campaign by a majority of the Republican candidates seeking election. When the new, predominantly Republican congress met on Jan. 3, 1947, the drafting of new labour-union control legislation was high on its agenda. Concurrently with the legislative activity in the congress, state labour legislation was also being prepared. In 1947, 44 states met in regular legislative session, and 35 states



POSTWAR FACTORY for the production of hot-water heaters opened at Kankakee, Ill., in Jan. 1947, and turned out 180 heaters per hour. Glowing inner tanks are shown emerging from a furnace at the ultramodern plant

Table III.—*Wholesale Prices*

(1937=100)

1946	Australia	Canada	Czechoslovakia	Denmark	France	India	Italy	Netherlands	Switz.	U.K.
Aug.	139	129	301	180	698	256	2791	237	194	163
Sept.	139	129	303	181	727	256	3011	239	192	163
Oct.	140	131	302	186	820	266	3176	241	195	163
Nov.	142	132	311	187	810	275	3376	244	197	165
Dec.	141	131	310	187	846	271	3677	245	197	166
1947										
Jan.	141	135	310	188	874	268	3754	247	196	167
Feb.	142	140	308	189	889	273	3891	248	197	169
March	143	142	310	188	860	276	4139	248	198	169
April	146	145	304	190	847	276	4533	248	199	172
May	147	148	304	192	946	274	5203	247	199	174
June	148	151	304	193	904	275	5329	249	200	175
July	148	153	310	198	882	280	5752	251	200	178
Aug.	148	153	311	198	1004	283	5876	250	201	178
Sept.	151	158	312	197	1096	281	6155	252	202	180
Oct.			316	197	1122	282			207	183

Source: *Monthly Bulletin of Statistics*, Statistical Office of the United Nations.

Table V.—*Industrial Employment*

(1937=100)

1946	Australia	Canada	S. Africa	U.K.	Norway	Czechoslovakia
Aug.	149	161	144	101	114	104
Sept.	150	164	145	102	115	103
Oct.	150	165	145	103	115	103
Nov.	146	168	145	104	117	102
Dec.	146	170	144	104	117	101
1947						
Jan.	148	167	143	105	117	99
Feb.	149	169	146	102	121	100
March	150	170	149	104	121	100
April	150	171	148	105	122	102
May	152	171	148	105	123	105
June	153	173	149	106	126	106
July	155	175	149	106	124	106
Aug.	156	177	147	106	125	
Sept.	156	178			126	

Source: *Monthly Bulletin of Statistics*, Statistical Office of the United Nations.

enacted legislation which regulated and restricted union activities. Fourteen passed laws which had the effect of prohibiting closed-shop agreements. Restrictions were placed on the use of secondary boycotts and picketing. Special legislation was passed in some states to regulate labour relations in public ultilities.

Table I shows state action taken on various types of regulatory labour laws or provisions.

(*See* also DEBT, NATIONAL; LAW; UNITED STATES.)

(V. B. B.)

Great Britain, British Commonwealth and Europe.—The basic factor in business conditions throughout the world during 1947 was the continued existence of an excess of demand over supply. The extent of this excess varied widely from country to country, according to the progress of the recovery of their system of production on the one hand and the degree of inflation of purchasing power on the other. Even in countries where inflation was practically nonexistent or moderate, and whose industries and agriculture had not suffered greatly from the war, there was an excess of demand, resulting from heavy buying by less favourably placed countries.

There was no indication yet in any country of the much-prophesied postwar slump. Rising prices caused by scarcity of goods did not appear to have resulted in consumers' strikes to any noteworthy degree. Nor did the majority of governments seek to correct excessive demand by means of deflation, beyond the degree achieved in some countries through reductions in government expenditure. To some extent France and Italy were experimenting with credit restrictions, but not nearly to an extent sufficient to bring about a slump similar to that experienced after World War I. In most countries the official monetary policies aimed at maintaining cheap and plentiful supplies of credit, to finance reconstruction or industrialization.

Under the circumstances the world-wide trend of rising prices was bound to continue. While in countries such as Great Britain, the British commonwealth, Switzerland, the Netherlands, etc., the rise was moderate and under control, in many European countries it assumed alarming proportions. Apart from the very marked rise in official prices, there were spectacular rises in black markets which continued to transact a very large proportion of the total trade in many countries.

Rising prices and large turnover continued to create an atmosphere of high prosperity. Producers and merchants were able to earn large profits, even though in many cases these profits were nominal rather than real, since stocks had to be replenished at very high prices. Owing to scarcity of labour, raw materials and fuel, rising prices did not cause general over-production, even though in some lines miscalculations by manufacturers resulted in surplus stocks which were not easily marketable.

Business prosperity in 1947 came to be threatened from another direction. The suspension of the convertibility of sterling on Aug. 20 led to a widespread realization of the degree of scarcity of hard currencies, and financially weak countries resorted to drastic cuts in their imports. Great Britain in particular, having spent, or lost through the effects of convertibility, practically the whole of the proceeds of the U.S. loan of $3,750,000,000, had to discontinue almost completely its imports from the dollar area. This dollar economy dealt a severe blow to many branches of business, in particular to the automobile trade. The price of second-hand cars slumped owing to the suspension of the basic ration of gasoline. The government's decision to concentrate on an export drive meant that industries working mainly for the domestic market had to be deprived of raw materials and even of man-power. Capital expenditure, too, had to be severely curtailed, and many important public works and the construction of new factories had to be suspended.

Most continental countries and British dominions had to follow Britain's example in enforcing stringent import restrictions, primarily against goods from the dollar area, but also against luxuries, in the broadest sense of the term, from no matter what source. Even countries such as Sweden and Canada, which felt strong enough at the beginning of 1947 to raise the exchange value of their currencies, found themselves threatened with an exhaustion of their supplies of U.S. dollars by the summer.

There were only two countries in Europe, Switzerland and Belgium, which were unaffected by the general trend. Among the British dominions, South Africa was in the strongest position, owing to its gold exports.

The progress of the reconstruction of industries left much to be desired. Few of the late European belligerents approached prewar level. While the number of workmen employed was, if anything, above the prewar figure, their output per head

Table IV.—*Industrial Production*

(1937=100)

1946	Belgium	Canada	Denmark	Germany Brit. Zone	Netherlands	Norway	Sweden	U.K.*
Aug.	73	139	99	35	74	101	104	105.5
Sept.	78	141	101	34	80	108	106	115.6
Oct	85	146	103	35	92	108	107	113.9
Nov.	80	153	104	35	91	114	108	116.1
Dec.	79	155	105	30	84	108	108	111.8
1947								
Jan.	86	161	106	28	86	109	108	110.6
Feb.	77	163	105	26	80	118	107	85.4
March	83	164	98	30	90	113	107	98.4
April	88	164	99	33	90	113	109	106.4
May	87	162	100	34	89	122	108	122.1
June	84	163	102	34	92	122	109	117.1
July	82	159	102	36	96	79	109	106.4
Aug.	82	156	103	37	86	120	107	114.9
Sept.		162	104			120		118.1

*(1944=100)

Source: *Monthly Bulletin of Statistics*, Statistical Office of the United Nations. Figures for the United Kingdom are taken from the *Financial Times* by kind permission.

was lower. On the other hand, British dominions, which underwent a large degree of industrialization during the war, showed a substantial increase of their industrial production.

The inadequacy of output in Europe in general was accompanied by excessive consumption, as is indicated by the index of retail trade, Table VI. This was partly the result of inflation, and partly of a more equal distribution of national incomes, because of which the poorest classes were able to increase their consumption. Under the influence of the growing political demand for them, wages and benefits from social services tended to increase.

Unemployment remained very low during the greater part of the year, even though there were sharp temporary increases in Britain and other European countries owing to lack of fuel or raw materials.

Table VI.—*Retail Trade*

(1937=100)

1946	Australia	Canada	Denmark	Netherlands	Switzerland	U.K.
Aug.	165	206	218	147	157	129
Sept.	178	199	219	147	177	135
Oct.	178	218	219	159	205	140
Nov.	199	235	249	232	224	146
Dec.	185	277	308	190	283	161
1947						
Jan.	167	174	198	168	176	126
Feb.	155	176	186	143	174	128
March	169	214	217	194	209	141
April	193	215	221	215	220	141
May	194	238	247	213	215	139
June	186	224	222	186	201	142
July	189	208		220	195	136
Aug.		215		197	179	149
Sept.		232		192	199	
Oct.					231	

Source: *Monthly Bulletin of Statistics*, Statistical Office of the United Nations.

Government control continued to be a leading factor in business, especially in Europe. Its extent, far from lessening, actually increased in the late summer and early autumn, as a result of the dollar scarcity. In many instances the extent of official interference approached wartime level. Socialist legislation, too, continued in several European countries, especially in Britain where the nationalization of railroads and electricity undertakings was passed by parliament. In countries beyond the "iron curtain" proprietors of private enterprise were gradually squeezed out of business by the relentless severity of anti-capitalist laws. Taxation of profits was further increased in several countries.

The year 1947, nonetheless, was not bad from the point of view of business activity. Profit possibilities were very favourable, especially in branches where prices were not officially fixed. In most countries manufacturers and merchants had no difficulty in financing their business activities out of their own liquid resources or with the aid of borrowed money. Governments' efforts to balance their budgets made it possible for banks, for the first time since the beginning of World War II, to devote a large part of their resources to financing trade instead of lending to treasuries. Owing to the ease with which stocks in general could be disposed of, and the high degree of liquidity that prevailed, the number of insolvencies remained very low. The main risk which producers had to run was not bad debts but sudden changes in the situation through government intervention or through lack of transport, fuel, materials or labour. (*See* also INTERNATIONAL TRADE; STRATEGIC MINERAL SUPPLIES; WAGES AND HOURS; and articles on individual countries and industries.) (P. EG.)

Butter. Production of butter in the United States recovered partly in 1947 from the 40-year low record of 1946. Total output was estimated at 1,700,000,000 lb., compared with 1,501,000,000 lb. in 1946 and an average of 1,990,000,000 lb. during 1940–45. With milk production about the same as in 1946 and more cream available, butter production was well maintained during the first half of the year but declined sharply in August. Civilian consumption was estimated at about 11.5 lb. per capita, compared with 10.2 lb. in 1946 and an average of about 12 lb. during 1940–45. Less than 1% of total production was exported in 1946 and during the first half of 1947.

The price of butter to producers declined from 74.5 cents per lb. in Dec. 1946 to 63 cents in May 1947, then recovered to 84 cents in September. Retail prices ranged from 75 to 95 cents during the second half of the year. Storage stocks during 1947 were only about 50% of normal.

The increase in world butter production during 1947 reflected chiefly the rise in U.S. production. The severe drought in Europe caused a decline in milk production during midyear. In France, however, there was a marked increase in butter production. Estimates for the second quarter of 1947 also showed increases in Belgium and New Zealand.

(*See* also CHEESE; DAIRYING; MARGARINE; MILK.)

(J. C. Ms.)

Cabinet Members. The following members of President Harry S. Truman's cabinet held office on Jan. 1, 1948.

Post	*Name*	*State*
Secretary of State	George C. Marshall	Pennsylvania
Secretary of the Treasury	John W. Snyder	Missouri
Attorney General	Thomas C. Clark	Texas
Postmaster General	Jesse M. Donaldson	Illinois
Secretary of the Interior	Julius A. Krug	Tennessee
Secretary of Agriculture	Clinton P. Anderson	New Mexico
Secretary of Commerce	W. Averell Harriman	New York
Secretary of Labor	Lewis B. Schwellenbach	Washington
Secretary of Defense	James Forrestal	New York

Great Britain.—On Dec. 31, 1947, the British Labour cabinet was composed as follows:

Post	*Name*
Prime Minister and First Lord of the Treasury	Clement Richard Attlee
Lord President of the Council	Herbert Stanley Morrison
Secretary of State for Foreign Affairs	Ernest Bevin
Chancellor of the Exchequer	Sir Stafford Cripps
Minister of Defense	Albert Victor Alexander
Lord Privy Seal	Viscount Addison
Lord Chancellor	Viscount Jowitt
Secretary of State for the Home Department	James Chuter Ede
Secretary of State for the Colonies	Arthur Creech Jones
Secretary of State for Burma	The Earl of Listowel
Secretary of State for Commonwealth Relations	Philip John Noel-Baker
Secretary of State for Scotland	Arthur Woodburn
Minister of Labour and National Service	George Alfred Isaacs
Minister of Health	Aneurin Bevan
Minister of Agriculture and Fisheries	Thomas Williams
Minister of Education	George Tomlinson
President of the Board of Trade	James Harold Wilson

(*See* also GOVERNMENT DEPARTMENTS AND BUREAUS.)

Cacao: *see* COCOA.

Cadmium. By the close of 1947 figures on the production of cadmium in the United States had not been reported for 1946, but after dropping from 4,390 short tons in 1944 to 4,192 tons in 1945, a further decline in 1946 was to be expected. Outputs were reported from other countries as follows for 1946, with 1945 figures in parentheses: Mexico 790 (1,161) short tons of cadmium content exported for treatment elsewhere; Australia 246 (about the same as 1945); Canada 380 (324); Poland 127 (54); other smaller 1946 outputs included Belgium 98 tons, France 53, Norway 28, Italy 25 and Belgian Congo 18 tons. (G. A. Ro.)

Cadogan, Sir Alexander George Montagu

(1884–), British diplomat and statesman, was born on Nov. 25, and educated at Eton and Balliol college, Oxford. He entered the foreign office, in 1933 went to Peiping as minister, and in 1935 was appointed ambassador. He returned to London

in 1936 to become deputy undersecretary of state for foreign affairs, and later permanent secretary.

In 1944 Sir Alexander headed the British delegation to the Dumbarton Oaks conference, and in 1945 attended the San Francisco conference. In Jan. 1946 he was appointed permanent British representative to the United Nations Security council, and also represented Britain at the general assemblies (leading the British delegates at the special assembly on Palestine, 1947), the atomic energy commission and the commission for conventional armaments.

The Security council, in the early months of the year, received a British complaint against Albania, and Sir Alexander spoke bitterly of the way in which a majority, having found the complaint substantiated, had been overruled by the application of the veto, and described the council as being "completely obstructed, sterile and impotent."

Calendar of Events, 1947: *see* pages 1–16.

California.

The most southerly Pacific coast state of the United States, California acquired statehood on Sept. 9, 1850. It is popularly known as the "Golden state," and has an area of 158,693 sq.mi., of which 1,890 sq.mi. is water. The resident civilian population was 9,342,000 (U.S. bureau of census est. on July 1, 1946) or 36.2% more than the 1940 census. Chief cities (with increase over 1940 in parentheses) were: Los Angeles 1,805,687 (20.0%); San Francisco 827,400 (30.3%); Oakland 400,935 (32.7%); San Diego 362,658 (78.3%); Long Beach 241,109 (46.8%); Berkeley 100,024 (16.9%); Pasadena 98,279 (20.1%); Glendale 96,495 (16.8%); Richmond 93,738 (252.1%). The capital, Sacramento, had a population of 119,984 (19.9%).

History.—The chief officers of California in 1947 were Earl Warren, governor; Goodwin J. Knight, lieutenant governor; Frank M. Jordan, secretary of state; Thomas H. Kuchel, controller; Charles G. Johnson, treasurer; Roy E. Simpson, superintendent of public instruction, and Fred N. Howser, attorney general.

When the state legislative session ended in July, most of Governor Warren's proposed legislation for 1947 had been made into law. A $3,000,000,000 ten-year highway construction program was launched, the revenue to be raised from a 1½-cent increase in the gasoline tax, a $2 levy on new driver's licences and a raise in automobile licence plate fees from $3 to $6. The state highway patrol was reorganized, a state aviation commission was established and a seven-man recreation commission was set up. Provisions were made for state mediation of labour disputes, liberalization of workmen's compensation benefits and an increase in funds for veterans' housing. The state assembly also outlawed jurisdictional strikes in California and required California citizens convicted of sex crimes to register with local police chiefs.

In July former State Attorney General Robert Kenny began the first official Henry A. Wallace presidential boom. Repercussions were felt at the state meeting of Democratic leaders in August, when the group split into three factions—supporters of President Harry S. Truman; Wallace backers, led by Robert Kenny; and followers of James Roosevelt, chairman of the California Democratic Central committee. Governor Warren was mentioned prominently as a possible presidential candidate in 1948, and state Republicans pledged their support in behalf of his nomination.

State Senator Jack Tenney released a 374-page report of his committee on un-American activities early in March, which charged that a number of organizations within the state were under communist influence and suggested that tax-supported institutions be purged of communists.

Education.—Average daily attendance for 1946–47 was estimated to have been 304,774 in unified districts, 735,312 in elementary districts and 330,602 in high school districts. Public junior colleges enrolled 47,976 students of which 18,700 were veterans. The seven state colleges showed an enrolment of more than 16,000 students. For the fall semester of 1947–48 the University of California reported a total of 42,637 full-time students for its 8 schools, of which 21,003 were veterans; 22,491 were enrolled at the Berkeley campus.

Social Insurance and Assistance, Public Welfare and Related Programs.—For 1946–47 the average monthly assistance payment for the 167,000 needy aged was $51.35 (total amount spent $103,466,900); the average monthly payment for the 6,314 needy blind was $60.20 (total amount spent $4,576,440) and the average monthly payment for the 25,660 needy children was $29.52 (total amount $9,089,430). During the fiscal year 1945–46 payable claims for unemployment compensation amounted to 766,938 (70,511 in 1943), and the benefits paid totalled $152,000,000.

Total expenditures for the 6 adult penal institutions and their 7,395 inmates amounted to $4,020,243 for 1946. For the same year, expenditures of the state youth authority totalled $2,710,387, the following institutions being under its direction: 5 work camps for boys with 223 inmates, 3 schools for boys with 1,028 inmates, and 2 schools for girls with 303 inmates.

Communications.—Final automobile registrations for 1946 totalled 2,801,076. As indicated by a legislative report of 1946 there were 13,886 mi. of highway in the state system and state expenditures for highways in 1946–47 amounted to $74,139,360 (1945–46, $41,858,875). Expenditures for county roads and highways in 1946–47 totalled $4,055,390 (1945–46, $201,491). California, in 1940, had 16,856 mi. of railway, 2,768 mi. of that being electrified. Of the 328 airports in the state in 1946, 69 were municipally operated and 125 were commercial; there were 2,820 mi. of federal airways within the state.

Banking and Finance.—Total assets of the 115 state-supervised banks (171 branch offices) reached an all-time high of $3,651,914,000 in 1946 (1945, $3,236,602,000). On Jan. 1, 1947, 111 California banks were members of the federal reserve system. Total bank deposits in California at the end of 1946 amounted to $11,353,422,000 (1945, $10,625,383,000). The 106 state licensed savings and loan associations reported assets of $331,210,409.75, an increase of 25.24% over 1945.

At the end of the fiscal year July 1, 1946, total tax collections in the state amounted to $4,364,580,000 (1945, $4,362,193,000). For the 1947 fiscal year Californians paid the U.S. government $2,464,294,411 in income taxes, which gave the state third rank in the amount of income tax paid into the federal treasury.

Total state revenue for 1946–47 was $571,677,261 (1945–46, $496,846,907.47); total expenditures for 1946–47 reached $487,857,801 (1945–46, $342,174,654.70); the current budget surplus in 1946–47 was $83,819,460 (1945–46, $154,672,252.77) and the net bonded debt of the state as of Dec. 31, 1946, was $102,019,503.10.

Agriculture.—In 1946, as a result of favourable agricultural conditions, the aggregate tonnage of all California crops increased by 7% over the 1945 figure. Total farm value of the major crops produced in the state was $1,531,744 in 1946 (1945, $1,251,399). Acreage of truck crops harvested increased from 611,080 ac. in 1945 to 675,690 ac. in 1946. The cash farm income in 1946 was $2,121,948,000 (1945, $1,872,286,000) of which $609,245,000 was from livestock and products (1945, $561,260,000), $1,466,312,000 from crops (1945, $1,271,408,000) and $46,391,000 from government payments (1945, $39,618,000).

Table I.—*Leading Agricultural Products of California, 1946 and 1945*

Crop	1946	1945	Value, 1946
Grapes	.....	.....	$238,901,000
Hay, tons	6,108,000	6,015,000	140,484,000
Oranges, boxes	43,458,000	44,580,000	140,477,000
Cotton lint, bales	458,000	353,410	72,645,000
Barley, bu.	46,066,000	41,608,000	65,874,000
Potatoes, bu.	47,010,000	36,700,000	63,464,000
Tomatoes	.....	.....	62,155,000
Lettuce, crate (5 doz.)	22,720,000	19,122,000	61,187,000
Peaches, bu.	888,000	30,836,000	60,000,000
Prunes, tons (dry)	205,000	226,000	52,480,000
Beans (dry), bags (100 lb.)	3,587,000	3,274,000	44,064,000
Walnuts, tons	59,000	64,000	34,810,000

Manufacturing.—The total estimated value of California manufactures for 1946 was $7,443,600,000 (1945, $8,269,800,000). Retail sales increased from $6,876,299,000 in 1945 to $8,984,075,000 in 1946, and estimates of new construction indicated a total of $1,430,400,000 for 1946 (1945, $686,700,000).

Table II.—*Principal Industries of California, 1946 and 1945*

Industry	Value of Products (est.) 1946	1945
Food and beverage products	$2,366,200,000	$2,044,200,000
Aircraft and shipbuilding	761,800,000	1,735,100,000
Petroleum products	744,100,000	793,400,000
Iron, steel and products	514,300,000	577,800,000
Machinery	463,100,000	731,300,000
Chemical and allied products	352,000,000	269,100,000
Printing and publishing	335,800,000	274,800,000
Lumber	232,800,000	198,300,000
Apparel manufacturing	225,500,000	233,000,000
Stone, clay and glass	212,500,000	190,400,000
Automobiles and equipment	210,900,000	178,200,000
Rubber and rubber products	179,500,000	241,200,000

An average of 677,200 wage and salary workers was employed in California industry during 1946, the largest number in any peacetime year (1,165,500 during the wartime peak of 1943). Total annual wages for comparative years were $1,145,000,000 in 1946, $1,610,000,000 in 1945 and $366,000,000 in 1939.

Mineral Production.—Mineral production in 1946 was valued at $559,449,496, higher than in any previous year.

Table III.—*Value of Principal Minerals Produced in California, 1946 and 1945*

Product	Value 1946	Value 1945
Petroleum	$386,812,146	$342,756,767
Natural gas	46,905,877	35,362,313
Cement	32,403,081	23,469,027
Miscellaneous stone	27,671,788	20,207,351
Gold	12,488,840	5,177,830
Brick and tile	5,565,075	3,523,661
Lead	2,227,157	1,247,410
Zinc	1,786,056	2,224,184
Quicksilver	1,648,758	2,697,835
Copper	1,357,131	1,883,206

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California, University of. A state-supported, coeducational institution with headquarters at Berkeley, where the university was founded March 23, 1868, and with seven other campuses, at Los Angeles, San Francisco, Davis, Santa Barbara, Riverside, Mt. Hamilton and La Jolla. During 1947 construction began on projects authorized by the $95,147,000 permanent building program voted by the state legislature, and university enrolment hit a new high of more than 43,000 students registered on all campuses. To meet the needs of this student body while the permanent building program was under way more than 100 temporary structures were erected on the major campuses to provide classrooms, laboratories and office space, and near-by wartime housing projects were utilized for dormitory and apartment living quarters. On all campuses faculty and administrative staffs, as well as academic offerings, were augmented. At Berkeley, particularly, the program in Asiatic and Slavic languages was increased in keeping with the coast's vital interests in the Pacific area, and in Los Angeles a new department of theatre arts was inaugurated. Through special legislative appropriations, the college of agriculture increased its research program by nearly $1,000,000, its field work by more than $500,000 and its instruction by more than $250,000. In the atomic research program, the giant 184-in. cyclotron, completed late in 1946, invaded a new domain of the atom. The great cyclotron, 10 times more powerful than any other atom-smasher, dislodged as many as 30 particles from a nucleus, where 2 or 3 is the usual number for other cyclotrons; produced the most complete disintegrations of nuclei, comparable with cosmic ray phenomena, and verified for the first time experimentally that subatomic forces operate between elementary nuclear particles. A 300,000,000-electron volt synchrotron and a 40,000,000-ev linear accelerator neared completion, and preliminary designs of a 10,000,000,000-ev "bevatron" for accelerating protons were announced. A unique wind tunnel for exploring the atmosphere between 70,000 ft. and 100 mi. above sea level was under construction with funds from the Office of Naval Research. A laboratory of experimental oncology was established by the medical school on the San Francisco campus and the U.S. public health service as a part of an expanded university-wide cancer research program. At the Lick observatory on Mt. Hamilton the 20-in. Carnegie astrographic camera found a new comet and a new asteroid, while new advances were made in the development of electronic astronomical observations. Operation of the university's Los Alamos (N.M.) Scientific laboratory, where the atomic bomb was designed and made, was continued. University extension adult education programs turned increasingly to offerings designed for the adult who has been to college, with new refresher courses in law, medicine, engineering, business administration, dentistry and similar fields. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (R. G. S.)

Cambodia: *see* FRENCH OVERSEAS TERRITORIES.

Cambridge University. The academic year 1946–47 opened with 5,018 men and 572 women undergraduates in residence; 844 men research students and bachelors and 93 women research students were also attached to the university. There were 1,487 masters of arts in residence, and 210 women members of the staff at Girton and Newnham. Two-thirds of the United Kingdom students had done national service before admission. A syndicate appointed for the purpose recommended that full membership of the university be conferred on women.

The parliamentary grant, which amounted to £350,000 for the year, was to be approximately doubled in the next five years. The prewar figure was £118,500. Industrial and other outside bodies contributed £80,000 for research.

Pembroke college celebrated its sixth centenary and Trinity college its fourth centenary. Two new heads of colleges were inducted: Dr. William Telfer (Selwyn) and Prof. Sir Lionel Whitby (Downing). Honorary degrees were conferred on Gen. Dwight D. Eisenhower, Field Marshal Viscount Montgomery of Alamein, Earl Wavell, Ernest Bevin and other public men. During the year ten chairs were filled: J. R. M. Butler, modern history; H. Jeffreys, astronomy; F. J. W. Roughton, colloid science; Dr. M. C. Knowles, mediaeval history; E. C. Ratcliff, divinity; W. I. B. Beveridge, animal pathology; Dr. A. J. Arberry, Arabic; R. O. Redman, astrophysics; O. R. Frisch, natural philosophy; H. S. Commager, American history.

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Cameroons: *see* BRITISH WEST AFRICA; FRENCH OVERSEAS TERRITORIES; TRUSTEE TERRITORIES.

Camp Fire Girls. During 1947 more than 360,000 girls in the United States, representing all races and creeds, enjoyed the recreational and educational activities of Camp Fire Girls, Inc. There were also Camp Fire groups in England, Canada, Alaska, El Salvador and the Philippine Republic. Serving three age levels, the youth agency provides the following groups: Blue Birds, for girls 7 to 10 years old; Camp Fire Girls, for the 10- to 15-year-olds, and the Horizon club, which serves the 15- to 18-year-old girls.

Each year, as program emphasis, Camp Fire proposes a national project in which every member may take part. The theme chosen is always one of current national interest, geared particularly to citizenship and service. "Going Places" was the special theme for 1947. The project offered a broad scope and unlimited frontiers for the girls to explore, both in the real and ideal world. It focused attention on global goodwill and community understanding. The members in pursuing the project went forward in every way—travel, knowledge, safety practices, science, service to others, nutrition ideas, world friendship and understanding.

By planning imaginary trips to foreign lands, Camp Fire Girls learned of other customs, other ways. Adapting the project to their long-established "pen pals" activity, they continued corresponding with children of other countries. Many Camp Fire groups became vitally interested in the living conditions of their foreign friends and "adopted" some of them, sending regular contributions of food, clothing, toys and money. Through this phase of their "going places" theme, Camp Fire Girls acquired an increased knowledge of the history, culture, customs and habits of their friends around the globe.

In line with citizenship and service aspects of the 1947 project, Camp Fire Girls inaugurated a "Better Breakfast" campaign.

As a conservative estimate, 25,000,000 persons throughout the nation were informed, through the campaign, of the health benefits derived from eating a nutritious and adequate breakfast.

Other highlights of Camp Fire's over-all program for 1947 included the new edition of the *Horizon Club Program Book* for senior members. Based on suggestions made by the Horizon club members themselves, and edited and written by the national program department, this publication went out to Horizon club members across the United States. It outlined the objectives of the Horizon club—development of personality, social experience, vocational exploration and service to others—all inspired by the ideals expressed in the law of the Camp Fire Girls: Worship God, Seek Beauty, Give Service, Pursue Knowledge, Be Trustworthy, Hold on to Health, Glorify Work, Be Happy.

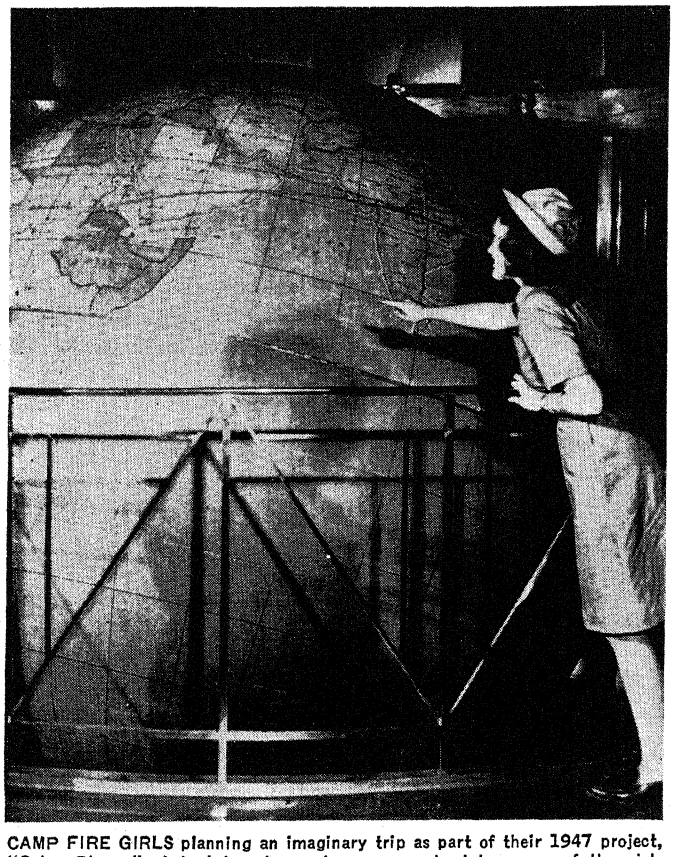
The Outdoor Book was also published during the year. As outdoors craft was found to be the most popular of Camp Fire's seven crafts—home, creative arts, outdoors, frontiers (science), business, sports and games, citizenship—this publication was presented as a resource for leaders in planning outdoor activities for the girls. It includes chapters on: The Importance of Group Camping, Leadership in the Out-of-Doors; Outdoor Activities; Planning Your Trips; Safeguards; Clothing and Equipment; What About Food; Menus and Recipes; Fire Building; Camp Housekeeping; Year Round Activities; Outdoor Neighbours; Games, Songs and Programs.

The official magazine of the youth agency is *The Camp Fire Girl.* This is published monthly, except during July and August. It had in 1947 a monthly circulation of 17,500.

During 1947 the youth agency purchased a seven-story building at 16 East 48th street, New York, for use as national headquarters. Its former home was at 88 Lexington avenue.

Mrs. James C. Parker of Grand Rapids, Mich., was president of the National Council of Camp Fire Girls; Dr. Bernice Baxter of Oakland, Calif., vice-president; Earle W. Brailey of Cleveland, O., chairman of the board; Glenn O. Hoffhines of Battle Creek, Mich., treasurer; and Mrs. Frank C. Love of Syracuse, N.Y., secretary. Miss Martha F. Allen was national director. President Harry S. Truman was honorary president of the organization, and Herbert Hoover, honorary vice-president.

(E. M. Ma.)



CAMP FIRE GIRLS planning an imaginary trip as part of their 1947 project, "Going Places." Actual travel experience was gained by many of the girls during organized trips throughout the year

Canada, Dominion of.

A dominion of the British commonwealth of nations (Statute of Westminster, 1931, 22 Geo. V. c. 4) covering all of North America north of the United States except Newfoundland, Labrador and Alaska. Canada is a federal union of nine provinces united under the terms of the British North America act (1867). The original provinces were Nova Scotia, New Brunswick, Quebec, Ontario; to those were added Manitoba, 1870; British Columbia, 1871; Prince Edward Island, 1873; Alberta and Saskatchewan, 1905. Outside the provincial boundaries are the Yukon and the Northwest Territories, under jurisdiction of the national government. Total area: 3,694,863 sq.mi., of which 228,307 sq.mi. are water. Capital is Ottawa (*q.v.*). Canada's 17th governor-general, Viscount Alexander of Tunis, took office April 12, 1946, succeeding the Earl of Athlone.

Population.—(1941) 11,506,655; (1947 est.) 12,582,000. Montreal is the largest city, pop. (1946) 1,082,555. Provincial capitals and their populations (1946 assessor's est. except for Fredericton and Charlottetown, for which figures are 1941 census) in order of provinces listed above: Halifax (100,000); Fredericton (10,062); Quebec (183,441); Toronto (696,555); Winnipeg (231,203); Victoria (55,000); Charlottetown (14,821); Edmonton (111,745); Regina (56,520).

Population trends through 1947 were interesting. A full-scale post-World War II immigration policy got under way. Immigration offices were opened in the United Kingdom and six immigration teams were sent to European displaced persons camps to interview prospective immigrants. The government's official policy was to welcome those who could contribute skill and strength to help Canada exploit its potentialities. By Nov. 30, 64,895 immigrants had entered. The 1947 total was estimated at 75,000 (1946: 71,719; 1945: 22,722). The largest single 1947 group was from the United Kingdom, 33,910 persons; displaced persons numbered 7,345. About 9,000 Canadians resident in the United States returned home (1946: 5,177).

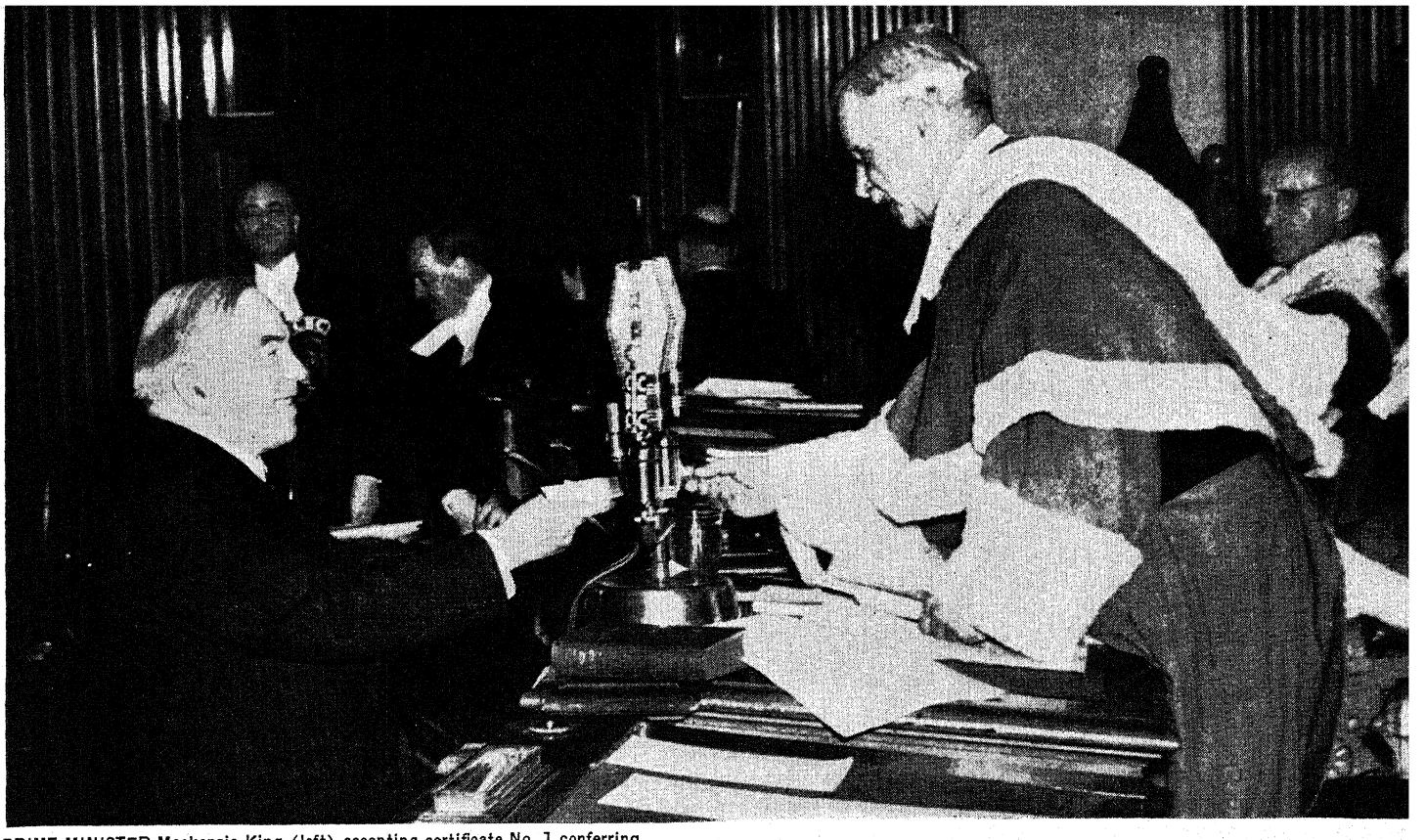
The first mass air-borne immigration took place when 100 Polish girls were flown from Frankfort, Germany, to Quebec to work in a textile mill. The experiment was soon copied by the province of Ontario which flew in 5,800 British immigrants by the end of the year, and planned for 1,200 more.

Constitution.—During 1947 Canada moved further along the road to nationhood. On Jan. 1 the Canadian Citizenship act went into force, and for the first time residents became, in legal and other documents, "Canadian citizens" rather than "British subjects." The Citizenship act also recognized the right of women to decide their own nationality. They no longer automatically assumed the nationality of their husbands when they married non-Canadians.

On July 1 the United Kingdom changed the title of the dominion office in London to the "commonwealth relations office," which further emphasized the fact that Canada was an "oversea Dominion of the King, in exactly the same position as Great Britain, the Metropolitan Dominion of His Majesty."

On Jan. 15 the privy council ruled that the Canadian parliament could abolish appeals from the Canadian supreme court to the privy council. Canada had the power to interpret its own laws, and need no longer rely on the judgment of Great Britain.

A fourth constitutional step was taken on Oct. 1 when the



PRIME MINISTER Mackenzie King (left) accepting certificate No. 1 conferring Canadian citizenship during a ceremony at Ottawa on Jan. 3, 1947. Effective Jan. 1, all native-born Canadians were automatically granted citizenship, while remaining British subjects

"letters patent" authorizing the governor-general to exercise, on advice of the Canadian government, the king's powers in respect to Canada, were revised. It became legally possible for the governor-general to sign treaties, to sign letters of credence for ambassadors and to give assent to honours and awards, without having to consult the king.

Politics.—The Liberal government under the Rt. Hon. W. L. Mackenzie King remained in power. Three federal by-elections were held during the year in Montreal-Cartier (Que.), Halifax (N.S.) and York-Sunbury (N.B.), all won by the Liberals with large majorities. At the end of the year the Liberals held 126 seats in the 245-seat parliament. Two seats were vacant. There were ten vacancies in the senate.

The Co-operative Commonwealth federation announced a socialization priority list. It "accepted in principle" the nationalization of banking, iron and steel, farm implements, meat packing. Leading members of the C.C.F. advocated that Canada's constitution, "drawn up for the horse-and-buggy days," should be streamlined.

That was also one of the proposals of the Social Credit party, which desired a new allocation of powers and revenues between the dominion and the provinces. Solon Low, federal Social Credit leader, proposed legislation to compel political parties to disclose the sources of their funds. E. C. Manning, Social Credit premier of Alberta, said that the Social Credit goal was "to establish a free economy in which the artificial barriers that restrict and sabotage production will be removed and in which all production will be fully monetized."

The Bloc Populaire, founded in 1942, which won only three Quebec legislative seats in the 1944 provincial election and two in parliament in the 1945 federal election, broke apart when its leader resigned.

The royal Canadian mounted police and the external affairs department conducted investigations into communist activities. A private bill to outlaw communist organizations was introduced in parliament but had not reached a vote by the end of the year.

Government.—The 3rd session of the 20th parliament began late in January and finished in mid-July. The 3rd session passed 78 public laws, all but one of which were government sponsored.

There were 31 new laws. Exportation from Canada of goods not in adequate supply was banned. A dominion coal board was set up to examine Canada's fuel situation. The Eastern Rockies Forest Conservation board was organized to construct, operate and maintain projects to conserve the forest and protect the watershed of that area. It was one of the most vital pieces of Canadian conservation legislation ever enacted. Redistribution changed the boundaries of many federal constituencies and increased parliamentary representation from 245 to 255, effective for the next general election.

The 3rd session made 46 amendments to existing laws. Most important were improvements in the marketing of grain, compulsory grading of flax fibres, banning of private sale of atomic energy inventions, suspension of the collection of excess profits from business. The National Defence act was revised to set up a defense research board, empowered to develop and improve Canada's military equipment. The 1947 budget made cuts averaging 29% in individual income tax.

The government announced a surplus of $541,693,160 for the first seven months of the 1947–48 fiscal year. Six members of parliament were appointed parliamentary assistants, bringing the total to ten.

The government began the 4th session of the 20th parliament on Dec. 5, instead of waiting until Jan. 1948, so as to take urgently needed steps to improve Canada's economic position. The government strategy was twofold. The long-range plan was to ratify the Geneva trade treaties, so that Canada's export trade could be expanded. The short-range plan was to pass legislation banning excessive imports from the United States, because Canada's supply of United States dollars for such imports was inadequate. When parliament adjourned on Dec. 19 it was still discussing the short-range plan.

External Affairs.—Speaking in New York city on Oct. 31 at a Canadian club reception, Prime Minister King said that Canada would increasingly be "one of the great influences for world co-operation and peace." Events of 1947 underlined this trend. Canada was active and aggressive at United Nations meetings. On Sept. 30 Canada was elected to the Security council. A Canadian resolution that the Russian plan for an international atomic control commission was not adequate was approved. Another Canadian resolution condemning war propaganda and advocating peace-mongering was unanimously accepted. Canadian delegates were instrumental in getting Russia and the United States to adopt a compromise on the Palestine issue and thus broke the deadlock.

Although the United Nations Relief and Rehabilitation Administration (U.N.R.R.A.) program was terminated, Canada's aid to war-torn Europe and Asia did not cease. In August the government provided $11,000,000 in post-U.N.R.R.A. relief to Greece, Italy and Austria. A $5,000,000 grant was made to the International Children's Emergency fund. Toward the end of the year the Canadian Council for Reconstruction through the United Nations Educational, Scientific and Cultural organization was set up, with the object of raising $5,000,000 voluntarily in Canada to help restore education in Europe.

On Nov. 6, after seven months of study, terms were made public under which Canada would admit Newfoundland as tenth Canadian province. The island was promised full provincial status and benefit of all normal and special services rendered by the federal government to the people of Canada generally. Newfoundlanders were still discussing the terms at the end of 1947, and a May 1948 plebiscite was in prospect.

United States and Canadian Relations.—In June Pres. Harry S. Truman visited Ottawa and scored a striking personal triumph. His broadcast speech to parliament was a bold statement on the Truman doctrine, and he received a great ovation when he said: "We intend to support those who are determined to govern themselves in their own way, and who honor the right of others to do likewise."

Canada-United States wartime co-operation for defense of North America continued as a permanent peacetime policy. At special conferences Canadian and United States military experts exchanged ideas on developments in the armament field. Parliament permitted United States troops in Canada in peacetime to have their own military courts for disciplinary measures.

The 1945 air agreement between the United States and Canada was revised permitting carriers additional landing rights in each other's country. Canada extended its consular service to practically all large U.S. cities. On Dec. 15 it was announced that U.S. investments in Canada totalled $4,446,000,000, which was 4 times as great as those in any other single country.

Dominion-Provincial Relations.—In an effort to extend the wartime tax agreements, when the 1946 conferences failed, the federal government proceeded to sign five separate provincial agreements. Early in Jan. 1947 this plan ran into difficulty when New Brunswick felt that bargains between the dominion and British Columbia and Prince Edward Island were more favourable provincially than its own. The dominion called a new conference with the five signing provinces and offered a new formula which increased the subsidies to take the place of the income and corporation taxes. It was finally agreed to by all except Ontario and Quebec. In July the government bill to implement agreements with seven provinces passed parliament.

Parliament also passed special government legislation cancelling $55,416,164 of relief debts built up by British Columbia, Alberta, Saskatchewan and Manitoba during the depression. All provinces signed agreements under the amended Old Age Pension act, passed at the third session, which increased social welfare payments.

Economic Controls.—Throughout the year there was a constant removal of price ceilings, and retained ceilings were for the most part revised upward. Sugar, first commodity rationed on July 1, 1942, was the last commodity derationed on Nov. 1, 1947. The withdrawal of subsidies was compensated by higher prices. On Nov. 1 the cost-of-living index stood at 143.6; on Jan. 2, 1947, the index had stood at 127. Soaring food prices caused the reimposition of ceilings on canned fruits and vegetables, but the government went no further along recontrol than warning about profiteering and food speculation.

When a western Canadian housewives' 30-day buyers' strike in May had little effect in curbing price rises, 50 national women's organizations held an Ottawa convention and formed the Canadian Association of Consumers. The new body provided a focal point for consumers' price representations and recommendations to the government.

The government faced a national economic crisis. United States coal, oil and basic steel continued to be vital to Canada's industrial life, but it required U.S. dollars to purchase them. On Dec. 31, 1945, Canada had U.S. exchange reserves totalling $1,500,000,000. By Dec. 31, 1946, these had dropped to $1,250,000,000, and by Nov. 17, 1947, to $500,000,000. (The Canadian dollar equals $1.00 U.S.) For various reasons Canadians were purchasing more heavily from the U.S. than Americans were purchasing from Canada. The government therefore placed an import prohibition on many U.S. commodities. Others were admitted only on a quota basis. Canadian pleasure travel in the U.S. was limited to $150 annually. A 25% excise tax was placed on nonessential consumer goods made largely from U.S. components. U.S. branch plants in Canada were encouraged to manufacture parts for completed articles made by their industry in the United States.

During the year some important changes were made in Canada's retailing practices. The government announced a program of size and quality standardization of textiles, boots and shoes, plumbing fixtures, domestic weighing scales, among other items. Dealers were required to state what kind of animal provided the fur for a coat, no matter what fancy name it might be given. The department of trade and commerce was also given power to say how certain goods would be packaged, displayed and sold.

Employment.—The number of persons working in Canada in 1947 approached one-half the dominion's population. Job supply was high. In mid-October there were 102,000 openings registered with the national employment service compared with 92,000 applications for jobs. At the peak of 1947 industrial and seasonal activity, only 1.4% of Canada's total labour force was unemployed. On Oct. 1 the number employed in eight leading industries was 9% higher than at the same date in 1946.

Production throughout 1947 was so great that salaries and wages during the first half of the year amounted to $2,845,000,000, an increase of $410,000,000 over 1946. More than half the increase occurred in the manufacturing and trading groups, in which average weekly earnings rose steadily to reach $37.37 at Oct. 1, almost 13% higher than at Oct. 1, 1946. Farm wage rates on May 15 were at the highest levels for that month in any year since statistics became available in 1940.

However, taking a complete cross section of Canadian employment, the average income of individual wage earners did not increase so much as the total labour income, because the number of paid workers increased so greatly. The rise in living prices offset part of the increase in workers' income.

Labour.—Unions showed considerably more restraint in 1947 than in 1946. Up to the end of October there were only 171

strikes, costing 2,400,000 man-working days. In the same period of 1946, strikes cost 4,500,000 man-working days.

In June the government introduced in parliament an Industrial Relations and Disputes Investigation act to codify its own wartime legislation for 250,000 workers in interprovincial industries, which were under federal jurisdiction. The revision embodied few new features, but the government expected it to become a model for provincial legislation. At the end of 1947, the bill was still in the committee stages.

Industry.—During the first five months of the year the flow of production was at a rate nearly 9% above the same period in 1946. Consumption of primary power continued to rise and in the first ten months of 1947 was 21% higher than in the similar 1946 period. The gains in industrial production were due partly to a larger factory and mill-working force, and to redistribution of labour, but the most important factor was the greater and steadier flow of basic materials (chiefly steel) for durable goods. In the first ten months production of pig iron rose 47% and steel 30% over 1946. While gold production for the first eight months of 1947 was 7% greater than the same period for 1946, the monthly average was considerably less than the 1935-39 period. To stimulate production the government offered a subsidy to be paid on full production for the first year and on partial production in the next two years of a new mine's life. While there were 1947 production advances over 1946 in copper (23%) and nickel (26%), there were production drops in zinc (13%), lead (12%) and silver (12%). Canada's important hematite iron ore mine at Steep Rock, Man., exceeded its 1947 production target by 10%, when it delivered 1,206,248 tons.

In the first four months of 1947, Canada's forest industries produced about one-third of Canada's total export; 21% of the exports in the period were for pulp and paper alone. Newsprint production for the 11 months of 1947 increased 7% over the same months of 1946.

The value of all construction completed and in progress in 1947 totalled $1,000,000,000. It was the largest amount ever spent in a year in Canada. The construction program was also more varied than previously. Despite these facts, there were notable deficiencies in housing and road building.

Dividend payments by Canadian companies in November were $15,565,790 (Nov. 1946: $8,032,725; Nov. 1945: $6,562,652).

Business and Finance.—Although signs of deferment in consumer spending began to appear in July, total business turnover confounded the economic prophets who had predicted recession by midsummer. Department store buying for the first eight months of 1947 was 14% higher than for the 1946 period.

At the end of 1946 Canadians had $3,850,000,000 cash in banks, or about $300,000,000 more than in 1946; but the rate of saving was slower. Canada's first peacetime saving-bond issue went on sale on Oct. 15, 1946, and by July 31 Canadians had purchased and retained $471,708,350 of them. Between April 1 and Oct. 31, 1947, the national revenue department collected $175,000,000 more tax money than the budget had estimated.

Despite this buoyant situation, there were 402 commercial failures in the first nine months of 1947, compared with 147 in the same 1946 period. Defaulted liabilities totalled $7,100,000, 67% higher than in 1946. The government moved to investigate a price-fixing combine operating in the dental-supply field, and began a preliminary investigation of prices in the baking industry.

Food and Agriculture.—Grain production dropped in 1947. Estimates (1946 revised estimates in brackets) placed wheat at 340,800,000 bu. (413,700,000 bu.), oats 282,700,000 bu. (371,100,000 bu.), barley 141,500,000 bu. (148,900,000 bu.), rye 13,200,000 bu. (8,800,000 bu.), mixed grain 35,700,000 bu. (53,000,000 bu.), flax 11,500,000 bu. (6,400,000 bu.). Beet-sugar tonnage dropped 18%. While the 1947 wheat crop had a value of $399,000,000 at the farms, a reduction of about $74,000,000 from 1946, the gross value of all principal field crops at farms was estimated to be $1,287,000,000, since the decline in volume was offset by price increases. It was about 3% more than 1946 and fifth highest in the 39-year-old field crop records. Net farm cash income for 1947 was estimated at close to the 1946 figure of $1,270,000,000.

The Canadian Wheat board continued to wield its emergency powers, which enabled it to pay farmers an initial $1.35 per bushel for wheat and sell it to other countries at world prices. The exception was the Canadian contract with the United Kingdom, where the price was the $1.35 per bushel. However, the price under the contract was increased during the year to $1.55 per bushel, which meant another $200,000,000 for farmers. Late in December the government announced that agreement had been reached with the United Kingdom providing not only for the continuance of the wheat agreement but also for the supplying of livestock products and raw materials.

External Trade.—There was continuing strong demand for Canadian products abroad, financed in part by credits ($327,508,000 to seven countries during the first seven months of 1947), which resulted in record peacetime totals for export trade. The figure was $4,920,000,000 for the first nine months of the year.

The peak of Canada's activities for trade expansion was its work at Geneva when Canadian delegates met with 25 nations to draw up a framework of general agreement on tariff and

PRES. TRUMAN with Prime Minister Mackenzie King at Ottawa in June 1947, during the first state visit of a U.S. president to Canada



trade. The Canadian delegation was in the forefront of the fight for removal of detrimental trade practices. More than 100 trade agreements were signed by the participating nations. Canada itself made 17 such agreements, which gained a reduction on a long list of manufactured goods and on many basic products of the farm, forest, fishery and mine.

Canadian delegates attended the Havana World Trade conference at the end of the year and pressed hard for complete acceptance of the International Trade organization charter, drafted at the preparatory conference in Geneva.

Defense.—The first important defense announcement came on Jan. 9, when 25 duplicated services in the 3 armed forces were consolidated, thus saving $250,000,000 annually. On Feb. 14 parliament approved an amendment to the Militia bill which limited the size of Canada's permanent peacetime army to 30,000 officers and men. The training program for reserves involved 40,000 additional men.

Air force changes included the reorganization of the dominion into two air commands instead of five, special glider training and the use of jet fighters and helicopters.

Naval strength was to be 7,500, though the actual strength fell about 700 short of that. Naval reserves were set at 6,000. Ships and men were divided between the two coasts. The aircraft carrier "Warrior" was retired to England in reserve and replaced by the winterized aircraft carrier "Magnificent."

During the year the three armed services co-operated in combined training at a joint air school. A triservice defense college was organized at Kingston, Ont., to train senior officers only. The course covered military, economic and industrial organization. Cadet colleges for the three armed forces were set up.

In November Canadian army medical officers began receiving instructions on the treatment of atomic-bomb casualties.

Transportation.—Special legislation in parliament authorized the crown-owned Canadian National railways to make $18,000,000 of additions and betterments to its equipment and purchase $41,500,000 worth of new equipment. Reorganization of the Canadian Pacific railway established an autonomous Pacific region, which recognized the radical differences between operations in prairie territory and those in mountainous territory. The C.P.R. ordered $47,000,000 worth of new locomotives, gondolas, freight and express cars; to facilitate freight handling in Montreal, it began expansion of terminal facilities and creation of the first "hump retarder" yard in Canada.

Both railways faced rising operating costs, and applied to the board of transport commissioners for permission to increase freight rates 30%. The board travelled 7,000 mi., sat 150 days and took 5,500,000 words of testimony. The hearings closed Dec. 17 with a decision pending.

The crown-owned Trans-Canada Air Lines added 1,200 mi. to its Canadian routes, extended service to 6 additional cities and carried 50% more passengers and 35% more freight than in 1946. A direct Toronto-Winnipeg route was established. T.C.A.'s transatlantic Prestwick (Scotland) route continued in full operation, while a new weekly service was inaugurated to Shannon, Eire. T.C.A. also entered into an air pact with Portugal.

The government established a Canadian maritime commission, authorized to study Canada's coastal and transocean shipping, and make comparisons with other countries.

Communications.—Despite materials shortages, the number of telephones increased, and the mileage of telephone lines extended. The board of governors of the Canadian Broadcasting corporation approved the construction of two new private radio stations (which brought the number to 125). For the first time in Canada, electric power wires were used to carry telephone conversations. The experiment was in a sparsely settled area of Quebec, through which a hydro service ran. To serve still more isolated areas in northern Manitoba, the Manitoba Telephone system began the installation of a radio-telephone service to mining communities and Hudson's Bay company fur-trade posts. Two-way frequency modulation radio communication was used to co-ordinate the activities of a major summer log drive in northwestern Ontario. Power line repair crews in Nova Scotia were similarly equipped to speed operations.

Arctic Developments.—The royal Canadian air force surveyed more than 400,000 sq.mi. of hitherto unmapped arctic territory, taking 95,000 photographs. Experimental flights were carried out to test fuel and aircraft engineering. A joint U.S.-Canadian project established two of nine projected weather-reporting stations, one on Ellesmere Island at Eureka sound and the second on Cornwallis Island at Resolute bay. By December both stations were reporting four times daily. In addition, the U.S.-Canadian technicians constructed two low-frequency, long-range radar stations, one at Point Barrow, Alaska, and one on Victoria Island at Cambridge Bay, N.W. Terr. The government purchased the war-famed "Crimson air route" across the eastern arctic.

Two Canadian scientists trapped spores, some of which cause plant diseases, in mile-high air over the Arctic ocean. The sci-



EXPERIMENTAL STATION at Fort Churchill, Manitoba, showing the signal headquarters there of the Canadian army. The U.S.-Canadian military base was maintained in 1947 for cold-weather testing of equipment

entists were surprised to find them in such relative abundance. Another Canadian scientist, using a Canadian-devised electronic instrument for making precise observations, discovered that the north magnetic pole had shifted about 200 mi. north and that it centred roughly at latitude 73° N., longitude 96° W.

Frontier Developments.—Canada's frontier development was far from over, a fact emphasized by the charter parliament granted for the construction of a railway between the Gulf of St. Lawrence and Ungava bay in Quebec. In the consideration stage was the extension of the Canadian Pacific railway to Yellowknife, N.W. Terr., and a railway from Vancouver, B.C., to Fairbanks, Alaska. The only active railway construction was the 55-mi., $2,684,000 line from Barraute to Kiask Falls in northern Quebec, to tap vast resources of pulpwood in the Hudson bay watershed.

Besides power projects in the more settled Ontario and Quebec regions, surveys were laid for a 385,000-h.p. station on the Kaniapiskau river in the Ungava area of northern Quebec. This was to supply electric energy for exploiting the new Labrador iron discoveries. Wilderness pulp and paper towns were under construction at Blind River, Schreiber, Terrace Bay and Red Rock, in Ontario.

Tourism.—While in 1946 United States tourists left $280,000,000 in Canada, they left an estimated $400,000,000 during 1947, the biggest tourist year. During the first ten-month period of 1947, 1,557,784 automobiles entered Canada, 12.6% more than for the same 1946 period. With tourism becoming established as one of Canada's major industries, the various provinces took steps not only to encourage more tourists but to protect them against exploitation. The advertising of tourist camp operators in Ontario came under government supervision. Public accommodation in New Brunswick was placed under provincial control.

World War II.—The Canadian government announced that Canada had withdrawn its occupation troops from Germany because Canada was given no voice in directing postwar German control policy. The last draft of Canadian soldiers returned home from overseas on Jan. 14. In September the state of war existing between Canada and Italy, Rumania, Hungary and Finland ended with the ratification of peace treaties. At the same time Canada asked full participation in the pending peace settlements with Germany and Japan. From Aug. 1945 to Aug. 1947 Canadian military officers travelled far abroad investigating and arranging for the prosecution of axis nationals involved in war crimes against Canadians. By Sept. 1 there were still 66 such war criminals whose trials and punishments were pending. In May the government announced that World War II cost Canadians $20,255,865,996, or $1,688 per capita. On Aug. 31 there were 97,729 World War II pensioners receiving annually $35,136,407 (Aug. 31, 1946: 66,677 pensioners receiving $26,996,039). By the end of 1947 the Canadian mint had not finished striking 3,356,000 medals for service on four continents and two oceans.

Human Rights.—So many Canadians protested the government's compulsory Japanese-Canadian deportation order that it was cancelled on Jan. 24. By a vote of 105 to 31, parliament approved a government order which permitted Canadian-Japanese to move freely anywhere in Canada except in British Columbia. Toward the end of the year a royal commission opened an enquiry into more than 1,000 Canadian-Japanese claims involving about $3,000,000 worth of property, which their former owners claimed had been forcibly sold for less than its real value. The government repealed the Chinese Immigration act and permitted wives and unmarried children living in China to move to Canada.

A joint parliamentary committee on human rights and fundamental freedoms studied the possibility of a comprehensive federal "Bill of Rights," but the question remained in the committee stages.

Science.—On May 8, the Canadian Atomic Energy Control board announced that $150,000 would be granted to three Canadian universities for research into peacetime use of atomic energy. On that date, Canada's atomic-energy plant at Chalk River, Ont., had a chain-reacting pile in operation and was stocking up small amounts of plutonium. By September the plant was producing radio-isotopes.

Canadian mineralogists were active. Work with magnesium, lightest of structural metals, was abreast or ahead of that in any other part of the world. A magnetic air-borne mineral detector was used in the Ottawa valley to discover iron-ore deposits. A Canadian steel mill inaugurated the process of blowing air through molten pig iron to speed purification of steel.

The National Research council built a laboratory in Saskatoon, Sask., for research into industrial uses of farm products. The council conducted extensive research into the properties and possibilities of cosmic rays, and developed a radar meter which enabled an aircraft pilot to read his distance in miles from a point on the ground.

Medicine and Health.—The National Cancer Institute of Canada was organized to co-ordinate and plan a campaign of cancer control. The health and welfare department called into conference experts on rheumatism and arthritis to lay the ground work for a co-ordinated national campaign against those diseases. Ontario blazed a health trail for Canada in October when it announced free prenatal examination. The province also took steps to appoint a staff dentist to every county health unit. Toward the end of the year the Ontario Medical association launched a prepaid medical care scheme, broader than most schemes because it provided attention for known chronic ailments. The Canadian Red Cross society established a peacetime blood transfusion bank for civilian use, making Canada the first nation in the world to take this step.

Education.—Soaring expenses forced the University of Toronto to boost its tuition fee 20%. As partial compensation, $50,000 a year was set aside to establish new bursaries. The Universities of Manitoba, Dalhousie and St. Francois Xavier also announced proportionate increases in fees, although Manitoba's was confined to the medical course. Construction of a $1,200,000 library for the University of Alberta, part of a $20,000,000, six-year program, was begun. Initiated by the Canadian Education association, and financed by contributions from business and labour, a new Canadian research committee was set up to provide education authorities with objective data and scientific directives for adapting the work of schools to the needs of the day. Schooling costs for veterans' rehabilitation were running at the rate of $4,000,000 monthly in 1947.

Culture and Awards.—Preservation of the best examples of early architecture in the province was the aim of the Architectural Conservancy of Ontario, which was reformed after a lapse of six years caused by World War II. The Canadian Museum association was formed to promote better education in Canada through museums.

For the first time in Canadian history, a governor-general had his paintings shown in a Canadian art exhibition. A Montreal commercial artist, Henry Eveleigh, won the United Nations international Poster-of-the-year competition, with a pair of hands planting a young tree, the leaves of which were the flags of the 55 members of the United Nations. The first step toward the formation of a national musical organization was taken in November when Ottawa musicians organized a Canadian Federation of Music Clubs. An effort was made to establish a national clearing house of research and technical informa-

tion on community centres within the department of national health and welfare, but action was still pending at the end of the year.

(*See* also articles on individual Canadian provinces; CANALS AND INLAND WATERWAYS; CHAMBERS OF COMMERCE; CONSUMER CREDIT; ELECTRICAL INDUSTRIES; ELECTRIC TRANSPORTATION; FISHERIES; HORSE RACING; HOUSING; INDUSTRIAL HEALTH; MOTION PICTURES; MOTOR TRANSPORTATION; NEWSPAPERS AND MAGAZINES; POST OFFICE; PUBLIC UTILITIES; RIVERS AND HARBOURS; RURAL ELECTRIFICATION; SOCIAL SECURITY; THEATRE; VETERANS' ORGANIZATIONS; WILDLIFE CONSERVATION.) (C. CY.)

Canadian Literature.

Fiction.—A notable fiction event was the appearance in English of Gabrielle Roy's *The Tin Flute* (published in 1946 in French under the title *Bonheur d'Occasion*), which hit the best-seller lists and sold to Hollywood. It described semi-slum life in Montreal with sober insight. A second outstanding event was the joint winning of the annual $1,000 Ryerson fiction award by Edward A. McCourt with *Music at the Close,* a story of a frustrated boy growing up on the Canadian prairies, and by Will R. Bird with *Judgment Glen,* a historical novel of Yorkshire settlers in Nova Scotia in the 18th century. Another dual award divided the $1,000 Oxford-Crowell novel competition for Canadian writers between Christine van der Mark with *In Due Season,* modern pioneer farming in northern Alberta, and Angeline Hango with *Truthfully Yours,* modern rural life in Quebec. *Shreds of Circumstance,* by Madge Macbeth, sophisticated in treatment and cosmopolitan in setting, described the plight of displaced persons. Grace Campbell's *Fresh Wind Blowing* was the story of young Canadians whose lives were shattered or changed by World War II. *Of This Day's Journey,* by Constance Beresford-Howe, described a post-World War II college faculty that took refuge behind the traditional "ivied walls." *Deep Doorways,* by Dorothy Dumbrille, chose the problems of Canadians living between two world wars. *Trees Grow Tall,* by Irene Perrot, was a contrasting character study between a violinist-composer and a concert soprano. Historical novels of the year included Maida Parlow French's *All This to Keep,* pioneering in upper Canada at the end of the 18th century, Alan Sullivan's *The Fur Masters,* the struggle between Hudson's Bay company and the North West company, and Edward A. McCourt's *The Flaming Hour,* the 1885 Riel rebellion in Alberta.

Several first novels of importance appeared. *Hetty Dorval,* by Ethel Wilson, was a penetrating if short character study with settings in British Columbia and England. *Serpent's Tooth,* by Isabelle Hughes, was an ironic treatment of family life in Toronto. *Sarah Binks,* by Paul Hiebert, was a satirical novel about contemporary Canadian culture, with settings in Saskatchewan. *Fortress North,* by E. Jacoby Walker, fictionalized the history of Edmonton, Alta., from 1795 to 1943. *The Higher Loyalty,* by Don Synge (pseudonym of H. N. Edelstein), was a plea for racial tolerance, with settings in Ottawa and Montreal. Roderick Stuart Kennedy wrote about World War I in England in *The Road. South.* Lionel Shapiro's *The Sealed Verdict* was a melodramatic story of racial conflict with a U.S. prosecutor at the World War II nazi war crimes trials as protagonist.

Several books of short stories were published during the year. Most striking was Thomas Raddall's *The Wedding Gift,* a collection of 15 short stories all based on incidents from Nova Scotian history. Desmond Pacey edited *A Book of Canadian Stories,* a collection of the work of 37 Canadian writers.

Nonfiction.—More political, economic, historical, sociological and similar books were published in 1947 than ever before. Most striking biography of the year was W. R. Plewman's *Adam Beck and the Ontario Hydro,* which was not only the story of a great Canadian but also reported the struggle between private interests and public ownership in hydroelectric power. Most important literary biography was *Edwin J. Pratt: The Man And His Poetry,* by H. W. Wells and Carl F. Klinck, an indispensable critical study of Canada's greatest contemporary poet. Corolyn Cox's *Canadian Strength* was a series of Canadian biographies, the subjects being the chief figures of the wartime departments of the government. *An Infinity of Questions,* by C. J. Eustace, was another biographical series, describing five modern women who were exponents of the religion of art and the art of religion. C. B. Sissons completed his exhaustive account of *Egerton Ryerson* with a second volume. *For the Time Is at Hand,* by R. S. Lambert, recounted the career of Henry Wentworth Monk, sometimes called "The Prophet of Ottawa." In *The Talking Wire,* O. J. Stevenson told the story of Alexander Graham Bell, inventor of the telephone.

Canada and the British commonwealth were popular subjects. Alexander Brady's *Democracy in the Dominions* traced the developments of democratic institutions in Canada, Australia, New Zealand and South Africa. Gwendolen Carter's *The British Commonwealth and International Security* dealt with efforts of the members of the commonwealth to achieve security in the period between World War I and World War II.

Several nonfiction books were singularly different. *The Diary of Samuel Marchbanks,* by Robertson Davies, was a collection of clever reflections by a newspaper editor on various phases of Canadian life. *The Diary of Our Own Pepys,* by E. W. Harrold, was a similar collection, published posthumously and edited by I. Norman Smith. *Consider Her Ways,* by Frederick Philip Grove, became a unique satiric commentary on man by reporting on the activities of ants. Duncan Campbell Scott published his last book, *The Circle of Affection,* a number of his choicest poems and short stories covering 50 years.

There were many regional books. *The Great Mackenzie,* by Raymond Arthur Davies, featured the Mackenzie river, longest in Canada. *The New North-West,* edited by C. A. Dawson, contained material on many phases of arctic life—geography, transportation, health, mining, trade, education. *Alaska Beckons,* by Marius Barbeau, was a new interpretation of Alaska based on the theory of Asiatic beginnings of Indian forms. *Cache Lake Country,* by John J. Rowlands, faithfully chronicled life and living in the north woods. Canada's gold mining was the subject of Arnold Hoffman's *Free Gold.* In the *Unknown Mountain,* Don Munday described the conquest of 13,000-ft. Mount Waddington in the Canadian Rockies. Finest nature book of the year was a fascinating study of Canadian songbirds and their habits, *Flashing Wings,* by Richard M. Saunders. In *Return to the River,* Roderick L. Haig-Brown fictionized the life history of a Chinook salmon which spawns in the Columbia river.

There were several books of lively humour. Eric Patrick Nicol saw *Sense and Nonsense* in Canada's way of life. Kenneth C. Cragg laughed at *Father on the Farm* in Ontario in the early 1900's. *The Owl Pen,* by Kenneth McNeill Wells, described the hilarious, if sometimes painful, adventures of two city-dwellers making a home in the country. *Face Powder and Gunpowder,* by Jean M. Ellis and Isabel Dingman, was a humorous treatment of a Red Cross welfare officer's experiences in World War II. Most unique World War II book was Milton Shulman's *Defeat in the West,* which described the German collapse, using thousands of official German documents and interviews with German generals. *Maple Leaf Up, Maple Leaf Down,* by Peter Simonds, recalled first Canadian army operations in western Europe.

There were miscellaneous nonfiction books of interest. In

V.O.N., John Murray Gibbon described a half century of heroic work by the Victorian Order of Nurses in Canada's battle for health. *Faces of Destiny*, by Yousuf Karsh, Canadian photographer of international fame, contained 75 photographs of outstanding world citizens with personality notes by Karsh. Glenn H. Campbell wrote *The Campbells Are Coming* to give Canadian-born Campbells details of their clan history in Scotland. *Men in Sheepskin Coats*, by Vera Lysenko, told the story of the migration of Ukrainians to Canada and their participation in Canadian life.

Poetry.—E. J. Pratt's *Behind the Log* was significant narrative verse describing a great sea battle along the Murmansk route during World War II. Major poets appearing during the year were: Charles Bruce, *The Flowing Summer;* Raymond Souster, *Go To Sleep, World;* Dorothy Livesay, *Poems For People;* Arthur S. Bourinot, *Collected Poems;* Nathan Ralph, *Coffee and Bitters;* Patrick Anderson, *The White Centre.*

Juveniles.—One of the best juveniles of the year was Anne I. Grierson's *The Mounties*, which described some exploits of the famous royal Canadian mounted police. John F. Hayes wrote a lively historical adventure novel, *Buckskin Colonist*, based on the settlement of the Red River valley by Scottish immigrants in 1812. Archer Wallace published *One Hundred Stories for Boys*, all of them highlighted by human interest material. A. E. Wilson's *The Earth Beneath Our Feet* dramatized geology. Ida Cecil Moore's *Lucky Orphan* gave an appealing picture of farm life in Prince Edward Island. Gordon Sinclair's *Signposts to Adventure* took the young reader through many parts of the world. Hilda Mary Hooke's *Thunder in the Mountains* collected Canadian legends. *Canadian Magic*, by Mary F. Moore, reported unusual incidents in Canadian history. (*See* also LITERARY PRIZES.) (C. CY.)

Canadian-U.S. War Committees: *see* PERMANENT JOINT BOARD ON DEFENSE.

Canals and Inland Waterways.

Of the estimated 65,000 mi. of potential inland waterways in the United States, approximately 30,000 mi. had been improved in 1947 for navigation by commercial and pleasure craft. All operations and maintenance of the system remained the responsibility of the corps of engineers, department of the army, under the direction of congress.

Principal components of the over-all, interrelated system of rivers, lakes, bays and canals included the Great Lakes, the Mississippi river system, the Illinois waterway, the New York state canal system, the Cape Cod canal, the Chesapeake and Delaware canal, the Atlantic Intracoastal waterway, the Gulf Intracoastal waterway, the Sacramento river system and the Columbia river system.

The River and Harbor act approved July 31, 1947, provided funds for the construction of 58 authorized projects in 27 states, bringing the total number of active projects for waterborne commerce in the United States to 1,100. Among the principal projects on which construction was begun or continued during the year were the McNary (Umatilla) dam on the Columbia river in the interest of navigation, power development and irrigation; the New York and New Jersey channels; Gulf Intracoastal waterway between Corpus Christi, Tex., and the Mexican border; the Neches and Angelina rivers and the Sabine-Neches waterway in Texas; lateral canal and lock project on the Mississippi river at Chain of Rocks, near St. Louis, Mo.; open-river regulating works on the Mississippi river between the Ohio and Missouri rivers, and Missouri river between its mouth and Sioux City, Ia.; Calcasieu river and Pass, La.; Delaware river from Philadelphia, Pa., to the sea; St. Mary's river and Keweensew waterway, Mich.; Cape Fear river at and below Wilmington, N.C.; and Winyah bay, S.C. (*See* also FLOODS AND FLOOD CONTROL; RIVERS AND HARBOURS.)

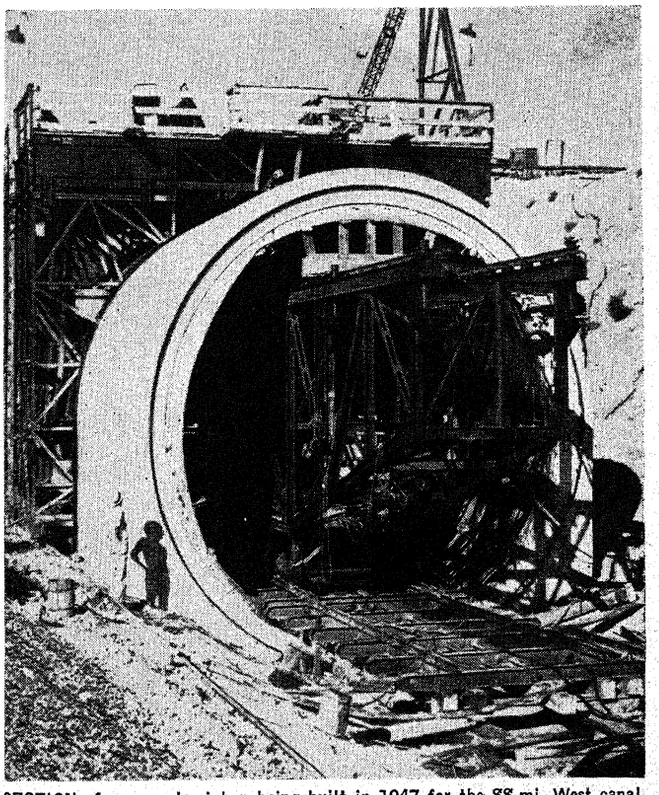
The total net water-borne commerce of the U.S., eliminating all known duplications of traffic between rivers and ports, aggregated 617,955,391 short tons in the calendar year 1946 (latest figures available in 1947). A total of 123,290,879 short tons (gross) was carried on the Mississippi river and its tributaries. On the Great Lakes, 314,510,421 short tons (gross) were transported, with the Detroit river, a connecting channel between Lakes Huron and Erie, carrying 110,863,556 short tons, and the St. Mary's Falls canal, connecting Lakes Superior and Huron in Michigan, carrying 91,586,895 short tons. The New York state canal system, including the old Erie canal connecting the Hudson river with Lake Erie, carried 2,820,521 short tons.

In net tonnage, the ten leading ocean ports in 1946 were: New York, N.Y., 108,553,342; Philadelphia harbour, Pa., 32,779,932; Baltimore, Md., 32,195,348; Houston, Tex., 31,837,453; New Orleans, La., 24,207,733; Beaumont, Tex., 23,052,108; Port Arthur, Tex., 20,177,288; Norfolk, Va., 16,041,678; Boston, Mass., 15,008,334; Los Angeles, Calif., 14,488,796.

Net tonnage of the five leading ports on the Great Lakes in 1946 were: Duluth, Minn.-Superior, Wis., 54,285,385; Toledo, O., 30,051,026; Chicago, Ill., 18,925,928; Cleveland, O., 16,539,046; Buffalo, N.Y., 16,150,366.

The total ton-mileage on the Great Lakes was 96,022,046,000. On the Mississippi river system it was 18,358,220,000. The combined ton-mileage on all inland waterways was 123,973,219,000. (G. HB.)

Canada.—At its 1947 session parliament voted $3,577,100 for the operation, maintenance and administration of Canada's 1,844 mi. of canal routes (535 mi. being actual canals and locks). During the parliamentary debate the department of transport was urged to canalize 900 mi. of the Saskatchewan river, which would permit vessels to travel from Winnipeg to



SECTION of a concrete siphon being built in 1947 for the 88-mi. West canal which was to form part of the huge Columbia basin irrigation project in eastern Washington

Edmonton via Lake Winnipeg. Deepening a short section of the Richelieu canal from 6 to 12 ft. was considered, but tabled. The economic value of the Rideau canal was questioned, and the department maintained it was important for tourist traffic. During 1946 it had been used by 16,382 such craft.

The St. Lawrence seaway continued in the news and Ontario Premier George A. Drew declared Ontario might try to proceed with power developments on its own if international action were not forthcoming. At the annual meeting of the Geological Society of America in Ottawa in December, Charles P. Berkey, professor of geology at Columbia university, claimed that the 1944 earthquake at Cornwall presaged immense engineering difficulty when the seaway was constructed. He said his personal investigation indicated that geologic faults and sand deposits would require special techniques to make the proposed dam, locks and powerhouses earthquake-proof.

Tonnages taken up and down through the three major canals and over the entire canal system from the opening of navigation in April to the end of Nov. 1947 and compared with the full 1946 season (April to December, inclusive, in parenthesis) were: Sault Ste. Marie, 2,062,172 (1,940,129); Welland Ship, 11,381,069 (10,580,146); St. Lawrence, 7,145,507 (5,750,578); total for system, 20,986,593 (18,654,919). (C. Cy.)

Great Britain.—In Britain, the canal system was to be nationalized under the Transport act, 1947. As soon as capital works were permitted, development toward standardization would be pursued, as the great variety of lock sizes conditioned the size and type of craft employed. Because of the shortage of craft, immediate attention was being given to terminal facilities to expedite the turn-round. In this connection, it was found that the largest craft did not necessarily carry the greatest tonnage over a given period.

Europe.—The prolonged drought in Europe during the summer and autumn of 1947 closed numerous small canals, some of which had been previously damaged in the spring floods. The repairs of European works damaged by war action continued, and great efforts had been made to prevent a disastrous transportation crisis in the winter of 1947–48. After World War II, however, the most important work toward re-establishing lines of communication was carried out by E.C.I.T.O. (European Central Inland Transport organization), whose sudden ending in June 1947 terminated an excellent attempt at international co-operation. Through the machinery of this organization, the waterways relieved the overloaded railroads and promoted the rapid liquidation of the effects of war.

In Greece, the reconstruction of the Corinth canal was to be undertaken by the U.S.A. aid mission. In the U.S.S.R., a new canal from the Kama river to the Petchora river was planned to provide an outlet to the Barents sea. German reports indicated a new canal link between the Elbe river and Doemitz and the Baltic port of Wismar. (*See* also Aqueducts.)

(D. G. Ds.)

Cancer. By 1947 S. A. Henry had collected more than 3,300 cases of tar cancer in which most of the patients worked with tar, pitch or lubricating oils. The mortality of the disease was still high, and it was strange that the simple prophylaxis of soap-and-water cleanliness of the body had only moderately reduced the incidence of the trouble. In the United States, while the disease had been known to occur, the number of cases remained extremely small. On the other hand, some occupational cancers of the bladder had been described in the U.S. in considerable numbers among those exposed to inhaling dust in the manufacture of certain aniline dyes.

An estimated 600 cancer-forming compounds had been discovered by 1947. Most of these had no relationship to human cancer, but when suitably applied produced cancer in mice. One unpleasant discovery was early made that cancer might develop in burns following excessive doses of X-ray or radium, or in patients who had been treated with a thorium compound which was slightly radioactive. This material was used in diagnosis by injection to demonstrate changes which might be revealed by X-ray pictures. Another compound, urethane, had been used in the treatment of leucaemia, but was found to cause cancer of the lung in mice. Such a drug should not be used in human beings, except in usually fatal diseases like leucaemia; urethane can then replace X-ray, the ordinary treatment, in case the patient has no access to X-ray.

Studies on mustard gas, conducted during World War II, resulted in the production of a considerable number of compounds of this same group. Some were found to be beneficial in treating leucaemia in animals, but the danger in their use would probably prevent any extensive application in human beings.

The fact that extracts of human and animal tissues when injected into mice will give rise to cancer in these animals continued to be the subject of much study, without any final conclusion. It still seemed possible that various chemical processes had altered the extract so that carcinogenic substances were produced.

There was no question that heating cholesterol, a constituent of most of these extracts, will change this normal constituent of the body into one which produces cancer, and this led to experiments in which ordinary food materials may become carcinogenic. Thus, a few tumours were produced in mice by injecting cholesterol, fats, oils and other food products heated to a temperature of 300° C. The carcinogenic substance is probably present in minute quantities. The question was raised as to the possibility that cancer of the stomach might be caused by consumption of food cooked at a high temperature, but the amount of such carcinogenic substances was believed to be small; when swallowed, they are not necessarily absorbed into the circulation. This was, however, one explanation offered for the carcinogenic properties of organ extracts.

X-Ray and Radium.—An interesting study was conducted by Egon Lorenz and others on the tolerance of animals for prolonged exposures to a moderate amount of short-wave length gamma-rays, such as are met in handling radium and high voltage X-rays. Most of the studies were carried out using radium and daily exposures of from 8 hr. to 24 hr. on mice, guinea pigs and rabbits. The results showed that it was of paramount importance not to exceed the permissible dose of 0.1 roentgen unit per day. Lorenz and his associates found that in animals the blood picture is not of much value in determining low-intensity continuous exposures, but these exposures were still capable of causing death of the animals. Also they called attention to the fact that ovarian tumours in mice were correlated with low exposures and therefore suggested that women operators should be limited to 0.02 roentgen unit per day. The writers also suggested that daily exposures of short duration over long periods of time should be avoided.

John H. Walker and Milford D. Schulz reported about 15% of five-year cures in cancer of the tonsil. Slightly better results were obtained using 1,000,000-volt X-ray as compared with 200 kv. Despite the presence of new cancers elsewhere in the body, called metastases, a certain number of patients obtained satisfactory relief from pain and other symptoms. The use of radium in the tissues exerted no noticeable improvement in the results.

Estrogens and Neoplasia.—The use of large doses of male sex hormone in persons with inoperable or recurrent carcinoma of the breast had not produced results nearly so striking as

those initiated by C. Huggins' discovery of the clinical control, if not the cure, of carcinoma of the prostate by the administration of the female sex hormone or the synthetic product, stilbestrol.

(*See* also BIOCHEMISTRY; PUBLIC HEALTH SERVICES.)

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Candy.

Sales of candy in the United States during 1947 reached the all-time high of $1,000,000,000 at the wholesale level—a gain of almost 40% over 1946 sales of $687,000,000. Expressed in volume, the 1947 confectionery business amounted to approximately 2,700,000,000 lb., compared with 2,438,000,000 lb. of candy sold in 1946. The average value at wholesale per pound was above 36 cents, compared with 28.2 cents recorded in 1946.

The major development in the industry during 1947 was the elimination of sugar rationing in July. For the first quarter of the year candy manufacturers received 60% of base period use, while for the second quarter the quota was 75%. As a result, sales of candy showed a greater increase in the second half of the year than in the first.

Another significant event was the upward spiralling of cocoa bean prices which forced the industry to abandon the traditional 5-cent price of nickel candies throughout the United States. Other major developments were: (1) the end of price and all other controls; (2) the introduction of new processes and machines, which included a new method to make marshmallow, new coating equipment and new types of wrapping machines; (3) the launching of a research program with emphasis on finding a solution to the problem of chocolate bloom; (4) the formation of the American Association of Candy Technologists; (5) the expanding of markets by the industry; (6) the decentralization of candy plants and (7) the changing over of a greater number of candy plants from regional to national distribution.

Cocoa bean prices in 1947 reached an all-time high of 50 cents per pound. Generally poor crops and unstable world conditions were largely responsible for the rise. As a means of eliminating these conditions on a long-range scale, the U.S. chocolate industry decided to develop cocoa bean plantations in the U.S. Pacific islands.

For the fourth successive year, bar type candies represented more than half of the industry's tonnage. Of these 5-cent, 6-cent and 7-cent bars (hitherto sold at 5 cents) amounted to about 90%. Despite the high prices of cocoa beans, chocolate-covered bars represented the largest item in this category, representing, in fact, a greater volume than the combined sales of all other bars. However, a noticeable increase in hard candy and other nonchocolate confections was recorded in 1947. The second largest classification of candy sold was bulk goods, representing about 20% of the total. Package goods came third with about 15%. Penny goods were practically nonavailable. There was a return in large quantities of Christmas and other holiday specialties, such as candy canes, hollow moulded goods, hard candy mixed and jelly beans.

Production of candy in the United States continued to be centred in a region extending from New England westward through Illinois and southward through Virginia. The 18 states (plus the District of Columbia) comprising this section of the country produced 85% of the U.S. candy in 1947. Consumption was also heaviest in this region, amounting to about 55% of the total production. The remainder of the country produced only 15% and consumed 45% of the national output. The candy industry employed 65,000 persons, mostly women.

While the United States continued to be the greatest candy-producing and -consuming country in the world, other nations for the first time since World War II began to produce candies in large quantities. The most successful European country to reestablish itself in the candy field in 1947 was the Netherlands, and large quantities of the production found its way to the United States. France, Italy, Denmark, Belgium and even Germany were again making candy in 1947. Next to the United States, Great Britain continued to be the most important candy-producing and -consuming country in the world with its per capita consumption amounting to approximately 22 lb. It was estimated that total exports for 1947 amounted to less than $2,000,000; imports exceeded exports. (H. D. G.)

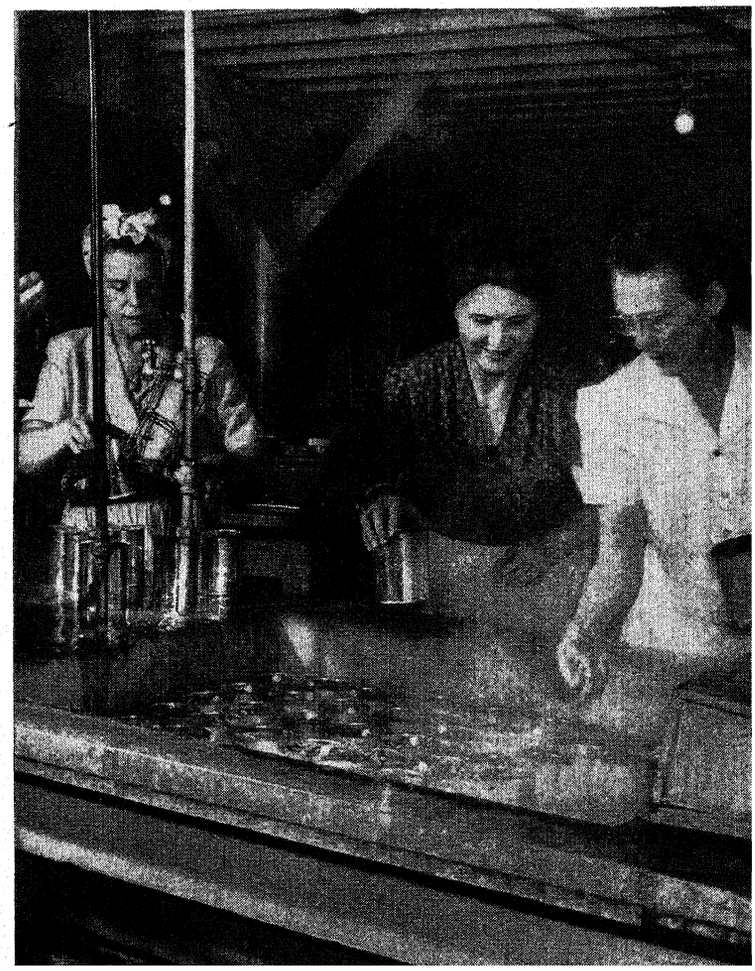
Cane Sugar: *see* SUGAR.

Canning Industry.

The United States and territorial pack of canned fruits, juices, vegetables, fish and milk in 1947 totalled about 450,000,000 standard cases, compared with 495,000,000 standard cases in 1946. These figures do not include the pack of fruit and vegetable specialties such as baked beans, soup, spaghetti and baby food, nor the considerable quantities of canned meat, poultry and other specialty products packed by the canning industry. Preliminary statistics for the 1947 pack compared with 1946, in terms of millions of standard cases, are as follows:

	1947	1946		1947	1946
Fruits	65.0	82.2	Milk	79.0	73.5
Fruit juices	80.0	75.7	Fish	21.0	20.5
Vegetables	205.0	243.0			

COMMUNITY CANNING CENTRE at Berkeley, Calif. An instructor is aiding a patron to place cans of blanched beans in the exhaust box



The record 1946 pack of canned fruits and vegetables, together with a small carry-over, provided a record high supply for the 1946–47 marketing season. The 1947 fruit and vegetable packs were expected to be about 10% below the 1946 total, in part because of unfavourable weather conditions. However, the supply for the season was estimated to be about the same as in 1946–47 because of the higher carry-over supplies.

Retail prices of canned fruits and vegetables declined steadily during 1947, as contrasted with the sharp upward trend in food prices generally. In late fall, prices were about the same as a year earlier and, compared with prewar relationships, considerably cheaper at retail than other foods. According to bureau of labour statistics information, the index of prices of canned fruits and vegetables was 155% of the prewar level compared with 202% for all foods.

The still existing shortage in world tin production coupled with high demands for this commodity led to congressional extension of authority to allocate tin and tin products. The authority which existed at the end of the year would extend to Feb. 29, 1948, and the administration had requested a further extension.

The U.S. department of commerce, responsible for administering tin controls, announced its intention of re-establishing quotas limiting the quantities of tin-coated containers for use in animal foods, coffee, beer and nonfood items, but quota restrictions on containers for foods for human consumption were not contemplated. The government maintained a maximum quota figure of 32,000 tons of tin during 1947 for the manufacture of tinplate and tin-mill products.

Can size controls were removed in March, 1947, thus reinstating the provisions of the voluntary simplified practice program promulgated in 1940 under the auspices of the division of simplified practice of the National Bureau of Standards. This program was thereupon subjected to review by an industry committee to determine its adequacy from the standpoint of production economy and consumer preference of can sizes.

(E. J. C.)

Canterbury, Archbishop of: *see* FISHER, GEOFFREY FRANCIS.

Cape Verde Islands: *see* PORTUGUESE COLONIAL EMPIRE.

Carbon Black.

Increasing demand for carbon black brought output and sales to new record highs in 1946 for the third successive year. The salient features of the industry in the United States are outlined in the following table.

Data of Carbon Black Industry in the U.S., 1941-46

(Short tons)

	1941	1942	1943	1944	1945	1946
Production	297,033	287,003	296,711	400,930	526,399	622,211
Year-end stocks	59,429	121,378	102,108	34,622	51,003	38,114
Total sales	322,372	224,966	314,650	468,715	510,018	634,870
Export sales	74,083	57,818	52,456	78,496	86,887	135,543
Domestic sales	248,290	167,148	262,194	390,219	423,131	499,328
Rubber	219,751	147,974	236,737	369,015	402,193	470,732
Ink	19,099	9,616	11,765	12,239	11,412	14,781
Paint	2,920	1,808	1,972	2,658	3,711	4,656
Other uses	11,520	7,750	11,720	6,308	5,816	9,159
Natural gas used*	365,377	335,533	315,562	355,770	431,830	478,349
Average yield†	1.63	1.71	1.88	2.20	2.32	2.44
Average value‡	3.26	3.41	3.41	3.67	4.02	4.82

*Millions of cubic feet. †Pounds per thousand cubic feet. ‡Cents per pound.

The rubber industry is the dominant consumer of carbon black, taking 94% of domestic sales in 1946. Consumption in rubber practically doubled after 1943, and was still growing.

(G. A. Ro.)

Caribbean Commission: *see* WEST INDIES.

Carnegie Trusts: *see* SOCIETIES AND ASSOCIATIONS.

Caroline Islands: *see* TRUSTEE TERRITORIES.

Cartography.

The wartime stimulus to map making carried through 1947 and was reflected in the continued demand for maps by a map-conscious public and in the production of a large number of maps by both government and private agencies. As a result of World War II cartography was rapidly losing its nationalistic aspects and was becoming a vital factor in international co-operation. The events of 1947 in cartography reflect this trend.

International Map of the World.—The central bureau for the International Map of the World, which was dormant during the war years, was reconstituted during 1947 with headquarters at Chessington, England, a suburb of London. While activities of the bureau were limited, work on the International map was carried on extensively by U.S. and British cartographic institutions.

In the United States the outstanding event was the announcement of the production by the U.S. army map service of the Hedin *Central Asia Atlas*. The sheets of this atlas, based on Dr. Sven Hedin's exploratory work in western China and Tibet from 1894 to 1933, had been first prepared in Germany by Justus Perthes, Gotha, before the war. The work undertaken by the army map service in 1946 involved preparation of 11 new maps and revision of 2 of the sheets published at Gotha. The maps were to follow closely the style and symbolization for the 1:1,000,000 International map and, in addition, would indicate terrain features which are peculiar to the area and seldom found on maps of this scale. The source material for the maps consisted of voluminous notes, sketches, maps and terrestrial photographs produced by Dr. Hedin and members of the expeditions. Supplementing this material were large-scale topographic surveys of limited areas and maps, both published and manuscript, by other explorers. The production of the atlas was in cooperation with Dr. Hedin and his associates and was scheduled for completion in 1949.

The American Geographical society commenced a systematic revision in 1947 of its recently completed millionth map of Latin America. During the year five sheets were in work for revision from aerial photography and a large amount of map data accumulated during the war.

The production of the millionth map of the United States by the U.S. geological survey was carried on at an accelerated pace. During 1947 work was initiated or continued on 10 sheets which, when completed, would cover approximately one-third of the country and would bring the total of published sheets to 17.

Production of the millionth map in Europe and Asia also was carried on during the year at a pace that promised completion of the International Million map within a decade. Provisional publication by the army map service of a number of millionth-scale maps of areas in Asia established the United States as a leader in this field during 1947.

Late in October 1946 the soviet newspaper *Pravda* announced the completion of the millionth map, consisting of 180 sheets, covering the U.S.S.R. The maps, while not conforming in every respect to the style and symbolization of the millionth map, are such that they are acceptable as a soviet counterpart to the International map. Unfortunately, although the U.S.S.R. had made public announcement of their availability, it had not presented these maps for sale or distribution.

European and Near East Cartography.—The National Exhibit and Convention of Cartography and Optics, organized by the Istituto Geografico Militare, L'Associazione Ottica Italiana and La Commissione Geodetica Italiana on the occasion of the 75th anniversary of the Istituto Geografico Militare, was held at Firenze (Florence), Italy, Oct. 27 through Nov. 1. This meeting, with 21 nations represented, was the first large international congress in cartography after the war. The papers pre-

sented emphasized geodesy and photogrammetry.

At the meeting of a special commission of the International Geodetic association in Paris Oct. 15–17, announcement was made of the completion of the adjustment of the central European basic triangulation nets and a plan was discussed whereby such adjustments might be extended to cover all of Europe.

The first International Hydrographic conference after 1937 was held at Monte Carlo, principality of Monaco, from April 22 to May 5. Because of the world conflict, the conference, although scheduled for every five years, did not meet in 1942. Consequently, the 1947 meeting was concerned with a large accumulation of technical proposals. Uniformity of chart specifications, the adoption of newly developed electronic methods of position determination for charting and the standardization of geographic names on charts occupied a large portion of the agenda.

The political changes in the near east, culminating in the withdrawal of Great Britain from India, were directly reflected in the cartographic organization throughout the area. Throughout Egypt, Syria, Iran, Iraq and Afghanistan, the French and British influence or direction of survey work was erased and intense nationalistic interests became dominant. As a result of the conversion, the lack of experienced, trained personnel hampered the work of the newly established survey departments to such an extent that many were little beyond the paper stage. The fate of the survey of India, as a result of the partition of India, was a question of considerable speculation during 1947, until announcement was made of the establishment of separate survey departments of Pakistan and the dominion of India.

Cartography in the United States.—From a production and distribution standpoint, leadership in the cartographic field remained in the United States during 1947. Co-operative effort by the federal agencies producing maps resulted in the establishing of uniform, standard specifications for large-scale topographic maps. Along the same vein were the interagency agreements between both the civilian and military mapping agencies which clearly delineated the responsibility of each agency with regard to large-scale mapping in the United States. This agreement placed the responsibility for standard topographic surveys with the U.S. geological survey and thereby eliminated duplication of effort and variety of map styles that formerly resulted.

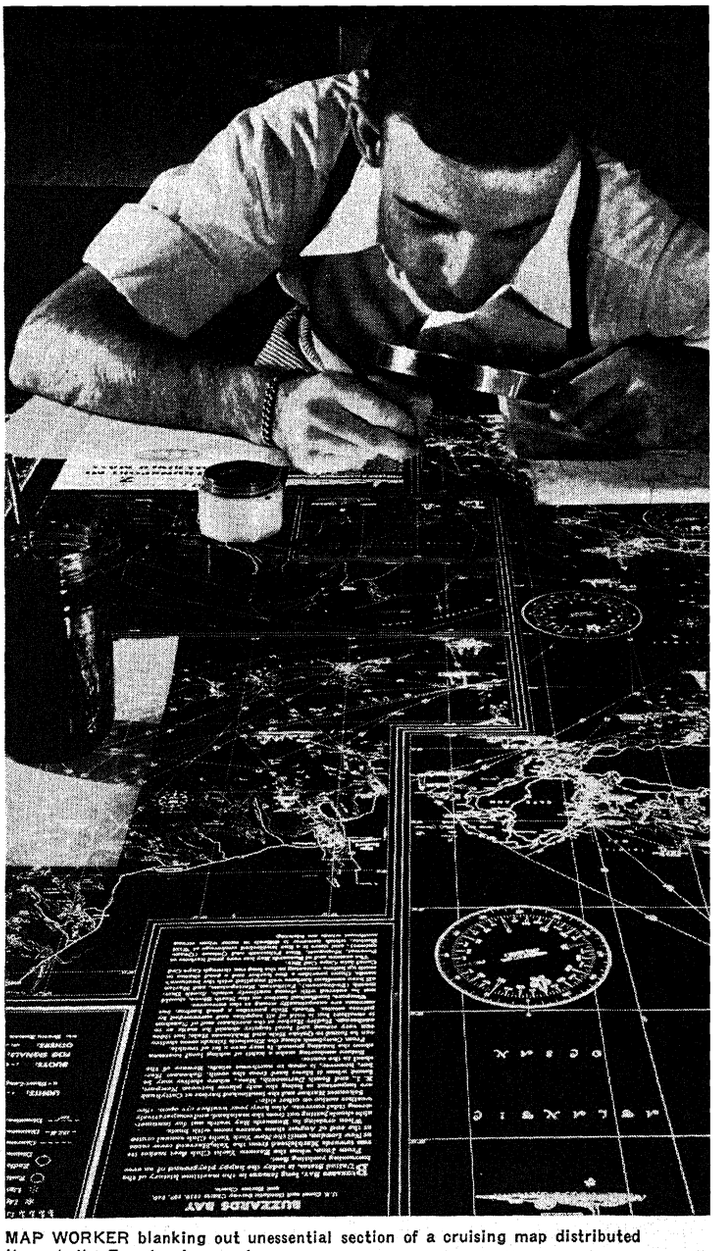
The U.S. board on geographical names, which had been a part of the office of the secretary of the interior from its establishment by executive order in 1890, was established under legislative act by the 80th congress as an official agency to formulate government place name policies and decisions. The board played an important part in the war in co-ordinating the place name work of federal mapping agencies, and, under the authority vested by congress in 1947, it would exercise considerable influence on U.S. cartography, both governmental and private.

The army map service, in co-operation with the U.S. geological survey, was at work on a 1:250,000-scale topographic map of the entire United States in 469 sheets.

The only map of the series published in 1947 was a preliminary edition of the sheet covering Washington, D.C. Sheets covering about one-quarter of the country were in various stages of compilation in 1947, and the entire series was scheduled for completion within a five-year period.

In 1947 two important series of index maps were issued by U.S. agencies. The coast and geodetic survey published two sets of indexes, one showing the basic triangulation nets and the other, the basic level nets. Each index, on a scale of about 1:650,000, covers a state, coverage for all states being available in 1947.

The U.S. geological survey instituted a series of indexes designed to present graphically the coverage of geologic maps by colour or symbol overprint on a planimetric base. Each index covers a state, the first, issued in 1947, being for the state of Wyoming.



MAP WORKER blanking out unessential section of a cruising map distributed through the Esso touring service

The 1:5,000,000 Map of the Americas produced by the American Geographical society was nearing completion. Of the five sheets planned, three were published in 1942 and the remaining sheets, covering North America, were completed in 1947 with publication expected early in 1948.

The hydrographic office, U.S. navy, published an *Atlas of Surface Currents of the Northeastern Pacific Ocean,* which was the fourth of a series planned to cover all the oceans. The atlas of 12 monthly charts shows current directions per unit degree square and is based on records of 30 years of observation. (*See* also COAST AND GEODETIC SURVEY; GEOGRAPHY; NATIONAL GEOGRAPHIC SOCIETY.) (W. E. Ds.)

Catastrophes: *see* DISASTERS.

Catholic Church: *see* ROMAN CATHOLIC CHURCH.

Catholic Community Service, National: *see* SOCIETIES AND ASSOCIATIONS.

Catholic Library Association: *see* SOCIETIES AND ASSOCIATIONS.

Catholic Organizations for Youth.

The National Catholic Youth council is the single national co-ordinating body officially established by the Catholic bishops of the United States to unify Catholic youth programs of the country. It has two major divisions, one of which embraces community youth groups found during 1947 in the 122 dioceses and more than 20,000 local churches throughout the country. The other division of the N.C.Y.C. unites organizations of Catholic students on a national basis. The council's College and University section has for its major divisions the National Federation of Catholic College Students, comprising student groups in the 209 Catholic colleges and universities of the country and also the Newman Club federation, in which are affiliated 573 Catholic student groups on public and nonsectarian campuses.

The headquarters of the National Catholic Youth council is in the office of the youth department of the National Catholic Welfare conference at 1312 Massachusetts Ave., Washington 5, D.C. The N.C.W.C. Youth department is charged by the Catholic hierarchy with the development and supervision of the National Catholic Youth council. Its staff functions in the field of community and student youth work.

Both the Catholic College federation and the Newman federation held important national meetings during 1947. At Toledo, O., Catholic student delegates from Catholic institutions of the country came together for a three-day meeting on April 18th. A program of student action and closer co-operation with other student groups, both national and international, was enacted by this congress. On July 10 the Newman Club federation held its national convention at Houston, Tex., with a majority of the clubs throughout the country represented.

The first national conference on Catholic Youth Work convened May 19–21 in Cleveland, O. Under the auspices of Archbishop R. J. Cushing of Boston, Episcopal chairman of the youth department N.C.W.C., more than 700 clergy, professional youth leaders and lay sponsors came together to discuss problems in the field of Catholic youth work. Every major national Catholic youth organization was represented, together with executives and staff members of 67 diocesan or regional Catholic youth groups. Nine major phases of Catholic youth organization and programming were considered during the course of the conference. Plans were laid for the establishment of study groups which would arrive at findings and recommendations on problems affecting Catholic youth in the United States. Simultaneous with this conference there was a meeting of 119 Catholic scout chaplains who considered the organization of scouting under Catholic auspices.

Specific national Catholic youth-serving programs continued to sponsor activities for Catholic young people on local, regional and national levels. Following postwar adjustments, these national programs reported an increased membership and program extensions during the year. The following major national programs for Catholic youth evidenced increased activity in many areas: The Queen's Work (Sodality of Our Lady), 3115 S. Grand Blvd., St. Louis, Mo.; The Catholic Student Mission Crusade, Shattuck Ave., Cincinnati, O.; The Junior Catholic Daughters, 39 Manchester Terrace, Mt. Kisco, N.Y.; The Columbian Squires, 45 Wall St., New Haven, Conn.; The Catholic Central Verein, 3835 Westminster Place, St. Louis, Mo.; The Catholic Committee on Boy Scouts, 2 Park Ave., New York, N.Y.; The Junior Holy Name society, 141 E. 65th St., New York, N.Y.

The Catholic Youth Directory and *The Proceedings of the First Conference on Catholic Youth Work*, issued by the youth department of the National Catholic Welfare conference, contain a complete listing of Catholic youth-serving organizations and the major problems and policies to which their attention was directed during the year. (C. E. BM.)

Catholic Rural Life Conference, National.

Founded in 1923 by Bishop Edwin V. O'Hara and a group of priests, this national organization is dedicated to the economic, social and spiritual interests of the U.S. farmer. The constitution adopted in 1944 pledged the conference to promote the well-being of the rural population by applying the principles of Catholic ethics to rural and agricultural problems and to strengthen and expound Catholic faith in rural districts.

The silver-jubilee convention was held at Lafayette, La., on Nov. 23–26, 1947. At the convention the conference received a report from Bishop Aloisius J. Muench of Fargo, N.D., apostolic visitator to Germany, on needs of displaced persons. Detailed plans were laid for resettling refugees in the U.S., in conjunction with the National Catholic Resettlement council. The diocesan directors, in a special session, adopted a strong resolution favouring extension and development of soil-conservation districts. Education to stewardship of land was stressed. The board of directors adopted resolutions favouring: (1) formulation of a national land policy, to foster family farms and rural homesteads; (2) enactment of legislative safeguards for migratory farm labour, regarding housing, health and working conditions generally; (3) calling of an international Catholic conference on agricultural and rural problems; (4) establishment of Catholic schools of practical agriculture and of advanced study; (5) closer co-operation between rural and urban groups.

During 1947 the conference issued formal statements favouring protection of migratory farm labour and retention of acreage restrictions in reclamation projects. Its president, Bishop William T. Mulloy of Covington, Ky., testified before a congressional committee regarding admission of displaced persons.

At the midwinter meeting of the board of directors the quarterly *Land and Home* was suspended and the new monthly *The Christian Farmer* was designated official publication of the conference.

The Most Rev. William T. Mulloy, bishop of Covington, Ky., was re-elected president at the Lafayette convention, and Rt. Rev. L. G. Ligutti was reappointed executive secretary. Headquarters in 1947: 3801 Grand Ave., Des Moines, Ia. (J. LAF.)

Catholic University of America.

During 1947 the Catholic University of America, Washington, D.C., added three buildings with 25,000 sq.ft. of classroom and laboratory space and increased the faculty by 25 additions to serve an enrolment of 4,200 students, among whom were registrants from 25 countries other than the United States and 2,600 ex-service men and women. The National Catholic School of Social Service of Washington was merged with the university's school of social work; a branch of the engineering school was established at the army engineer centre at Fort Belvoir, Va.; training for master's degrees in boy counselling was opened in conjunction with Father Flanagan's Boys Town, and new courses in psychiatric and tuberculosis nursing were added to the school of nursing education. Co-operative arrangements were made with the Oak Ridge Institute of Nuclear Studies to supply training for atomic specialists and consultants in research in the government's program to develop peacetime uses for atomic energy. Dr. Edward J. Finan was named dean of the graduate school of arts and sciences; Miss Marie A. Corrigan became dean of women, and eight faculty members were promoted to full professorships. Pope Pius XII elevated Rev. Dr. John K. Ryan of the school of philosophy to the rank of domestic prelate. Of three original plays written by

university students and produced by the speech and drama department, one was sold for commercial production. Football with Mason-Dixon conference teams was resumed after abandonment of the game during World War II. Donations, royalties and special grants valued in excess of $950,000 were received; plus more than $1,000,000 toward a fund of $5,000,000 required to complete the National Shrine of the Immaculate Conception on the campus. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (P. J. M.)

Catholic Welfare Conference, National.

The conference was organized by the bishops of the United States in Sept. 1919 to unify, co-ordinate and organize the Catholic people of the United States in works of education, social welfare, immigrant aid and other social and religious activities. The conference is conducted by an administrative board of 10 archbishops and bishops, who supervise its operation and report annually to the Holy See. The conference does not exercise jurisdiction in the canonical sense, nor is it a synod or council.

The annual meeting of the conference was held at Washington, D.C., Nov. 11–14, 1947, attended by more than 130 members of the hierarchy. Members elected or re-elected to the administrative board were: chairman, Archbishop John T. McNicholas, O.P. of Cincinnati, O.; vice-chairman, Archbishop Richard J. Cushing of Boston, Mass.; treasurer, Bishop John Mark Gannon of Erie, Pa.; secretary, Bishop John F. Noll of Fort Wayne, Ind.; Archbishop Robert E. Lucey of San Antonio, Tex.; Archbishop Joseph E. Ritter of St. Louis, Mo.; Archbishop James H. Ryan of Omaha, Neb.; Bishop Karl J. Alter of Toledo, O.; Bishop Emmet M. Walsh of Charleston, S.C., and Bishop Michael J. Ready of Columbus, O. Msgr. Howard J. Carroll was re-named general-secretary of the N.C.W.C.

The general meeting voted to hold the bishops' emergency relief collection in 1948 on Laetare Sunday. It authorized the appointment of a special committee of bishops to represent N.C.W.C. in problems relating to the church in occupied areas of the Pacific. Plans were approved for the formation of the National Catholic Resettlement council to be composed of Catholic organizations interested in the resettlement of displaced persons. Subsequent to the meeting the council was organized under the auspices of War Relief Services of the N.C.W.C.

The annual reports of the National Catholic Welfare conference departments, submitted at the bishops' meeting, summarized the conference's activities for the year 1947. Organizations affiliated with the National Council of Catholic Men increased from 2,954 to 3,130. "The Catholic Hour" was heard on 111 National Broadcasting company stations. "The Hour of Faith" was heard over 55 stations while the "Faith In Our Time" program was carried by 77 stations. A total of 4,734 organizations were affiliated with the National Council of Catholic Women, an increase of 136 during 1947. The National Catholic School of Social Service was unified with the Catholic University of America's school of social work. N.C.W.C. News Service was used in 41 countries. The department of education participated in national educational conferences, presented testimony and views on national legislation, and initiated research and interpretation in connection with controversial school matters. The Social Action department sponsored meetings of the Catholic conference on industrial problems, institutes for working women, N.C.C.W. leaders, priests, seminarians, nuns, and business men. The Youth department reported that 64 dioceses had youth programs with 261 priests and 162 professional laymen and women occupied in the work. The Catholic Action Institute of the Confraternity of Christian Doctrine was initiated at the Catholic University of America and was attended by more than 100 religious and laymen from North and South America.

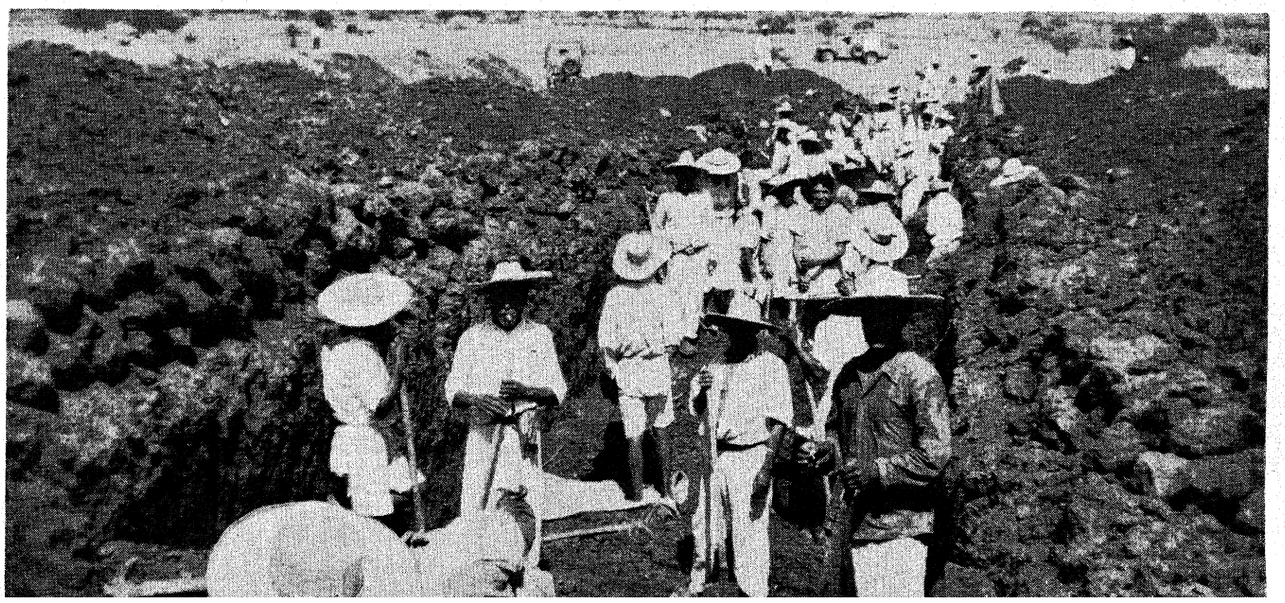
In 1947, national headquarters were located at 1312 Massachusetts Avenue, N.W., Washington, D.C. The official publication is the monthly, *Catholic Action.* (J. LAF.)

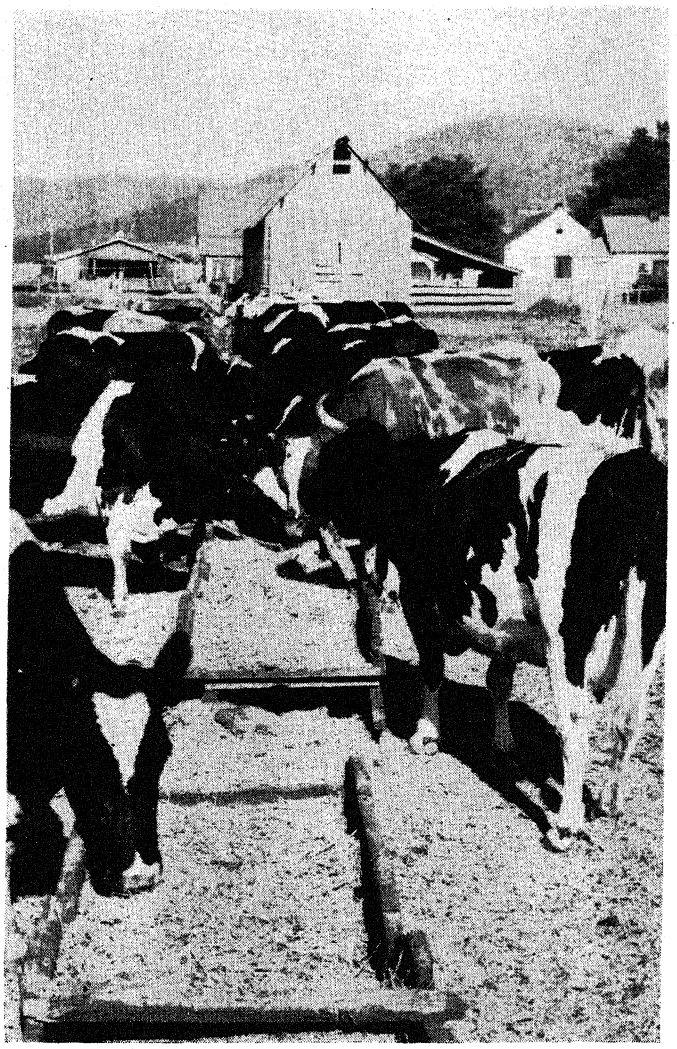
Catholic Youth Organization: *see* CATHOLIC ORGANIZATIONS FOR YOUTH.

Cattle. The total number of beef and dairy cattle in the U.S. continued to decline in 1947. A total of 81,051,000 head was reported on Jan. 1, 1947, compared with 82,434,000 a year earlier and the record high of 85,573,000 on Jan. 1, 1945. This decline was attributed to larger slaughter; more cattle and calves were dressed than in any previous year. The slaughter records showed that about 50% more cattle and calves were sold in 1947 than in any of the five years preceding World War II. High prices for all classes of cattle, together with doubt regarding the future, were cited as reasons for the heavy liquidation.

The decline in numbers of milk cows was smaller than that of beef animals—only 2% from 1946. On Jan. 1, 1947, the num-

MEXICAN FARMERS digging trenches for the burial of infected cattle during an epidemic of hoof-and-mouth disease in 1947. By midsummer, 168,000 animals had been killed in an effort to halt the plague





DAIRY HERD at Coeur d'Alene, Ida., where farmers reported greater silage in 1947 as a result of reclamation work on the Rathdrum Prairie project. Increased feed crops allowed for increases in livestock

ber of milk cows and calves was estimated at 26,100,000 head, compared with 26,695,000 a year earlier and an average of 25,823,000 head during 1936–45. Advancing feed prices in contrast to the relatively steady price of milk caused dairymen to cull their herds closely in the fall months of 1947.

Marketing of cattle and calves, at a high level in Jan. 1947, continued well above the previous year at a steady rate which contrasted with the wide fluctuation of shipments in 1946. A reduction in the number of feed-lot cattle resulted from the high feed prices. The high prices of feeder-cattle discouraged feeders from maintaining their operations at the 1946 level, which was the highest on record.

Prices of all classes of cattle were at record high levels throughout 1946. The average received by producers for all classes in Jan. 1947, was $17.30 per cwt., compared with $11.80 a year earlier. By June 1947, the average price had advanced to $18.60, to $19.50 in August and to $20.20 in September, followed by a slight decline in October. Proposals to send more grain to Europe caused a further rise to $19.80 in December. Calf prices followed the same general trend.

World cattle numbers began to increase in 1946. Decreases in North America, Australia and New Zealand were offset by increases in Europe, South America and Africa. The Americas, Africa, Australia and New Zealand had more cattle than in the prewar decade; the great losses were in the war-devastated countries of Europe and Asia. Canada and Mexico both had to impose restrictions on the shipment of stock and feeder cattle to the U.S. in 1947. Outbreak of hoof-and-mouth disease in Mexico stopped exports to the U.S. which had ranged from 400,000 to 500,000 head annually. Canada continued its embargo on shipments of cattle to the U.S. to provide additional beef for Great Britain. Canadian price controls remained in effect through 1947; prices rose but were considerably below the U.S. level.

In Argentina, cattle numbers changed little although the demand for beef increased because of domestic needs. Exports of beef rose in the early months of 1947, about 90% going to the United Kingdom. Increased costs of labour and feeds prevented Argentine cattlemen from expanding production.

The number of dairy cattle increased slowly in The Netherlands, Denmark and Belgium, but the high cost of imported feeds continued to be a handicap. (*See* also LIVESTOCK.)

(J. C. Ms.)

C.E.D.: *see* COMMITTEE FOR ECONOMIC DEVELOPMENT.

Celebes Islands: *see* NETHERLANDS INDIES.

Cellulose Products: *see* PLASTICS INDUSTRY; RAYON AND OTHER SYNTHETIC FIBRES.

Cement. The postwar recovery in building construction brought in 1946 a 40% increase in the world production of cement as compared with 1945. This increase was not limited to the United States but was shared by most of the major producing countries. Such preliminary figures as were received for 1947 indicated continued increases.

United States.—The salient features of the cement industry in the United States were as follows:

Cement Industry in the U.S., 1940-46

(Millions of barrels)

	1940	1941	1942	1943	1944	1945	1946
Production	132.7	166.9	185.3	135.3	92.2	104.3	166.5
Portland cement	130.2	164.0	182.8	133.4	90.9	102.8	164.1
Other varieties	2.5	2.9	2.6	1.8	1.2	1.5	2.5
Shipments	132.9	170.4	187.8	129.5	95.6	107.8	172.1
Portland cement	130.3	167.4	185.3	127.6	94.3	106.4	169.6
Other varieties	2.5	2.9	2.5	1.8	1.3	1.5	2.5
Stocks							
Portland cement	23.4	20.0	17.4	23.2	20.0	16.4	11.0
Clinker	4.9	4.6	3.5	6.0	5.3	4.5	3.9
Other varieties	0.3	0.3	0.3	0.2	0.2	0.2	0.1
Exports	1.7	2.6	1.1	1.7	4.0	6.5	5.2
Available supply	131.7	167.9	186.7	127.8	91.6	101.4	166.9

The domestic cement industry responded to the revival of the building industry with a 60% increase in output during 1946. Following the same pattern as the two preceding years, shipments were ahead of production and stocks declined.

The production rate continued to advance in 1947, with 117,977,000 bbl. of Portland cement during the first eight months, an advance of 17% over the corresponding period of 1946. Corresponding shipments were 118,344,000 bbl., 9% ahead of 1946. During 1946 an average of 68% of the plant capacity was in use, rising to 71% at the year end, and to 86% in Aug. 1947. (*See* also GYPSUM.)

(G. A. Ro.)

Census Data, 1947. By way of supplement to the results of the periodic population and housing censuses, the U.S. bureau of the census collects a wide variety of data on a monthly, quarterly, or annual basis, publishes frequent estimates of population, labour force, employment and unemployment, and makes special censuses of limited areas and surveys in various fields from time to time as occasion demands.

Growth of Total Population.—The population of the U.S. on July 1, 1947, according to preliminary estimates, was 144,001,510—an increase of 2,772,817 over the population estimated for July 1, 1946. The sources of this increase may be analyzed as follows: There were, during the year ending June 30, 1947, 3,987,902 births, from which may be subtracted 1,429,066

Table I.—*Estimated Population of Continental United States Including Armed Forces Overseas, July 1, 1940, to July 1, 1947*

Date	Estimated total population	Change since preceding date: Net increase Number	Net increase Per cent	Births*	Deaths*	Excess of births over deaths	Net civilian immigration
July 1, 1940	131,970,224	—	—	—	—	—	—
Jan. 1, 1941	132,637,933	667,709	0.51	1,311,428	692,971	618,457	49,252
July 1, 1941	133,202,873	564,940	0.43	1,316,685	761,117	555,568	9,372
Jan. 1, 1942	133,953,225	750,352	0.56	1,400,533	681,971	718,562	31,790
July 1, 1942	134,664,924	711,699	0.53	1,407,467	733,223	674,244	37,455
Jan. 1, 1943	135,645,969	981,045	0.73	1,630,967	701,054	929,913	51,132
July 1, 1943	136,497,049	851,080	0.63	1,578,210	786,014	792,196	58,884
Jan. 1, 1944	137,368,379	871,330	0.64	1,580,383	761,926	818,457	52,873
July 1, 1944	138,083,449	715,070	0.52	1,436,179	794,451	641,728	73,342
Jan. 1, 1945	138,922,634	839,185	0.61	1,533,007	786,027	746,980	92,205
July 1, 1945	139,585,518	662,884	0.48	1,422,212	866,036	556,176	106,708
Jan. 1, 1946	140,393,671	808,153	0.58	1,472,268	710,080	762,188	45,965
July 1, 1946	141,228,693	835,022	0.59	1,424,255	734,939	689,316	145,706
Jan. 1, 1947	142,672,762	1,444,069	1.02	2,017,255	678,035	1,339,220	104,849
July 1, 1947†	144,001,510	1,328,748	0.93	1,970,647	751,031	1,219,616	109,848

*Estimated total, including adjustment for underregistration.
†Preliminary figures.

deaths, leaving a natural increase of 2,558,836, which represents the major part of the population increase. The remainder was made up of the net civilian immigration, which amounted to 214,697. The rate of increase for the year ending June 30, 1947, was 2.0%, decidedly higher than the rate of 1.4% in 1943, which had stood as the record maximum for any year since the early 1920s. While the number of alien immigrants admitted in the fiscal year 1947 was a little higher than in any recent earlier year, the main reason for the very large population increase in 1947 was the unusually large number of births, approximately 4,000,000, as compared with a little over 3,000,000 in the previous record year, 1943. The increase in births, in turn, was doubtless in large part a result of the very large number of marriages which took place in the months immediately following the demobilization of the major part of the U.S. armed forces in 1945–46.

A preliminary estimate for Oct. 1, 1947, gave the U.S. a total population of 144,708,000.

Two other types of estimates were made—one series representing the population actually in continental United States, excluding persons in military service overseas (sometimes referred to as the *de facto* population) and second, the civilian population, excluding all persons in military service. By mid-year, 1945, the number of persons in military service had grown to more than 12,000,000, so that the total population far exceeded the civilian population. In July 1947, the estimated civilian population of the U.S. was 142,627,650, differing from the total population by less than 1,400,000. For the same date the *de facto* population, including military personnel in continental United States but excluding that overseas, was 143,381,587.

Trends.—The birth rate (based on recorded births, as reported by the national office of vital statistics, of the U.S. public health service) had increased, with improvement in economic conditions, from a low of 16.6 per 1,000 of the population in the calendar year 1936 to 21.5 in 1943, with a slight recession in the next 2½ years. In July 1946 began a rapid increase, running up to a maximum of 29.5 (annual basis) in Dec., then falling to around 25 in May 1947, with subsequent increase to a provisional figure of 26.8 for Sept.

The death rate declined slowly from 11.3 per 1,000 of the population in 1930 (calendar year) to 10.7 in 1940 and fluctuated closely around that level during the next six years, running slightly below 10 per 1,000 (annual basis) in the summer months and somewhat higher in the winter months. The provisional rate for Jan. 1947, was 10.9 and for September, 9.1.

The number of marriages (figures also from the national office of vital statistics) increased rather rapidly from an average of around 1,350,000 in the five years from 1935 to 1939 to 1,772,132 in 1942 (calendar year) with somewhat lower figures in 1943, 1944, and 1945. It then increased substantially to 2,285,539 in 1946. In the first half of 1947, almost 1,000,000 marriages were reported; during the next three months (July–Sept., 1947) the numbers of marriages reported for all cities of 100,000 or over, with a population aggregating about one-third of the U.S. total, were likewise appreciably lower month by month than in 1946.

The number of divorces in 1945 was estimated at 494,000, or 30.8 per 100 marriages (as compared with 264,000 in 1940) and at a still higher figure, namely, 613,000 in 1946—though the rate per 100 marriages was only 26.8, by reason of the much larger number of marriages.

Assuming a continuation of the birth rates and death rates in each age which prevailed in the period from 1935 to 1940, 1,000 women starting life at the same time would bear 978 daughters during their lifetimes. This figure is a net reproduction rate. A net reproduction rate of 1,000 would mean that each generation would just replace itself under the conditions stated. A rate below 1,000 would indicate a potentially declining population and a rate above 1,000, a potentially growing population. The U.S. rate rose from 1,023 in 1940 to 1,233 in 1943. It then declined to 1,144 in 1945, but rose to 1,451 in 1946, with a much higher figure in prospect for 1947. It seemed almost certain, at the end of 1947, that there would be a substantial decline in fertility rates within the next few years, but opinions were divided as to whether, in resuming the historical trend toward smaller families and a declining rate of increase which had been in progress for over a century, the population of the U.S. would settle back to the prewar trend line or perhaps run along parallel with it at a somewhat higher level. It seemed, in any case, that the prospect of a declining population within a few decades had not been eliminated but that the time of its occurrence (forecast as 1990 with a probable population of around 180,000,000) might be materially postponed.

Urban and Rural.—For April 1947, the civilian population was estimated at 142,061,000, an increase of 7.9% over the 1940 census figure. The urban population at the same time, as estimated on the basis of a sample survey, was 83,860,000, or 12.7% more than in 1940 and the rural-nonfarm population was 30,896,000, representing an increase of 14.3%. These gains, both considerably higher than the increase in the total population, were made in part at the expense of the rural-farm population, which declined 9.6% from 30,216,000 in 1940 to 27,305,000 in 1947. The effect of these differential changes was to increase the percentage urban from 56.5 in 1940 to 59.0 in 1947, while the percentage rural-farm declined from 22.9 to 19.2. These figures are presented in Table II, together with classifications by sex and colour.

Sex and Colour.—Mainly because the large numbers of im-

Table II.—*Population of the United States, Urban and Rural, and by Sex and Colour: 1947 and 1940*

	Civilian population 1947	Total population 1940	Per cent change
Total	142,061,000	131,669,275	+7.9
Urban	83,860,000	74,423,702	+12.7
Rural-nonfarm	30,896,000	27,029,385	+14.3
Rural-farm	27,305,000	30,216,188	−9.6
By sex:			
Male	70,128,000	66,061,592	+ 6.2
Female	71,933,000	65,607,683	+ 9.6
By colour:			
White	127,044,000	118,214,870	+ 7.5
Nonwhite	15,017,000	13,454,405	+11.6

migrants from Europe were dominantly male, there was long in the population of the U.S. a decided excess of males over females, the maximum excess shown for any census date being 2,692,288 in 1910, when the sex ratio was 106.0 males per 100 females. With declining immigration and the ageing of the population, the excess of males became gradually smaller and smaller until in Oct. 1946, according to the current estimates of total population, the number of females slightly exceeded the number of males. In the civilian population, of course, this excess of females was materially accentuated since this figure omitted something like 1,500,000 men in military service. The civilian population of April 1947, for which information of various types is presented in the following paragraphs, comprised 70,128,000 males and 71,933,000 females, or 97.5 males per 100 females.

The white population of the U.S. increased from 118,214,870 in April 1940, to 127,044,000 in April, 1947, or 7.5%. The nonwhite population, mainly Negro, increased during the same period from 13,454,405 to 15,017,000, or 11.6%. The effect of this somewhat more rapid increase in the nonwhite population was to raise the percentage nonwhite in the civilian population from 10.2 to 10.6. These figures should not be interpreted, however, as indicating the prospect of any very rapid or extensive change in the relative numbers of the two racial groups. During the two or three decades ending with 1947 there were, largely as the result of migration from southern states to the north and west, material changes in the living conditions of the nonwhite population, which changes may be accompanied by other changes tending toward lower birth rates among nonwhite families.

Age.—Table III shows the civilian population of April 1947, distributed by age and sex, with 1940 census figures for comparison. The effect of the high birth rate of the seven years preceding April 1947 is strikingly shown by the increase of 36.2% in the population under five years old. This is more than four times the rate of increase in the total population and almost seven times the rate of increase in the population five years old and over. Despite the unprecedented increase in the population in the youngest age group, however, the median age of the population rose from 29.0 to 30.0 years.

Making a comparison on the basis of the percentage which persons in each age group form of the total, it may be noted that persons under five years old formed 10.1% of the total population in 1947, as compared with 8.0% in 1940, while persons from 10–19 years old, the survivors for the most part of the low-birth-rate depression years formed only 15.1% of the total in 1947, as compared with 18.3% in 1940. At the other end of the age scale, the percentage represented by persons 55–64 years old increased from 8.0 in 1940 to 8.9 in 1947, and the figure for persons 65 years old and over increased from 6.8% in 1940 to 7.5% in 1947, thus indicating a definite continuation of the long-time trend toward an older population which persisted in spite of the unusual increments in the very youngest section of the population resulting from the high birth rates of the war period.

Educational Attainment.—According to a survey made in April 1947, more than half of the population of the U.S. 20 years old and over had completed the equivalent of the first year of high school. The median of 9.5 years of school completed represented the midpoint in the range of educational attainment among the individuals making up the population. At one extreme were somewhat less than 10% of the population who had completed less than 5 years of school and at the other extreme 5% who had completed 4 years or more in college or university. Those persons with less than five years of schooling were rather largely concentrated in the older age groups, reflecting the fact that even 30 or 40 years before, educational facilities were less readily available than later. The college graduate group, however, was more evenly distributed by age, the percentage of college graduates in the population 45–54 years old being about the same as that in the total 20 years old and over. In general, however, there was a definite correlation between age and educational attainment, the median number of years of school completed being highest (12.1) for the youngest group covered by the inquiry, even though many of these persons (20–24 years old) were still in school and would eventually add one or two more years to their record. From this point the medians decreased gradually to 7.7 for persons 65 years old and over. The medians computed for 1947 indicated an appreciable advance in educational attainment as compared with 1940—9.5 years for the entire group covered by the survey

Table III.—*Population of the United States by Sex and Age: 1947 and 1940*

(Distributions for 1947 based on a small sample)

Age	Civilian population, April 1947				Total population, April 1940				Per cent change, 1940–47		
	Number	Per cent	Male	Female	Number	Per cent	Male	Female	Total	Male	Female
All ages	142,061,000	100.0	70,128,000	71,933,000	131,669,275	100.0	66,061,592	65,607,683	+ 7.9	+ 6.2	+ 9.6
Under 5 years	14,354,000	10.1	7,321,000	7,033,000	10,541,524	8.0	5,354,808	5,186,716	+36.2	+36.7	+35.6
5– 9 years	11,989,000	8.4	6,110,000	5,879,000	10,684,622	8.1	5,418,823	5,265,799	+12.2	+12.8	+11.6
10–14 years	10,656,000	7.5	5,407,000	5,249,000	11,745,935	8.9	5,952,329	5,793,606	− 9.3	− 9.2	− 9.4
15–19 years	10,736,000	7.6	5,154,000	5,582,000	12,333,523	9.4	6,180,153	6,153,370	−13.0	−16.6	− 9.3
20–24 years	11,748,000	8.3	5,653,000	6,095,000	11,587,835	8.8	5,692,392	5,895,443	+ 1.4	− 0.7	+ 3.4
25–29 years	11,554,000	8.1	5,540,000	6,014,000	11,096,638	8.4	5,450,662	5,645,976	+ 4.1	+ 1.6	+ 6.5
30–34 years	11,073,000	7.8	5,354,000	5,719,000	10,242,388	7.8	5,070,312	5,172,076	+ 8.1	+ 5.6	+10.6
35–44 years	19,983,000	14.1	9,826,000	10,157,000	18,333,220	13.9	9,164,794	9,168,426	+ 9.0	+ 7.2	+10.8
45–54 years	16,734,000	11.8	8,339,000	8,395,000	15,512,071	11.8	7,962,019	7,550,052	+ 7.9	+ 4.7	+11.2
55–64 years	12,643,000	8.9	6,368,000	6,275,000	10,572,205	8.0	5,409,180	5,163,025	+19.6	+17.7	+21.5
65 years and over	10,591,000	7.5	5,056,000	5,535,000	9,019,314	6.8	4,406,120	4,613,194	+17.4	+14.7	+20.0
Median age	30.0	—	29.9	30.1	29.0	—	29.1	29.0	—	—	—

Table IV.—*Highest Year of School Completed by the Civilian Population 20 Years Old and Over, by Age, for the United States: April 1947*

(Figures based on a small sample)

Years of school completed	Total, 20 years old and over	20–24 years	25–29 years	30–34 years	35–44 years	45–54 years	55–64 years	65 years and over
Total	94,326,000	11,748,000	11,554,000	11,073,000	19,983,000	16,734,000	12,643,000	10,591,000
Elementary school:								
Less than 5 years*	8,980,000	369,000	489,000	526,000	1,280,000	1,923,000	2,099,000	2,294,000
5 or 6 years	7,844,000	554,000	539,000	582,000	1,446,000	1,754,000	1,506,000	1,463,000
7 or 8 years	26,679,000	1,661,000	1,921,000	2,481,000	6,037,000	5,947,000	4,726,000	3,906,000
High school:								
1 to 3 years	16,394,000	2,907,000	2,618,000	2,379,000	3,748,000	2,563,000	1,355,000	824,000
4 years	21,645,000	4,719,000	4,200,000	3,430,000	4,283,000	2,432,000	1,544,000	1,037,000
College:								
1 to 3 years	6,691,000	1,158,000	1,057,000	851,000	1,591,000	1,031,000	628,000	375,000
4 years or more	4,716,000	292,000	641,000	737,000	1,409,000	812,000	471,000	354,000
Years of school not reported	1,377,000	88,000	89,000	87,000	189,000	272,000	314,000	338,000
Median years of school completed	9.5	12.1	12.0	11.4	9.9	8.5	8.1	7.7

*Includes persons reporting no school years completed.

as compared with 8.8 in 1940, with increases of something like 1 year for the 4 groups comprising persons from 20–44 years of age and with little change for those older. These figures are summarized in Table IV.

School Attendance.—About 1,200,000 male veterans between the ages of 20 and 29, or about one-seventh of the whole number of veterans in this age group, were in school or college in April 1947, most of them presumably taking advantage of the G.I. Bill of Rights. The veterans in school comprised nine-tenths of the whole number of males 20–29 years old enrolled in the schools and colleges of the nation and were mainly responsible for the fact that the number of young men enrolled in school and college in 1947 far exceeded the highest prewar level.

Data on school attendance or enrolment for the population 5–29 years of age are presented in Table V. The percentages enrolled for persons 7–17 years of age were higher in 1947 than in 1940, the only material decline shown in the table being that for five-year-olds. This decrease was believed to be only nominal and the result of a change in the form of inquiry which was more successful in excluding from the count children attending kindergarten.

Table V.—*School Enrolment of Persons 5 to 29 Years Old, by Age: 1947 and 1940*

(Figures for 1947 based on a small sample)

Age and veteran status	Total civilian population, April 1947	Enrolled in school		Per cent in school, 1940
		Number	Per cent	
Total, 5 to 29 years	56,683,000	26,679,000	47.1	—
5 years	2,628,000	136,000	5.2	18.0
6 years	2,446,000	1,644,000	67.2	69.1
7 to 9 years	6,915,000	6,643,000	96.1	94.3
10 to 13 years	8,562,000	8,354,000	97.6	95.5
14 to 17 years	8,689,000	7,057,000	81.2	79.3
18 and 19 years	4,141,000	1,148,000	27.7	28.9
20 to 24 years	11,748,000	1,262,000	10.7	6.6
Males 18 and 19 years	1,837,000	565,000	30.8	30.8
Veteran	328,000	70,000	21.3	*
Nonveteran	1,509,000	495,000	32.8	*
Males 20 to 24 years	5,653,000	993,000	17.6	8.2
Veteran	4,218,000	877,000	20.8	*
Nonveteran	1,435,000	116,000	8.1	*
Males 25 to 29 years	5,540,000	384,000	6.9	*
Veteran	4,344,000	353,000	8.1	*
Nonveteran	1,196,000	31,000	2.6	*

*Data not available.

Tenure of Home.—The number of occupied dwelling units in the U.S. increased from 34,854,532 in 1940 to 39,016,000 in 1947, thus adding about 12% to the number of U.S. homes during the seven-year period. Since the population increased by only about 8%, the average population per dwelling unit was slightly lower in 1947 than in 1940 (3.64 as compared with 3.78).

There was a marked increase between 1940 and 1947 in the proportion of families in the U.S. who owned the houses in which they lived. In 1947, 54.7% of the dwelling units were occupied by their owners and only 45.3% by tenants, thus almost exactly reversing the situation in 1940, when 43.6% were owner-occupied and 56.4% tenant-occupied. This change in the tenure relationship was the result of conditions in many areas under which it was practically impossible to find a house offered for rent, so that many families acquired at least the form of ownership of a home as the only means of obtaining a place to live. While the percentage of owner-occupied homes, as always, remained higher in rural areas than in urban, the change between 1940 and 1947 affected both urban and rural areas in similar fashion. The percentage of dwelling units occupied by owners in urban areas increased from 37.5 in 1940 to 48.4 in 1947. The corresponding change in rural-nonfarm areas was from 51.7 to 64.3 and in rural-farm areas from 53.2 to 64.9.

Housing Vacancies.—In addition to the occupied units there were in 1947 1,028,000 vacant units designed for year-round occupancy (excluding something over 1,000,000 seasonal units, for the most part in rural areas). Of these units, 327,000 were offered for rent and 112,000 were offered for sale only, the remainder being made up of units rented or sold but not yet occupied, units held for absent households, etc. The 439,000 units offered for sale or rent formed a little over 1% of the total number of dwelling units. These figures may be compared with 1,475,374 vacant nonseasonal units for sale or rent in 1940, or nearly 4% of the total. Vacant units offered for rent were relatively much more numerous in rural-farm areas

Table VI.—*Occupied and Vacant Dwelling Units in the United States: April 1947*

(Figures represent ordinary occupied dwelling units and habitable vacant units. Data based on a small sample)

Status	United States	Urban	Rural-nonfarm	Rural-farm
Total occupied units	39,016,000	23,835,000	8,519,000	6,662,000
Owner-occupied	21,347,000	11,547,000	5,478,000	4,322,000
Tenant-occupied	17,669,000	12,288,000	3,041,000	2,340,000
Per cent	100.0	100.0	100.0	100.0
Owner-occupied	54.7	48.4	64.3	64.9
Tenant-occupied	45.3	51.6	35.7	35.1
Vacant nonseasonal units	1,028,000	352,000	299,000	377,000
Offered for rent	327,000	87,000	79,000	161,000
Rented but not yet occupied	88,000	42,000	25,000	21,000
Offered for sale only	112,000	49,000	45,000	18,000
Sold but not yet occupied	183,000	86,000	62,000	35,000
Other*	318,000	88,000	88,000	142,000

*Units held for absent household, pending settlement of estate, awaiting demolition, etc.

in 1947 than in nonfarm areas, forming 2.3% of the whole number of rural-farm units. This situation doubtless reflects the fact that there was during the period 1940–47 a considerable decline in the rural-farm population through migration to nonfarm areas.

Plumbing Equipment.—In 1947 an estimated 26,436,000 occupied dwelling units, or 67.8% of the total, were equipped with private bath and private flush toilet, for the exclusive use of the occupants of the unit. This figure may be compared with 55.7% in 1940. Of the urban units in 1947, 84.3% were reported as having these facilities, of the rural-nonfarm units, 57.3%, but of the rural-farm units only 21.9%. All three of these figures, however, represented decided increases over the corresponding figures for 1940.

At the other end of the scale in the matter of plumbing equipment, there were 7,626,000 dwelling units, or 19.5% of the 1947 total, which had no running water in the unit. This percentage may be compared with 29.6% in 1940, these figures indicating a marked reduction in the proportion of households

Table VII.—*Occupied Dwelling Units by Plumbing Equipment, for the United States, Urban and Rural: 1947 and 1940*

(Figures for 1947 based on a small sample)

Plumbing Equipment	April 1947		April 1940	
	Number	Per cent	Number	Per cent
United States total	39,016,000	100.0	34,855,000	100.0
Private bath and private flush toilet	26,436,000	67.8	19,429,000	55.7
Private flush toilet, no private bath	1,522,000	3.9	1,487,000	4.3
Running water, no private flush toilet	3,432,000	8.8	3,614,000	10.4
No running water in dwelling unit	7,626,000	19.5	10,325,000	29.6
Urban	23,835,000	100.0	20,597,000	100.0
Private bath and private flush toilet	20,095,000	84.3	15,830,000	76.9
Private flush toilet, no private bath	1,137,000	4.8	1,227,000	6.0
Running water, no private flush toilet	1,589,000	6.7	2,193,000	10.6
No running water in dwelling unit	1,014,000	4.3	1,347,000	6.5
Rural-nonfarm	8,519,000	100.0	7,151,000	100.0
Private bath and private flush toilet	4,885,000	57.3	2,823,000	39.5
Private flush toilet, no private bath	287,000	3.4	223,000	3.1
Running water, no private flush toilet	1,038,000	12.2	941,000	13.2
No running water in dwelling unit	2,309,000	27.1	3,164,000	44.2
Rural-farm	6,662,000	100.0	7,107,000	100.0
Private bath and private flush toilet	1,456,000	21.9	776,000	10.9
Private flush toilet, no private bath	98,000	1.5	37,000	0.5
Running water, no private flush toilet	805,000	12.1	480,000	6.8
No running water in dwelling unit	4,303,000	64.6	5,814,000	81.8

without convenient water supply. Of the 23,835,000 urban units in 1947, only 1,014,000, or 4.3%, were without running water, in contrast with the situation in rural-farm areas where

4,303,000 out of a total of 6,662,000, or 64.6%, had no running water in the unit. The classification of dwelling units on the basis of plumbing equipment is summarized in Table VII.

Electric Lighting.—More than nine out of ten of the occupied dwelling units in the U.S. in 1947 were equipped with electric lighting, this representing an increase from slightly less than eight out of ten in 1940. As in the case of plumbing equipment, there was a marked differential between urban and rural areas. While only 1.8% of the urban units were without electric lighting in 1947, 8.6% of the rural-nonfarm units lacked this convenience, and 36.7% of the rural-farm units. Improvement in this respect between 1940 and 1947 was more marked than in the matter of plumbing equipment, since the percentage of units without electric lighting was reduced during this period by slightly more than one-half. The reduction in the percentage of homes without electric lights was more rapid in urban areas than in rural, though even in the rural-farm areas the number of homes without electric lights was reduced from 4,810,000 in 1940 to 2,447,000 in 1947. The figures for dwelling units with and without electric lighting are summarized in Table VIII.

Table VIII.—Occupied Dwelling Units by Electric Lighting, for the United States, Urban and Rural: 1947 and 1940

(Figures for 1947 based on a small sample)

Status	April 1947 Number	April 1947 Per cent	April 1940 Number	April 1940 Per cent
United States total	39,016,000	100.0	34,855,000	100.0
With electric lighting	35,414,000	90.8	27,604,000	79.2
Without electric lighting	3,602,000	9.2	7,251,000	20.8
Urban	23,835,000	100.0	20,597,000	100.0
With electric lighting	23,414,000	98.2	19,719,000	95.7
Without electric lighting	421,000	1.8	878,000	4.3
Rural-nonfarm	8,519,000	100.0	7,151,000	100.0
With electric lighting	7,785,000	91.4	5,588,000	78.1
Without electric lighting	734,000	8.6	1,563,000	21.9
Rural-farm	6,662,000	100.0	7,107,000	100.0
With electric lighting	4,215,000	63.3	2,297,000	32.3
Without electric lighting	2,447,000	36.7	4,810,000	67.7

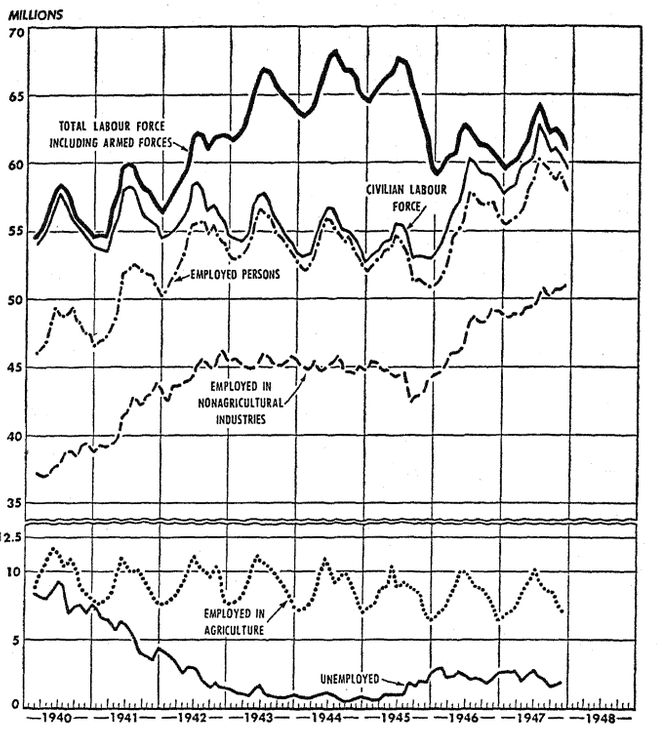
Rental.—The median monthly rental of the 12,288,000 tenant-occupied urban dwelling units in April, 1947, was $31.64, as compared with $24.60 in April 1940. This change resulted from a decided increase in the number of units renting for $30 or more and similar decreases in the number of units renting for less than this figure. The number of units renting for less than $10, for example, decreased from 1,219,000 in 1940 to 481,000 in 1947, or more than 60%. On the other hand, the number of units renting for $40 to $49 increased from 1,262,000 in 1940 to 2,043,000 in 1947, or something over 60%. These rental figures are summarized in Table IX.

In the northeastern states, the median rental of tenant-occupied urban dwelling units was $34.11; in the north central states, $32.09; in the south, $23.18; and in the west, $32.85. These figures represent increases of 20% or 30% over the corresponding figures for 1940 except that in the south the median increased from $15.13 to $23.18, or more than 50%.

Table IX.—Monthly Rent of Tenant-Occupied Urban Dwelling Units in the United States, with Medians for Regions: 1947 and 1940

(Figures for 1947 based on a small sample)

Monthly rent	April 1947 Number	April 1947 Per cent	April 1940 Number	April 1940 Per cent	Per cent change, 1940 to 1947
United States total	12,288,000	100.0	12,882,000	100.0	− 4.6
Under $10	481,000	3.9	1,219,000	9.4	−60.5
$10–$19	2,052,000	16.7	3,401,000	26.4	−39.7
$20–$29	2,966,000	24.1	3,462,000	26.9	−14.3
$30–$39	3,015,000	24.5	2,402,000	18.6	+25.5
$40–$49	2,043,000	16.6	1,262,000	9.8	+61.9
$50 or more	1,731,000	14.1	1,136,000	8.8	+52.4
	April 1947		April 1940		
Median rental:					
United States	$31.64	—	$24.60	—	+28.6
Northeastern states	34.11	—	26.96	—	+23.4
North central states	32.09	—		—	
The south	23.18	—	15.13	—	+53.2
The west	32.85	—	25.06	—	+31.1



TRENDS in the labour force, 1940 to 1947 (Source: U.S. Bureau of the Census)

Employment and Unemployment.—The civilian labour force, estimated at 60,200,000 in Nov. 1947, had declined seasonally by about 700,000 from the October level. This decline was confined largely to farm workers who left the labour force with the end of harvesting operations. The civilian labour force in Nov. 1947 included about 1,200,000 more persons than in Nov. 1946, largely veterans of World War II. There was little change in the number of women in the labour force between 1946 and 1947.

The total labour force, including the armed forces, was estimated at 61,500,000 in Nov. 1947, or about 500,000 more than in Nov. 1946.

The labour force participation rate for male veterans, that is, the proportion of those in the population who were in the civilian labour force, increased significantly during 1946 and 1947. In Nov. 1945, when large numbers of veterans first started returning to civilian life, the rate for veterans 20–44 years of age was only about 68%. By Nov. 1946 this rate had risen to 88%, and by Nov. 1947 to 91%. The rate for nonveterans in the same age group was about 97% in Nov. 1947, virtually unchanged from Nov. 1945.

The number of persons employed in civilian work declined by about 600,000 between Oct. and Nov. 1947, to a level of 58,600,000. Persons employed in nonagricultural industries totalled 50,600,000 in November, virtually the same as in October. The number of nonagricultural workers in November remained at the all-time high of previous months, exceeding the war peak reached in Dec. 1942, by about 4,500,000, and the Nov. 1946 level by 1,500,000. Women employed in nonagricultural work in November totalled about 15,300,000, or about 2,000,000 below the wartime peak of female employment in the spring of 1945.

With harvesting operations nearly completed in most areas of the country, the number of agricultural workers dropped by about 600,000 between October and November to a total of 8,000,000. About half of the decline occurred among adult

women and an additional 25% among young farm workers under 20 years of age. Agricultural employment in Nov. 1947 was at about the same level as in Nov. 1946, but the number of male farm workers had increased by about 250,000 while the number of female workers had declined by a corresponding amount. This replacement of women by men in farm work had been under way ever since the end of World War II.

An estimated 1,600,000 persons were unemployed in Nov. 1947, or about the same number as in October. The stability in unemployment between October and November extended alike to male veterans of World War II, to nonveterans and to women. Unemployment in November, representing only 2.7% of the civilian labour force, was the lowest recorded since the fall of 1945.

The average duration of unemployment in Oct. 1947 was nine weeks, or about the same as in September. This was substantially lower than in Oct. 1946, when the duration of unemployment averaged about 12 weeks.

The data from the monthly reports on the labour force are summarized for the postwar period up to Nov. 1947, in Table X, while the chart on page 178 shows the principal items in graphic form for the entire period from 1940 to the end of 1947.

The Dec. 1947 figures for employment and unemployment were as follows: civilian labour force, 59,590,000; employed, 57,947,000, unemployed, 1,643,000. Persons employed in agriculture numbered 6,962,000, as compared with 7,985,000 in November, thus continuing the usual seasonal decline; persons employed in nonagricultural industries numbered 50,985,000 in December, or a little more than in November.

Occupational Changes.—Male and female employed workers are classified by major occupation group for 1947 and 1940 in Table XI. Significant changes among male workers include a decrease in the proportion of the total represented by farmers from 14.7% to 10.7%, by farm labourers from 8.1% to 5.3%, and by general labourers from 8.7% to 7.7%, with increases for nonfarm proprietors and officials from 9.8% to 12.5%, for craftsmen, etc., from 14.5% to 19.0%, and for operatives, etc., from 18.2% to 20.9%.

Among female workers the most significant decreases in proportion were for professional and semiprofessional workers, from 13.2% to 9.4%, perhaps reflecting a movement from the teaching profession to clerical and sales positions; and in domestic service from 17.7% to 8.8%. Significant increases were in clerical workers, from 21.3% to 26.7%, in sales persons, from 7.0% to 8.1%, and in operatives, etc., from 18.4% to 20.1%. The nominal increase in female farm workers reflects mainly the seasonal difference between April and October.

Table X.—*Civilian Employment and Unemployment in the United States: July 1945 to Nov. 1947*

(Figures are exclusive of institutional population as well as of persons in the armed forces. Data based on a small sample)

Date and sex	Civilian population 14 years old and over	Civilian Labour Force: Total	Per cent of population	Employed	Unemployed	Per cent of labour force
TOTAL						
1945:						
July	93,290,000	55,350,000	59.3	54,400,000	950,000	1.7
Oct	95,040,000	53,170,000	55.9	51,610,000	1,560,000	2.9
1946:						
Jan.	99,780,000	53,320,000	53.4	51,020,000	2,300,000	4.3
April.	102,290,000	56,450,000	55.2	54,120,000	2,330,000	4.1
July	103,650,000	60,110,000	58.0	57,840,000	2,270,000	3.8
Oct.	104,590,000	58,990,000	56.4	57,030,000	1,960,000	3.3
1947:						
Jan.	105,250,000	57,790,000	54.9	55,390,000	2,400,000	4.2
April.	105,730,000	59,120,000	55.9	56,700,000	2,420,000	4.1
July	106,133,000	62,664,000	59.0	60,079,000	2,584,000	4.1
Aug.	106,238,000	61,665,000	58.0	59,569,000	2,096,000	3.4
Sept.	106,329,000	60,784,000	57.2	58,872,000	1,912,000	3.1
Oct.	106,428,000	60,892,000	57.2	59,204,000	1,687,000	2.8
Nov.	106,545,000	60,216,000	56.5	58,595,000	1,621,000	2.7
MALE						
1945:						
July	40,290,000	35,270,000	87.5	34,790,000	480,000	1.4
Oct.	41,870,000	34,650,000	82.8	33,710,000	940,000	2.7
1946:						
Jan.	46,300,000	37,160,000	80.3	35,390,000	1,770,000	4.8
April.	48,680,000	39,860,000	81.9	37,990,000	1,870,000	4.7
July	49,880,000	42,710,000	85.6	40,950,000	1,760,000	4.1
Oct.	50,550,000	41,820,000	82.7	40,270,000	1,550,000	3.7
1947:						
Jan.	51,090,000	41,860,000	81.9	39,910,000	1,950,000	4.7
April.	51,330,000	42,800,000	83.4	40,900,000	1,900,000	4.4
July	51,591,000	44,861,000	87.0	43,071,000	1,789,000	4.0
Aug.	51,644,000	44,540,000	86.2	43,022,000	1,518,000	3.4
Sept.	51,684,000	43,551,000	84.3	42,158,000	1,393,000	3.2
Oct.	51,734,000	43,443,000	84.0	42,260,000	1,183,000	2.7
Nov.	51,802,000	43,148,000	83.3	41,972,000	1,176,000	2.7
FEMALE						
1945:						
July	53,000,000	20,080,000	37.9	19,610,000	470,000	2.3
Oct.	53,170,000	18,520,000	34.8	17,900,000	620,000	3.3
1946:						
Jan.	53,480,000	16,160,000	30.2	15,630,000	530,000	3.3
April.	53,610,000	16,590,000	30.9	16,130,000	460,000	2.8
July	53,770,000	17,400,000	32.4	16,890,000	510,000	2.9
Oct.	54,040,000	17,170,000	31.8	16,760,000	410,000	2.4
1947:						
Jan.	54,160,000	15,930,000	29.4	15,480,000	450,000	2.8
April.	54,400,000	16,320,000	30.0	15,800,000	520,000	3.2
July	54,542,000	17,803,000	32.6	17,008,000	795,000	4.5
Aug.	54,594,000	17,125,000	31.4	16,547,000	578,000	3.4
Sept.	54,645,000	17,233,000	31.5	16,714,000	519,000	3.0
Oct.	54,694,000	17,449,000	31.9	16,944,000	504,000	2.9
Nov.	54,743,000	17,068,000	31.2	16,623,000	445,000	2.6

Table XI.—*Employed Workers by Sex and Major Occupation Group: 1947 and 1940*

(Figures for 1947 based on a small sample)

Sex and Occupation Group	Oct. 1947: Number	Oct. 1947: Per cent	April 1940: Number	April 1940: Per cent
Male				
Total	42,260,000	100.0	34,027,905	100.0
Professional and semiprofessional	2,449,000	5.8	1,875,387	5.5
Farmers and farm managers	4,538,000	10.7	4,991,715	14.7
Proprietors, managers and officials, except farm	5,277,000	12.5	3,325,767	9.8
Clerical and kindred workers	2,886,000	6.8	2,236,853	6.6
Salesmen and saleswomen	2,266,000	5.4	2,123,795	6.2
Craftsmen, foremen and kindred workers	8,024,000	19.0	4,949,132	14.5
Operatives and kindred workers	8,820,000	20.9	6,205,898	18.2
Domestic service workers	97,000	0.2	142,231	0.4
Service workers, except domestic	2,431,000	5.8	2,196,695	6.5
Farm labourers and foremen	2,219,000	5.3	2,770,005	8.1
Labourers except farm and mine	3,252,000	7.7	2,965,693	8.7
Occupation not reported	—	—	244,734	0.7
Female				
Total	16,944,000	100.0	11,138,178	100.0
Professional and semiprofessional	1,594,000	9.4	1,469,661	13.2
Farmers and farm managers	296,000	1.7	151,899	1.4
Proprietors, managers and officials, except farm	689,000	4.1	423,520	3.8
Clerical and kindred workers	4,526,000	26.7	2,375,503	21.3
Salesmen and saleswomen	1,376,000	8.1	781,479	7.0
Craftsmen, foremen and kindred workers	188,000	1.1	106,590	1.0
Operatives and kindred workers	3,404,000	20.1	2,046,379	18.4
Domestic service workers	1,485,000	8.8	1,969,083	17.7
Service workers, except domestic	1,917,000	11.3	1,261,639	11.3
Farm labourers and foremen	1,389,000	8.2	320,005	2.9
Labourers, except farm and mine	81,000	0.5	98,435	0.9
Occupation not reported	—	—	133,985	1.2

(*See* also ALIENS; BIRTH STATISTICS; HOUSING; IMMIGRATION AND EMIGRATION; MARRIAGE AND DIVORCE; WAGES AND HOURS; WEALTH AND INCOME, DISTRIBUTION OF.) (L. E. T.)

Centennials: *see* CALENDAR, 1948, page xxii.
Cereals: *see* BARLEY; CORN; OATS; RICE; RYE; WHEAT.

Ceylon. A British crown colony holding limited dominion status in 1947, lying off the southern extremity of India and approaching within 6° of the equator. Area: 25,332 sq.mi.; pop. (March 1946): 6,650,825. Chief towns (pop. census 1931): Colombo (cap., 284,155); Jaffna (45,708); Galle (34,424); Kandy (37,147). Languages: English, Sinhalese, Tamil; religions: chiefly Hindu and Buddhist. Governor: Sir Henry Monck-Mason Moore; prime minister (appointed Sept. 1947): Stephen Senanayake.

History.—Interest during 1947 focused on the introduction of parliamentary government. The state council was dissolved

on July 10, and the elections were held from Aug. 23 to Sept. 20; under adult suffrage, more than 1,500,000 voters went to the polls. The result was a victory for the United National party, which secured 49 out of the 95 seats in the lower chamber. The next most numerous bloc were the Independents with 21 seats, many of whom would support the United National party's policy and give it a working majority. On Sept. 24 Stephen Senanayake, leader of the party, was asked by the governor to form a cabinet; the members were announced two days later. Under the existing constitution, certain subjects affecting the rights of the minorities, defense and foreign relations were reserved to the governor. After a short experience of the working of the new constitution, it was reasonably certain that these would be removed, and Ceylon would cross the threshold of fully responsible government within the commonwealth. The Ceylon Independence act, which received the royal assent on Dec. 10, provided dominion status for Ceylon as from Feb. 4, 1948.

There was a wave of prosperity during the year. Tea, copra and crepe rubber were booming. On Jan. 27 the government announced an export tax on tea of 38.15 cents per lb., expected to yield Rs.90,000,000. A scheme for free education from kindergarten to university absorbed a large part of the revenue.

(H. G. RN.)

Education.—(1946) Sinhalese and Tamil schools 4,135; scholars, male 374,277, female 292,634; English and bilingual schools 416; scholars, male 66,467, female 34,756; University of Ceylon (1945), students 1,065.

Banking and Finance.—Revenue (est. 1946–47) £25,650,000: expenditure (est. 1946–47) £25,585,333; public debt (Sept. 30, 1945) £9,408,775 and Rs. 266,904,100; notes in circulation (May 1947) Rs. 230,100,000; bank deposits (May 1947) Rs. 715,600,000. Rate of exchange (1947): One rupee (100 cents) = 1*s.* 6*d.* or 30.16 U.S. cents.

Trade and Communication.—Overseas trade (merchandise, 1946): imports Rs. 602,090,000; domestic exports Rs. 715,847,000. Communications and transport: roads for motor traffic (1943) 6,551 mi.; railways (1944) 912 mi. (including 106 mi. narrow gauge); shipping entered (1942) 2,724,000 net tons; motor vehicles licensed (Dec. 31, 1941): 20,092 motor cars and taxis; 4,394 trucks and vans; 2,486 omnibuses; 2,644 cycles; 66 tractors; 231 trailers; wireless receiving set licences (Dec. 31, 1940) 9,736; telephone instruments in use (1938) 10,424.

Agriculture.—Production in short tons (1946): rubber (export) 113,989; black tea (export) 145,250; rice (yearly average) 209,200; desiccated coconut (export) 11,121.

Chambers of Commerce.

United States.—In a year which increasingly emphasized the world-wide attack being waged against democracy, the chamber of commerce of the United States strengthened its leadership as the major business spokesman for free enterprise.

In 1947 member organizations—chambers of commerce, trade associations and professional groups—totalled more than 2,700. Their underlying membership numbered more than 1,250,000 businessmen.

In addition, more than 18,000 business concerns held direct membership in the national chamber.

The chamber strove to alert the U.S. people, not only to the danger threatening their security from without, but also to the need for individual responsibility in strengthening free-enterprise work, and in improving local, state and national government.

Continuing its drive against communism, the chamber distributed more than 500,000 copies of 2 special reports: *Communists within the Government,* and *Communists within the Labor Movement.*

A program of action was launched to disseminate to all groups of people the facts about the opportunities afforded under the U.S. way of life.

Spearheaded by the national chamber, committees on national affairs were active in more than 2,000 local chambers, with the goal of a better-informed citizenry.

The chamber also conducted a broad information program, to place the facts about labour-management questions before the people.

Its views closely paralleled the majority opinion as expressed by congress in remedial labour legislation.

All fields of business interest, including federal fiscal policies, stabilization of private and public monies, education, housing, transportation, conservation and foreign reconstruction and trade, received thorough study and action.

In May 1947, Earl O. Shreve, of New York city, was elected president of the chamber of commerce of the United States. Ralph Bradford, long-time general manager of the chamber, was elevated to the position of executive vice-president. Arch Booth became chamber manager. (E. O. SE.)

United States Junior Chamber of Commerce.—This largest young men's civic organization in the world was founded on Jan. 21, 1920, in St. Louis, Mo. It is composed of men 21 through 35 years of age who are principally concerned in giving their volunteer services to the civic betterment of their community, state, nation and the world. An affiliate of the Junior Chamber International, the U.S. junior chamber of commerce had in 1947 more than 1,600 local organizations in the United States; world-wide, the organization embraced 45 nations. There were approximately 200,000 individual members in the United States.

During 1947 local organizations affiliated with the U.S. junior chamber of commerce voted to increase their dues to the national organization from $1 to $2 per member per year. The national convention was held in Long Beach, Calif., and John Ben Shepperd, of Gladewater, Tex., was elected 27th national president.

In convention the delegates formally resolved that aid to Europe as outlined in the European recovery program (Marshall plan) was a necessity for world peace. They also voted in favour of universal military training.

The biggest single decision of the year was the vote to move the national headquarters from Chicago, Ill., to Tulsa, Okla., where a permanent war memorial headquarters building was to be constructed to house the headquarters.

During 1947, the executive vice-president in charge of national headquarters was Frank G. Fister; the editor of *Future, The Magazine for Young Men,* international publication of the U.S. junior chamber, was Raymond E. Roberts. (R. E. Rs.)

Canada.—In its 19th year, the Canadian chamber of commerce had 443 organization members, 1,228 company members and 25 business and professional association members. Activities of 1947 included promotion of a first national institute for secretaries, held at Hamilton, Ont., in August. More than 100 national affairs committees were set up to create a more informed public opinion and to take the opinions of business to government. The chamber produced a series of radio programs called "Pattern for Prosperity," and co-operated with the Canadian Congress of Labor and the Canadian Trades and Labor congress in the production of another series entitled "Labor and Business Take Stock." Publications included 800,000 copies of "Pattern for Prosperity," 90,000 copies of "The Communist Threat to Canada" and 150,000 copies of "This Is a Business," "Know Your Government" and miscellaneous pamphlets. Briefs were presented to the federal government on industrial relations, labour legislation, taxation, radio broadcasting, selective immigration.

The chamber's 5th National Foreign Trade conference was held in Vancouver, B.C., in May, attended by 250 exporter-importer delegates.

In its 11th year, the junior chamber of commerce in Canada had 136 member organizations with approximately 25,000 individual members by 1947. Throughout the year its main em-

phasis continued on leadership training efforts to fit Canadian men between 21 and 40 for their places in Canada's business world. The "Jaycees" were also active in their beautification campaign, begun in 1945, and in which 260 communities participated in the spring of 1947. The junior chamber planned Canada's first boys' town for juvenile delinquents at Boscoville, in northern Montreal. (C. Cy.)

Great Britain.—During 1947 British chambers of commerce, numbering more than 100, with subscribers exceeding 50,000 and representing a complete cross section of the industrial and commercial community, maintained full activity within their wide field, which is to promote and protect the trade and industry of their place of domicile and embraces not only matters of local importance but also the consideration of any British or foreign legislation, regulations or orders affecting their members' interests.

In 1947 chambers had more need to consider draft United Kingdom legislation, and more calls were received from members for individual assistance, than perhaps any other year in their history, which in some cases went back before 1800. New draft laws having a vital bearing on the future of free enterprise were studied in intimate detail, and through the Association of British Chambers of Commerce, the national mouthpiece of the movement, some were strenuously opposed; among these can be listed the Transport bill, the Electricity bill and the Industrial Organization bill. In many cases chambers were able to influence amendments valuable to their constituents, particularly in the Companies bill. The Finance bills of the spring and autumn received detailed scrutiny, leading to representations; some recommendations made by the association were accepted.

The Economic survey for 1947 gave rise to recommendations, and some of the advice given to the government (*e.g.*, regarding the necessity to reduce capital expenditure) was in due course accepted.

The fuel crisis created opportunties for local service which many chambers seized quickly; assistance in organizing staggered hours to relieve the load on electricity plants was given in many cities and towns.

Chambers of commerce provided direct help to many firms engaged in the export drive. (A. R. K.)

Channel Islands: *see* British Empire.

Charles (Charles Théodore Henri Antoine Meinrad de Saxe-Cobourg, Count of Flanders) (1903–), prince of Belgium, was born in Brussels, Oct. 10, younger brother of King Leopold III of the Belgians. On Sept. 20, 1944, shortly after the liberation of Belgium from German occupation, Prince Charles was appointed regent by a joint vote of the parliamentary chambers, as the king was still a prisoner of the enemy. On May 8, 1945, King Leopold was freed by Allied troops at Salzburg and four days later he confirmed the choice of the parliament, asking his brother to "continue the mission he had assumed in the interest of the nation." Considering the acuteness of the "royal question" (*see* Belgium), the prince regent deliberately avoided taking an active part in Belgium's political life. He was not often seen in public and officially his role was limited to helping in the formation of successive governments. In 1947, however, he paid an official visit to the Congo (*see* Belgian Colonial Empire). But, when the news was published that he would go in his official capacity to Paris, the Catholic press strongly criticized the idea and the visit was postponed. On Nov. 20 Prince Charles was present in London at the marriage of Princess Elizabeth and the duke of Edinburgh. (G-H. D.)

Cheese. U.S. production of cheese in 1947 was 1,175,000,000 lb., compared with 1,099,000,000 lb. in 1946 and a five-year average of 669,000,000 lb. (1935–39). More milk was available for cheese making, and with reduced exports a larger domestic supply was provided. Production of American Cheddar type cheese was almost 30% above the previous year, amounting to about 5 lb. per capita. Total cheese output was about 8 lb. per capita. Wisconsin continued to hold its lead in cheese production, its output amounting to nearly half of the U.S. total, followed by Illinois, New York, Missouri and Minnesota. Cold storage stocks were high in midyear, and prices held steady.

The strong demand for butter checked expansion of world cheese production. The need for milk for consumption by children was a retarding factor on all dairy manufactures. (*See* also Butter; Dairying; Milk.) (J. C. Ms.)

Chemical Therapy: *see* Chemotherapy.

Chemistry. **Fluorine Compounds.** — Many organic compounds of fluorine were synthesized during 1947 and the years immediately preceding. Major stimulus to this work was the Manhattan project which required fluorocarbons in the first diffusion separation units at Oak Ridge, Tenn.

The electrolytic generation of fluorine from mixtures of potassium fluoride and hydrogen fluoride was extensively developed both in university laboratories and industries (Harshaw, Du Pont, Hooker Electrochemical, Pennsylvania Salt). Synthesis of a variety of aliphatic and aromatic fluorine compounds was reported, and the chemistry of both fluorine and fluorine compounds was greatly extended. One interesting aspect was the announcement that silver difluoride (AgF_2) and cobalt trifluoride are effective fluorinating agents.

Chromium Hexacarbonyl, $Cr(CO)_6$.—B. B. Owen and collaborators at Yale university developed a procedure for a 60% yield of chromium hexacarbonyl by the interaction of carbon monoxide upon phenylmagnesium bromide and chromic chloride.

Fluorine Perchlorate, $FClO_4$.—G. H. Rohrback and George H. Cady of the University of Washington separated fluorine perchlorate from the gaseous reaction products of fluorine and concentrated perchloric acid. The compound boils at −16° C., freezes at −167° C., and may easily be caused to explode.

Fluoroisocyanates of Silicon and Phosphorus.—All three silicon fluoroisocyanates, $SiF(NCO)_3$ (b.p. 134° C.), $SiF_2(NCO)_2$ (b.p. 68° C.), SiF_3NCO (b.p. −6° C.), were prepared by direct reaction of silicon isocyanate with antimony trifluoride. This work was reported by G. S. Forbes and H. H. Anderson of Harvard university. All of these compounds react vigorously with water or methanol but are inert and miscible toward such solvents as benzene, carbon tetrachloride or ethylene bromide.

Phosphorus isocyanate, $P(NCO)_3$ and antimony fluoride underwent a similar reaction. Phosphorus fluorodiisocyanate, $PF(NCO)_2$ (b.p. 98° C.), and the difluoroisocyanate, PF_2NCO (b.p. 12° C.), were both formed. The first of these compounds was stable, but the second was fairly unstable.

Lithium Aluminum Hydride.—Hydrides of the alkali metals are well known. Potassium hydride (KH), for example, is a white, crystalline, saltlike compound formed when hydrogen is passed over moulten potassium at about 360° C. H. I. Schlesinger, A. E. Finholt and A. C. Bond, Jr., of the University of Chicago discovered that when lithium hydride is treated with an ether solution of aluminum chloride, there is formed lithium aluminum hydride. This is a new, ether-soluble compound with many interesting uses. The equation for its formation follows: $4\,LiH + AlCl_3 \rightarrow LiAlH_4 + 3\,LiCl$. This substance is a com-

plex of lithium hydride and aluminum hydride (AlH_3), the latter substance being isolable as an unstable substance if an excess of aluminum chloride is taken.

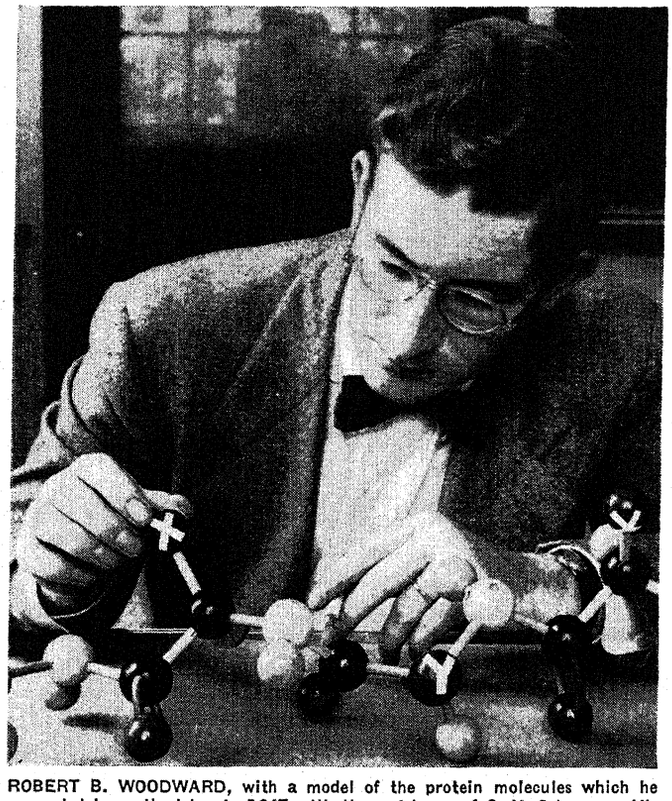
Lithium aluminum hydride reacts vigorously with water or ammonia with the liberation of hydrogen. It reacts with silicon tetrachloride forming silane (SiH_4), with stannic chloride yielding stannane (SnH_4), or with boron trichloride producing diborane, (B_2H_6), the methods being far simpler than those hitherto available. Reaction with dimethylzinc gave rise to the previously unknown zinc hydride (ZnH_2).

Perhaps the most striking property of lithium aluminum hydride is its ability to reduce lithium salts of organic acids to alcohols. This observation is particularly important, since none of the common reducing agents is capable of effecting such a reduction. Esters, acid anhydrides and acid chlorides are also reduced readily to alcohols by lithium aluminum hydride. These results were reported by Weldon G. Brown and R. F. Nystrom of Chicago.

Reactions of Iron Pyrite.—Three reactions of this well-known mineral were reported by George-Maria Schwab and John Philinis of Greece, namely, the pyrolysis at 600–650° C. into ferrous sulphide and sulphur, the reduction with hydrogen to yield ferrous sulphide and hydrogen sulphide and the air oxidation at 400–500° C. yielding sulphur dioxide and ferric oxide together with some ferric sulphate.

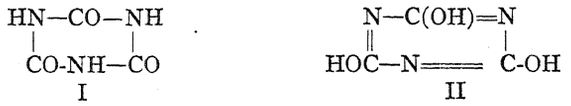
Trioxane.—The common polymer of formaldehyde is paraformaldehyde. A lesser known polymer which assumed industrial importance in the past few years is trioxane. This is a trimer of formaldehyde or $(CH_2O)_3$. It is a colourless crystalline compound melting at 62° C. and boiling without decomposition at 115° C.

J. F. Walker and A. F. Chadwick of Du Pont electrochemicals department pointed out that trioxane is a good source of formaldehyde, since in aqueous solution or in glacial acetic acid it is rapidly depolymerized if a little sulphuric acid is added.



ROBERT B. WOODWARD, with a model of the protein molecules which he succeeded in synthesizing in 1947 with the assistance of C. H. Schramm. His work offered wide new possibilities in the industrial and biological sciences and marked a major advance in organic chemistry

Cyanuric Acid and Melamine.—Like trioxane, these substances also are trimers. They are related to cyanic acid (HNCO) and cyanamide ($CNNH_2$), respectively. Using absorption spectra methods, I. M. Klotz and Themis Askounis of Northwestern university demonstrated that the structure of either of these compounds in solution is the same as it is in the solid state. Cyanuric acid, which could exist either in the keto (I) or enol (II) forms is shown to be of structure I. Melamine, on the other hand, is enolic. Its structure differs from II in that



I

II

each OH group is replaced by NH_2.

Oxynitration of Benzene.—During World War II it became of interest to gain insight into the reported conversion of benzene into dinitrophenol or picric acid by use of a solution of mercuric nitrate in nitric acid. The study was successful in increasing the yields of dinitrophenol to about 85% and in obtaining a clear picture of the mechanism of the process. This work was reported by F. H. Westheimer of the University of Chicago and Marvin Carmack of the University of Pennsylvania.

The first two steps in the process are mercuration of benzene to phenylmercuric nitrate and conversion of the latter to nitrosobenzene by reaction with nitrogen dioxide obtained from the nitric acid. The nitrosobenzene changed into *p*-nitrophenol by either of two processes: (1) conversion by nitric oxide and dilute nitric acid to benzenediazonium nitrate, thence to phenol and nitrophenol; (2) direct "rearrangement" to nitrophenol by concentrated nitric acid in much the same way that phenylhydroxylamine rearranges to nitrosophenol. Of course, further nitration of *p*-nitrophenol leads to di- or trinitrophenol, the last being picric acid.

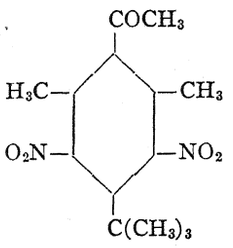
Somewhat related to this work was A. A. Morton's report that phenylmercuric nitrate may be prepared from benzene in excellent yields if mercuric oxide and a desiccant ("Drierite") are used with the mercuric nitrate reagent. Mercuric oxide captures the nitric acid formed in the reaction and the desiccant captures the water, thereby preventing the secondary effects known to occur if nitric acid and water are present.

Benzene Hexachloride.—In view of the heralded excellence of DDT as an insecticide, it is noteworthy that another insecticide of great potency was discovered, namely, the gamma isomer of benzene hexachloride. This is made by addition of chlorine to benzene. Curiously, only the gamma isomer has any insecticidal value.

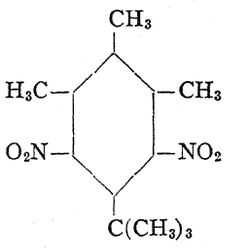
That several isomers are formed when chlorine adds to benzene is understandable from stereochemical considerations. The six carbon atoms in the molecule may be regarded as at the corners of a hexagon. Each carbon holds one hydrogen and one chlorine. It is apparent that all six chlorines may be above the plane of the hexagon and all six hydrogens below it, or five chlorines may be above and one below, etc. Whether all possible isomers are present or not in the reaction mixture is not known. Four of them (α, β, γ, δ) had been known for some time. The fifth or epsilon isomer was isolated during 1947 by K. C. Kauer, R. B. DuVall and F. N. Alquist of Dow Chemical company. Between one-half and three-fourths of the reaction products is the unwanted alpha isomer, and only a 12–14% yield of the gamma isomer is obtained. The various isomers are separated from each other by appropriate use of solvents. S. J. Cristol of the U.S. department of agriculture reported on the kinetics of the detachment of hydrogen chloride from the α, β, γ and δ isomers.

Musk Ketone and Musk Tibetene.—R. C. Fuson and col-

laborators at the University of Illinois established the structure of these important perfume ingredients. They proved that musk ketone was 2,6-dimethyl-3,5-dinitro-4-*t*-butylacetophenone (III) and that musk tibetene was 1,2,3-trimethyl-3,5-dinitro-4-*t*-butylbenzene (IV), thereby correcting errors of structure which had existed for many years.



III



IV

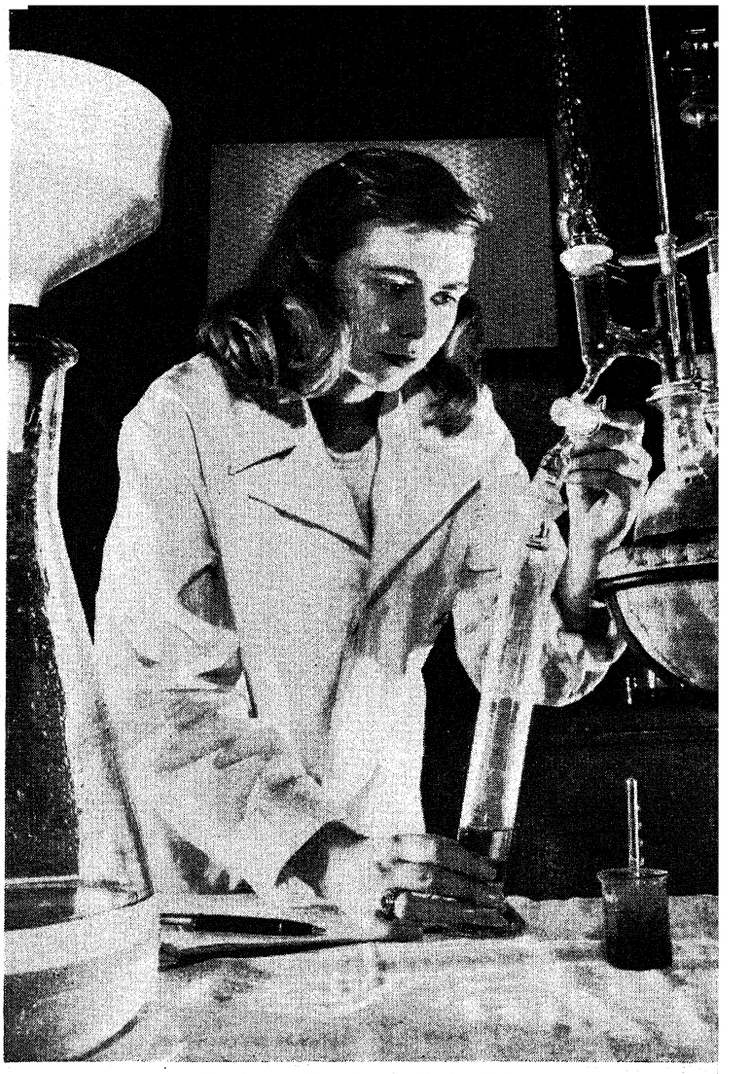
Cyclo-octatetraene.—The recent availability of this hydrocarbon, by direct synthesis from acetylene, is one reason for interest in the compound. Its importance in studies of resonance and other theoretical aspects of organic chemistry is another reason. It was described as a yellow liquid melting at −27° C. Structurally, its molecule resembles benzene, since the latter possesses a six-membered ring made up of three −CH=CH− units, whereas cyclo-octatetraene is composed of an eight-membered ring carrying four −CH=CH− units; but it differs chemically from benzene in being reactive toward bromine, hydrogen bromide or potassium bromide.

Richard Willstaetter's synthesis of 1911 was repeated in 1947 by A. C. Cope and C. G. Overberger of Massachusetts Institute of Technology. Except for a higher melting point (−5.5° C.), confirmatory results were established throughout. The more practical synthesis from acetylene was by polymerization of the latter under pressure (10–15 atm.), a process described by Walter Reppe and coworkers of I. G. Farbenindustrie. The equation for this process is: $4\ C_2H_2 \rightarrow C_8H_8$. The reaction was accelerated by the presence of either powdered calcium carbide, ethylene oxide or tetrahydrofuran. Nickel cyanide was also mentioned as catalyst. A little benzene was produced concurrently as well as other hydrocarbons.

With this simpler synthesis much larger quantities were prepared than would have been possible by Willstaetter's method. As prepared in this manner, cyclo-octatetraene was a golden yellow liquid, freezing at −7° C. to almost colourless needle crystals. Physical chemical measurements on the pure material were made by H. Mark *et al.* at the Polytechnic institute of Brooklyn and by F. D. Rossini and collaborators of the national bureau of standards. Measurement of the heat of combustion shows that in burning, it liberates 34,000 calories per mole more energy than its aromatic isomer styrene. Therefore, not much resonance stabilization is found in the cyclo-octatetraene molecule.

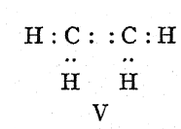
Resonance.—Resonance is a theoretical concept which has played an important role in chemical thinking for two decades. It has to do with electron patterns in molecules. This concept was introduced into quantum mechanics in 1926 by W. Heisenberg in connection with the quantum states of the helium atom. Much of the credit for its application to chemistry generally is traceable to the work of Linus Pauling of California Institute of Technology.

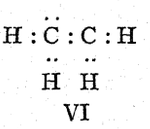
It has been established that in most organic molecules a hydrogen atom, if present, shares two electrons, whereas other atoms (C, O, N, Cl, etc.) possess or share eight electrons. An unstable state arises, for example, if only six electrons are present. To illustrate with ethylene (ten electrons, each being represented by a dot), it is seen that structure V satisfies the stable



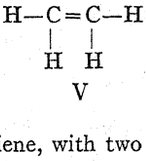
A PLASTIC GLUE, capable of supporting the weight of a 200-ton locomotive and resistant to heat, cold and salt water, was developed in 1947 by the young chemist Elisabeth M. Ackermann, shown here at her Westinghouse laboratory in Pittsburgh, Pa.

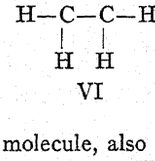
structure, whereas VI would be unstable. Ethylene may be


V


VI

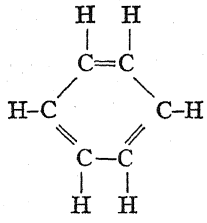
considered a "resonance hybrid" of V and VI, but the contribution of VI is trivial under normal conditions and may be disregarded. The customary mode of representation of V and VI is with bonds, using dots only with unshared electrons, as


V

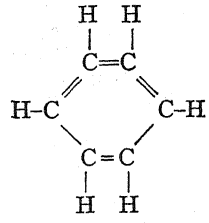

VI

Butadiene, with two double bonds per molecule, also has but one stable modification, namely, $H_2C=CH-CH=CH_2$. Benzene, however, provides two different locations for electrons to appear without deviating from the eight-electron pattern. These two extremes are shown in VII and VIII (p. 184) and benzene is considered to be a hybrid of these structures, both contributing equally. This type of resonance hybrid makes for stabilization. The compound is less reactive chemically than otherwise, it evolves less heat in burning or in hydrogenation, and the distance between carbon centres in the molecules is shortened.

As an example, one finds that cyclohexene (C_6H_{10}), cyclohexadiene (C_6H_8) and benzene (C_6H_6) all may be hydrogenated to cyclohexane (C_6H_{12}). Heat is evolved in all three reactions, to the extent of 28,600, 55,400, and 49,800 calories per mole,



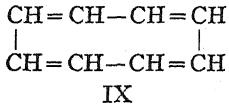
VII



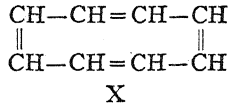
VIII

respectively. Twice 28,600 is 57,200, a value reasonably close to the observed 55,400, showing that there is no important resonance stabilization in cyclohexadiene. Thrice 28,600 is 85,800, which deviates from the observed value for benzene by 36,000 calories. Similarly, the heat of combustion of benzene is found to be 41,000 calories lower than calculated. This value of 36,000–41,000, or about 39,000 calories, is the so-called "resonance energy" of benzene.

Since cyclo-octatetraene is less stable than styrene by 34,000 calories, it is evident that cyclo-octatetraene possesses very little resonance energy. This calls for comment, since its formula may assume two stable electron arrangements (IX, X). The only significant difference between the formulas for benzene and cyclotetraene is that the former is planar and strainless, whereas the latter, to be strainless, must possess a puckered ring. Evidently this feature must play an important role in the concept of resonance.



IX



X

Reactions of Sugars with Nitroparaffins.—Carbohydrates such as xylose, arabinose, glucose or mannose are polyhydroxy aldehydes. Many of the reactions of aldehydes such as oxidation to acids, reduction to alcohols, conversion to cyanohydrins with hydrogen cyanide, etc., are displayed also by these sugars. During the years 1944–47, John C. Sowden *et al.* of the University of Toronto made a brilliant contribution to carbohydrate chemistry by demonstrating the reaction with nitromethane and pointing out the utility of this reaction.

One may recall that a simple aldehyde (RCHO) condenses in an alkaline medium with nitromethane to produce a nitro alcohol, $RCHOH\text{-}CH_2\text{-}NO_2$. If a suspension of a sugar in methanol is treated with nitromethane in the presence of sodium methoxide, the analogous nitro alcohol is produced. Thus, from L-arabinose, $HOCH_2(CHOH)_3CHO$, Sowden obtained a nitro derivative, $HOCH_2(CHOH)_3CHOH\text{-}CH_2\text{-}NO_2$. The importance of this reaction rests in the fact that the compound formed may be changed by simple procedures into other carbohydrate derivatives, hitherto obtainable only with great difficulty. Thus, treatment of the sodium salt of the above nitro compound with sulphuric acid gives rise to a mixture of L-mannose and L-glucose. D-glucose is the common dextrose of commerce, but L-glucose, its mirror image, is not found in nature. This is the best method for its synthesis.

Polymerization of Unsaturated Hydrocarbons.—If one treats pentylchloride ($C_5H_{11}Cl$) with sodium at 0° C. to −10° C., one obtains pentylsodium. This reagent (or other compounds of the alkylsodium class, RNa) effects the polymerization of butadiene into rubberlike compounds. In this process it is regarded that butadiene, $CH_2=CH\text{-}CH=CH_2$, first adds RNa to form $R\text{-}CH_2CH=CHCH_2\text{-}Na$ which being itself a modified RNa again adds to butadiene to yield $RCH_2CH=CHCH_2\text{-}CH_2CH=CHCH_2\text{-}Na$, and so on till very long chains are formed. Such a mechanism would give rise to a long unbranched sequence of carbon atoms. Branched products are formed also, however, and to explain this observation A. A. Morton suggests that the terminal sodium atom in $RCH_2CH=CHCH_2CH_2CH=CHCH_2Na$ may exchange its location to that of a more acidic position, such as $RCH_2CH=CHCHNaCH_2\text{-}CH=CHCH_3$. Addition of this unit to butadiene would yield a branched carbon skeleton.

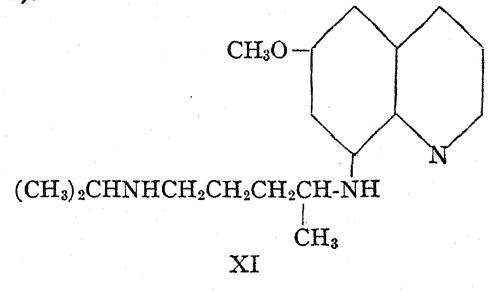
The work of Morton and R. L. Letsinger shows that pentylsodium catalyzed the polymerization of styrene without, apparently, adding to it. Pentylsodium did add smoothly to 1, 1-diphenylethene, however.

An interesting new catalyst, the "alfin catalyst," for the polymerization of butadiene was announced by Morton and his group. This substance is unique in causing catalytic polymerization of dienes and functions differently from the alkylsodium reagent. The alfin catalyst is made from an alcohol (2-propanol) and an olefin, hence the name "alfin." To prepare the catalyst it is only necessary to mix sodium isopropoxide with allylsodium. These reagents then unite to form a complex which is the reactive catalyst. Allylsodium may be made by interaction of pentylsodium with propylene, or the complete catalyst may be made by reaction of pentylsodium with isopropyl ether.

The Fischer-Tropsch Process.—A process for obtaining gasoline or liquid hydrocarbons from a mixture of hydrogen and carbon monoxide was announced in 1928 by F. Fischer and H. Tropsch. It contributed largely to the German fuel supply during the decade 1935–45. H. H. Storch and coworkers of the U.S. bureau of mines performed important work during 1945–47 on a study of catalysts and conditions for this reaction. In particular, the use of cobalt-thoria-magnesia-kieselguhr (100:6:12:200) precipitated catalysts, both pelleted and granular, was investigated. Certain large petroleum industries in the U.S. took active steps in 1947 towards production of hydrocarbons from "synthesis gas," the term applied to the mixture of hydrogen and carbon monoxide.

Antimalarial.—Clinical tests on an antimalarial listed as "Survey Number 13274" were most gratifying. It was reported to effect permanent cures on about 95% of all tested cases of *P. vivax* type of malaria. This is the common relapsing variety which has usually required recurring medical treatment. Quinine is used with SN-13274 in the present therapy.

The compound is one of the 8-aminoquinolines studied on an office of scientific research and development project by R. C. Elderfield and coworkers of Columbia university. Specifically, it is 8-(4-isopropylamino-1-methylbutyl)amino-6-methoxyquinoline (XI).

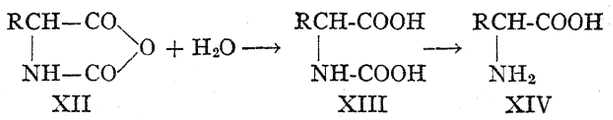


XI

Amino Acids and Proteins.—The classical studies of Emil Fischer established the essential structure of proteins as polyamides, composed of alpha amino acid units. Since amines react with acids forming salts, the correct representation of an amino acid is the saltlike structure $H_3\overset{+}{N}\text{-}CHR\text{-}COO^-$ rather than the simple amino acid structure $H_2N\text{-}CHR\text{-}COOH$. Starting with an amino acid, Fischer was able to synthesize a dipeptide, $H_2N\text{-}CHR\text{-}CO\text{-}NH\text{-}CHR\text{-}COOH$, by indirect interaction of

two amino acid molecules. Tripeptides and larger polypeptides were synthesized similarly, but the molecular size of these products never approached that of natural proteins.

R. B. Woodward and C. H. Schramm of Harvard university announced a successful synthesis of protein analogs with a molecular weight of several million. Such materials were capable of being cast into clear, tough, mechanically stable films. To obtain this type of high polymer, these investigators first prepared an anhydride of N-carboxy-α-amino acid (XII) by known methods, namely, by reaction of the amino acid with chloroformic ester. Treatment of this anhydride with water gave rise to an unstable substituted carbamic acid (XIII):



XII XIII XIV

Spontaneous decomposition of XIII yielded XIV, capable of further reaction with XII to produce RCHCONHCHRCOOH.
|
NH-COOH

As before, the unstable –NHCOOH group decomposes into $-NH_2+CO_2$, and the reactive NH_2 group continues to build up in the manner of its predecessor until a molecule of tremendous size is formed. Amino acid XIV differs from the original amino acid only in not being in the saltlike structure. Its reactivity towards XII exceeds that of water; hence this polymerization process may be performed in water if desired. This reaction is a significant achievement in protein chemistry.

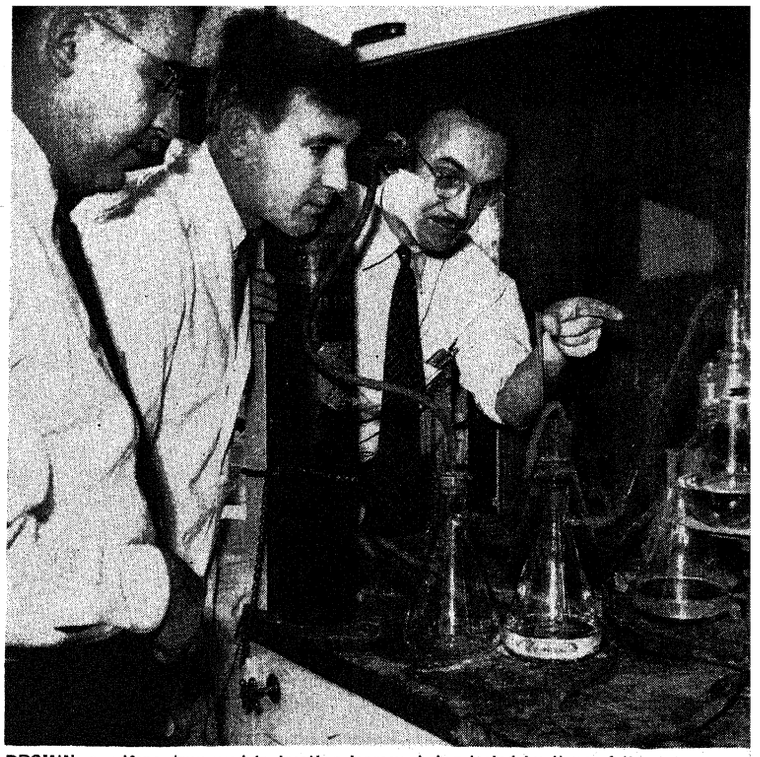
E. J. Cohn, W. L. Hughes, Jr., and J. H. Weare of Harvard Medical school developed methods for the crystallization of certain natural proteins, namely, human and bovine serum albumin. (*See also* ATOMIC ENERGY; BIOCHEMISTRY; ELECTRONICS; PHYSICS; VITAMINS.) (C. D. HU.)

Chemotherapy. Increasing attention was focused during 1947 on nutrition, tropical diseases and degenerative processes associated with diseases such as high blood pressure, heart disease, cancer, muscle-wasting diseases, diseases of the brain and nerves, kidney disease and improperly functioning endocrine glands. The importance of attacking degenerative diseases was reflected in the formation of a new wholly public research foundation in Dec. 1947, guided jointly by drug and pharmaceutic manufacturers and the medical profession in the United States.

The Therapeutic Trials committee, a standing committee of the Council on Pharmacy and Chemistry of the American Medical association, was organized to bring together the discoverers of promising drugs and those qualified to investigate them. Projects during 1947 included a combined attack on the study of the treatment of cancer using hormones and a comprehensive approach to the treatment of poliomyelitis.

Radioactive isotopes were used to study the activities of the normal body and of diseased areas, and to treat diseases such as cancer of the thyroid, and certain blood diseases such as leucaemia. Knowledge in this field advanced sufficiently to permit the loan of many isotopes on a rental basis from the Atomic Energy commission, the issuance being restricted to those qualified to use such products.

Of related interest were the use of hormones for cancer of the prostate gland and of the breast; pteroylglutamic compounds, derivatives of folic acid, for cancer; urethane for leucaemia, a disease of the blood cell forming tissues; nitrogen mustards for cancerlike blood diseases; podophyllin, which is obtained from the mandrake or May apple root, for cancer; and sodium fluoride, iodoacetic acid and malanic acid, which are



PROMIN, a sulfone drug used in treating leprosy, being tested by three of its five co-discoverers. Nineteen patients treated with the drug were discharged from the U.S. leprosarium at Carville, La., in Feb. 1947

supposed to interfere with cancer digestion of sugars and starches. Such trials, even if they should prove disappointing, would open the door to further discoveries. Some idea of the thoroughness of the studies can be gained by reflecting that about 100 radioactive isotopes were developed in the laboratory and more than 50 nitrogen mustards had been made since the end of World War II. This was remindful of the 5,000 odd sulfonamide derivatives that were made within 4 or 5 years after the value of sulfanilamide and sulfapyridine was established. Only a handful of these sulfonamides proved practical—even sulfapyridine had been discarded because of its toxicity—but thousands were explored before the best were discovered and tested.

Other exploratory efforts in cancer studies involved the use of the much publicized KR serum, made from *Trypanosoma cruzi,* an organism responsible for Chagas' disease; tyrosinase to reduce the white blood cells in leucaemia; H.11 Extract, made from the thymus gland and the amidines, including stilbamidine and pentamidine, for multiple myeloma, a cancerous disease of the bone marrow, to relieve pain and to slow the disease temporarily. Like other new cancer treatments under investigation, the amidines were not known to be curative. Still others would probably prove worthless as they are re-examined.

The role of streptomycin in the treatment of tuberculosis was more clearly defined, and it was shown to be effective in some forms of the disease, but not sufficiently safe or effective to replace standard treatment in all cases. Its toxicity, especially the effect on hearing, limited its use. However, this drug might prove valuable in the treatment of plague and rabbit fever. In mice it was found to be 90% effective for the former disease. Production of streptomycin increased until the supply was almost equivalent to the demand.

Penicillin was shown beyond doubt to be effective in the treatment of syphilis, but its lasting effects were more in doubt than in 1946. Relapses seemed to be occurring with disturbing frequency. The usefulness of penicillin increased as the action was prolonged after injection by the concurrent use of preparations intended to slow the excretion of penicillin from the body; caronamide works thus by decreasing the passage of

penicillin through the kidney. The "Romansky formula" (a mixture of penicillin, peanut oil and beeswax), which was developed to permit one daily injection of penicillin instead of six or eight, was modified to overcome the necessity of warming before administration; free flowing preparations were made available. Other means of slowing down body destruction or elimination of penicillin included the application of ice packs, the use of pectin as a base and the simultaneous injection of drugs to lessen blood circulation at the site of penicillin injection. Penicillin was claimed to be more effective in wounds when used with haemoglobin from blood.

Other items of interest in the antibiotic field included the clinical evaluation of bacitracin, which was discovered by Dr. F. L. Meleney of Columbia University College of Physicians and Surgeons, for local infections. Bacitracin was obtained originally from a germ found in an infected wound. California Spanish moss provided an extract found effective in the control of tuberculosis in guinea pigs. Tomatin was secured from the leaves and stems of tomato plants and was shown capable of attacking "athlete's foot" fungi and other fungi; aerosporin might prove effective against whooping cough and typhoid fever; and wild mushrooms yielded several antibiotics active at least in test tubes.

The terror of pneumonia was reduced with the advent of, first, antipneumoccocic sera, and later, the sulfonamides (sulfa drugs) and penicillin, but there was presented to the medical profession a vaccine made from the capsules of the pneumococcal germs to develop immunity against this infection. How effective it would be remained to be seen, as pneumonia is caused by many types of bacteria.

Other infectious processes, or their results, that were brought under further control were brucellosis, against which para-aminobenzoic acid is effective; rheumatic fever, for which para-aminobenzoic acid was used conjointly with salicylates; elephantiasis, which in rats responded to treatment with a cyanine dye; and filiariasis, for which antimony compounds were formerly used, but which responded to a new arsenic compound and to piperazines, as well as cyanines.

The symptomatic relief of asthma had been aided by increasing the medical armamentarium to include benadryl, pyribenzamine, neoantergan and aludrine. The latter was discovered in German files after World War II.

Other agents affecting the involuntary muscular system of the body were priscol, used to combat poor circulation; amyl nitrite, inhaled for hiccoughs; dibenamine, which appeared to cause relaxation of blood vessels by blocking nerve impulses; and tetraethylammonium chloride, which blocks nerve action and permits increased flow of blood.

The use of drugs in the mental field included the intravenous administration of pentothal and amytal to permit free questioning by psychiatrists; the use of nitrous oxide (laughing gas) to calm mental cases; dilantin, mesantoin and tridione for epilepsy; and synhexyl, a synthetic drug somewhat like cannabis (hashish) for depression, but which was still in the experimental stage as it might cause some people to become maniacal. Glutamic acid received widespread attention because of a report that it increased the learning ability of rats and of children.

Other interesting findings included the use of amino acids for myasthenia gravis, a muscle-wasting disease; methadon (a synthetic agent discovered in Germany) and metopon (a derivative of opium developed in the United States) for the relief of pain; vitamin K for chillblains; toluidine blue for the control of bleeding seen in the radiation sickness following exposure to atomic energy; intravenous administration of procaine, a so-called local anaesthetic, for injuries and chronic diseases; BAL to counteract the harmful effects sometimes observed following the use of gold in arthritis; crude liver extract, methionine and choline for liver disease; enterogastrone (a hormone derived from the stomach of hogs) for ulcers; and the use of sodium fluoride, tryptophane (an amino acid) and penicillin to counteract tooth decay. In the latter respect, it was shown that the daily drinking of copious amounts of lemon juice caused etching of the teeth.

Among other phases of chemotherapy were the reports that aspirin may start bleeding after tooth extraction (this substance had previously been mentioned as a cause of ulcers), and the discarding of thiouracil by the A.M.A. Council on Pharmacy and Chemistry in favour of propylthiouracil, which is far less toxic and fully as effective. An interesting sidelight on thiouracil was the demonstration of its usefulness to cause fattening of hogs and lengthening of certain feathers in birds.

During 1947 there was announced the development of a device for administering without injection fluids into and under the skin; the gadget forces the material through the skin in a fine stream and under considerable pressure, which can be regulated to obtain the desired depth of penetration. The device was nicknamed the "hypospray." It offered a means of minimizing the pain normally associated with injection techniques. (*See* also DENTISTRY; MEDICINE; PNEUMONIA; SURGERY; UROLOGY; VITAMINS.) (A. E. SH.)

Chemurgy. Heavy demand for consumer goods stimulated chemurgic research during 1947. Many new chemurgic products appeared commercially, while laboratory research brought other items to the pilot-plant stage.

Interest continued to range from national crops such as corn to specialized items such as walnuts. Zein, an alcohol-soluble protein derived from corn, though itself not newly discovered, was adapted to new uses, one being the manufacture of phonograph records. English walnut hulls contain 3% to 5% of vitamin C, and research in 1947 indicated that walnut hulls, long a bothersome waste, might profitably be utilized as a source of ascorbic acid.

Castor Beans.—The growing demand for castor-bean oil, which can be dehydrated to yield a superior drying oil for industrial purposes, led to steps for initiating domestic production of castor beans on a commercial basis. The Baker Castor Oil company in 1947 contracted with farmers in Illinois, Oklahoma, Arkansas and Kansas to grow 800 ac. of castor beans to multiply seed. Production for crushing was expected to begin in 1948.

Experiment stations in several midwestern states were speeding research to improve castor-bean varieties. They reported progress toward developing several types with seed that will not shatter and with plants of medium, uniform height, to make mechanical harvesting economical.

Castor-bean research, if successful, would provide a new staple crop in an area centring on the Mississippi river between the corn and cotton belts, and perhaps in the southwest.

Furfural.—A plant for processing a product of corncobs into an ingredient for nylon was under construction during 1947 at Niagara Falls by E. I. du Pont de Nemours & Co. Furfural, an aldehyde derived from corncobs, oat hulls, and to a smaller extent from cottonseed hulls, peanut shells, rice husks, flax shives, sugar cane bagasse and wood fibre by-products, makes the conversion possible.

Beginning with furfural, the processing stages are furan, tetrahydrofuran, 1,4 dichlorobutane, adiponitrile and hexamethylene diamine. When the hexamethylene diamine is combined with other chemicals, nylon salts result. One bushel of corncobs, when processed and combined with the other necessary chemicals, will yield about 40 pairs of nylon stockings.

As much as 100,000 tons of corncobs and other farm wastes were expected to be used when the nylon plant was in full operation.

Peanuts.—Several companies were reported to have begun plans in 1947 to obtain synthetic textile fibres from shelled peanuts. After removing colouring matter from the skins, or discarding the skins entirely, a low oil content meal is obtained by solvent extraction and a purified protein is separated from the meal. Synthetic fibres are spun from the protein by wet processes similar to those used in viscose-rayon production.

Preliminary tests showed that a modified peanut protein ranked well with other proteins used in paper-coating mixtures. The protein was successfully incorporated in cold-water paint that gave good results in U.S. department of agriculture tests.

Pectin.—Low-methoxyl pectin from waste citrus peel makes a good casing for sausages, cheese, dried fruit or other products. It dissolves upon boiling, but is tender and edible. It may be eaten if used with food that is fried or consumed uncooked.

Rutin.—More than 15 companies in 1947 were producing rutin on a commercial scale. Useful in the treatment of increased capillary fragility, a condition sometimes accompanying high blood pressure, rutin is extracted from buckwheat. U.S. department of agriculture officials estimated that the annual demand for rutin would eventually exceed 1,000,000 lb. This would require raising 50,000 additional acres of buckwheat.

Soybeans.—The soybean continued to be a leading product for use in the chemurgic field. Soybean glue had been used more than any other type in the plywood industry after 1937, and had represented a consumption of about 45,000,000 lb. of soybean meal a year. Soybean protein, being light-coloured, had become especially useful in paper coating, paper sizing, making textile fibre, in water paints and fire extinguisher compound. According to the department of agriculture, soybean protein would soon be used much more extensively in tire-cord sizing, textile sizing, bookbinding, sandpaper adhesive, abrasive wheel binder, match-head binder, cork binder for gaskets, remoistening adhesives for labels, tacky glues and paper lamination. In 1947 a manufacturer of shotgun shells made commercial use of soybean protein adhesives for shell casings.

Starch.—Allyl starch, when dissolved in certain organic solvents, forms a hard, glossy, insoluble and heat-resistant lacquer. Allyl starch is made from starch, allyl chloride and caustic soda. Considerable commercial interest was shown in the product, which was being produced on a pilot-plant scale to provide sufficient quantities for further utilization studies.

Straw.—Results of studies of the properties of wheat straw showed that it is at least equal in quality to sugar cane bagasse for making high-grade insulating boards. The Northern Regional Research laboratory of the U.S. department of agriculture late in 1947 issued a circular showing how manufacturers can use straw for this purpose.

Vegetable Wastes.—A number of micro-organisms grow well on concentrated juice from waste asparagus butts. An antibiotic derived from one of the organisms was named subtilin. Indications were that it might become useful in treating tuberculosis and amoebic dysentery. Subtilin was also believed to have antifungal properties of potential commercial value.

(W. McM.)

Cherries: *see* FRUIT.

Chess. Although the United States continued its usual national program, chess experienced a slight lull in Europe preparatory to the staging of the world championship in 1948. Thus, no successor was named to replace Dr. Alexander A. Alekhine as world champion. In European competition,



CHESS CONTESTANTS at one of 83 tables set across the U.S.-Canadian border at Blaine, Wash., in Aug. 1947. Canadians won the Class A event in the international tournament

C. H. O'D. Alexander, the British champion, won the annual international event at Hastings, England. Dr. I. Xavier Tarktakower of France won an international tournament at Baarn, the Netherlands, while Alberic O'Kelly of Belgium placed first in the European zone championship at Hilversum, the Netherlands. Irish-born O'Kelly didn't lose a match in accumulating a $10\frac{1}{2}$–$2\frac{1}{2}$ score. Ludek Pachman of Czechoslovakia and Dr. Petar Trifunovic of Yugoslavia were tied for second, each with $9\frac{1}{2}$–$3\frac{1}{2}$. Paul Keres won the Russian title.

In a masters' tournament at Havana, Cuba, Gilberto Garcia of Santiago, Cuba, won with $5\frac{1}{2}$–$1\frac{1}{2}$.

The U.S. open championship, which is worth approximately $1,000 in prize money, was won by Isaac Kashdan of New York city. He defeated a field of 86 players at Corpus Christi, Tex., with $11\frac{1}{2}$–$1\frac{1}{2}$. Anthony E. Santasiere of New York city and Dan Abe Yanofsky of Winnipeg, Man., were tied for second with 10–3 each.

Santasiere won both the New York state and New York open titles, while Max Pavey, former champion of Scotland, won the national speed title. Robert Byrnes of Yale won the intercollegiate crown. Larry Friedman of Cleveland, Ohio, repeated as junior champion.

In team play, the U.S.S.R. team defeated Great Britain.

(M. P. W.)

Chiang Kai-shek (1887–), president of China, commander in chief of its military forces and director-general of the Kuomintang, who was regarded as the symbol of a new and united China during its eight years of war against aggression, began to lose prestige and popularity at home and abroad in 1947 and to be openly attacked and denounced by the communists, as China's runaway inflation and its civil war further weakened China's international position and deepened the long suffering of its people. Nevertheless, Chiang was still the centre of politics and was generally accepted as the



GENERALISSIMO Chiang Kai-shek shown at Shanghai as he signed the document calling for a new Chinese constitution to take effect Dec. 25, 1947

indispensable leader in China's crisis. In his 1947 New Year's message to the nation Chiang emphasized that "without unity, China cannot exist, nor can she be regenerated" and he urged the communists not to try to seize political power by the use of arms but to continue peace negotiations with the government. To meet the crisis he ordered on Feb. 16 sweeping economic reforms and immediate reorganization of the government. Following the reorganization of the government, it adopted Chiang's proposal for national general mobilization in early June, which he enforced to quell the communist rebellion. In return the communists denounced him as the chief instigator of the civil war and called on the people to overthrow Chiang's government.

At the age of 60 Chiang enjoyed good health and continued to live a Spartan life and to exhort his people to observe good order, respect law, obey discipline and practice thriftiness and fortitude. However, the deterioration of the military, political and economic situation also caused him to despair, and in early September Chiang was quoted as saying that his 20-year leadership had been a failure.

Chiang was born of a humble family in Feng-hwa, Chekiang province and rose to power as a soldier and revolutionary follower of Sun Yat-sen. In 1926 he led the northern expedition as generalissimo of the revolutionary forces, and the success of the national revolution made him a national and international figure. In 1927 Chiang established the national government in Nanking and married Soong Mei-ling. For more than 20 years he has held the reins of the Chinese government. (*See* also CHINA.)

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Chicago. Second largest U.S. city, a port of entry and the county seat of Cook county, Ill., at the southwest corner of Lake Michigan, Chicago is the largest centre of U.S. rail traffic and long-distance domestic air routes. Martin H. Kennelly succeeded Edward J. Kelly as mayor in 1947.

The population of the city proper by the federal census of 1940 was 3,396,808; white population numbered 3,115,379, nonwhite 281,429. The census bureau estimated the population of the entire metropolitan district in 1947 as 4,645,000 compared with 4,499,000 in 1940.

Employment and production were at high levels in 1947, uninterrupted by large strikes until newspaper printers went out Nov. 24. Only 26,400 persons were receiving public assistance at the close of the year.

The Chicago Transit authority, a public body, on Sept. 30 assumed ownership and operation of the city's 500 mi. of surface car lines and 85 mi. of elevated and subway lines, with 3,125 street cars, 1,623 elevated cars, 843 buses and 22,000 employes. The price paid for the properties was $87,000,000, raised from the sale of $105,000,000 of revenue bonds. A smaller private bus system remained in operation.

Martin H. Kennelly, an independent antiorganization Democrat, was given the Democratic nomination for mayor. He was opposed by Russell W. Root, Republican. At the election on April 1, Kennelly received 919,593 votes to 646,239 for Root. Republicans increased their number of councilmen from 7 to 17 in a nominally nonpartisan body of 50.

On Nov. 4 the city's voters authorized bond issues of $39,000,000 of which $30,000,000 was for slum clearance and housing. Cook county voters at the same election authorized $12,000,000 of bonds, of which $7,000,000 was for rehabilitation of the county hospital. This reversed the trend toward lower debt which from 1930 had reduced the bonded debt of the six major overlapping governmental bodies of the Chicago area from $396,556,600 to $228,584,600. Also at the Nov. 4 election a Democratic-Republican coalition ticket of 21 candidates for judges of the superior court was elected over a Progressive party slate, by large majorities except for one vacancy.

Crime in 1947 showed a slight trend toward a decline except for robbery and attacks on women. The situation was met by more indictments and convictions, more than 90% of the defendants being convicted and 1,086 sent to the penitentiary.

Chicago's wartime divorce wave receded in 1947, the number of decrees dropping to 15,405, compared with 16,741 the year before. Marriage licenses dropped to 60,684 compared with 66,622. Births for the first six months of the year totalled 40,562 compared with 27,384 for the same period of 1946.

Reorganization of Chicago schools was vigorously pushed by the new mayor. Herold C. Hunt was called from Kansas City and made general superintendent of schools on Aug. 5. The school board budget for 1948 was set for approximately $104,000,000.

The budget for Chicago's governmental bodies for 1948 was $295,060,262.

The city's record high budget was matched by a record budget for Cook county of $33,462,829.

At the close of 1947 Chicago banks had deposits of $8,092,443,000, loans and discounts of $2,062,473,000, bond holdings of $3,878,297,000 and cash resources of $2,144,955,000.

The Chicago *Tribune* celebrated its centennial June 10, 1947, with elaborate festivities. The Chicago *Sun* combined with the afternoon tabloid *Times* on Aug. 6 and the two papers published a joint Sunday edition, although the daily publications remained separate. (L. H. L.)

Chicago, University of. The University of Chicago conferred 2,269 degrees during the academic year 1946–47. Seven hundred and eighty-three bachelor's degrees were granted by the college of the university,

which admits students into its four-year program after the sophomore year of high school. Other degrees granted were: 432 bachelor's degrees in the divisions and schools, 600 master's degrees, 117 doctor of philosophy degrees and 337 professional degrees in business administration, divinity, law, medicine, library science and social service.

After exclusion of income used for auxiliary enterprises and restricted expendable funds, as well as most of the income received and paid out on numerous contracts with the United States government (all nonprofit undertakings), the estimated regular budget income for the 1947–48 year was $15,556,282, an increase of $1,822,380 over the previous year's actual budget of $13,733,902. Total current income for the year 1946–47 before the exclusion mentioned above, was $25,612,330, and the comparable estimated total current income for 1947–48 was $28,229,598. Gifts for all purposes for the 1946–47 period amounted to $2,340,334, a decrease of 16.3%. Endowment funds as of June 30, 1947, were $71,767,171, and the book value of all the university assets was $139,279,081.

A bronze plaque, marking the site of the first self-sustaining chain reaction under the west stands of Stagg field at the University of Chicago, was dedicated Dec. 2, 1947, on the fifth anniversary of the Atomic Age. The epochal event which took place in a squash-racquets court in 1942 initiated the controlled release of nuclear energy. The plaque was unveiled before many of the scientists who worked secretly on the atomic bomb and before members of the United States Atomic Energy commission. Speakers on the anniversary occasion included Enrico Fermi, Nobel prize winner, and Charles H. Swift, distinguished service professor of physics, who designed the pile, the university's chancellor, Robert Maynard Hutchins, and Sumner T. Pike, Robert F. Bacher and William W. Waymack, members of the Atomic Energy commission.

Fundamental research at the university during 1947 emanated principally from the knowledge gained during World War II when the university with its Metallurgical laboratory (renamed the Argonne National laboratory) was one of the major centres of research in the development of the atomic bomb. The university's three new institutes—the Institute for Nuclear Studies, the Institute of Radiobiology and Biophysics and the Institute for the Study of Metals—grew out of the Metallurgical laboratory.

Prewar blueprints for housing the institutes gave way to postwar building. Ground was broken in July 1947 for the ion accelerator building, first unit in the university's $12,000,000 building program for basic scientific research in nucleonics. The $1,250,000 basement and one-story laboratory would house a 100,000,000-volt betatron, a 170-in cyclotron, which was to produce a beam up to 300-400 Mev, and the university's rebuilt cyclotron. Other buildings planned for the institutes included offices and laboratories covering one city block adjacent to the north side of the campus. The U.S. government, through the navy, and a number of industries contributed to the partial support of the institutes.

The Argonne National laboratory was also operated by the University of Chicago under a contract with the United States Atomic Energy commission. Twenty-nine midwestern institutions, including the university, co-operated in the research program during 1947. A permanent site for the Argonne was selected 26 mi. southwest of the centre of Chicago in DuPage county. All reactor development and research was consolidated under the direction of Walter H. Zinn.

In the biological sciences, a broad and sustained basic research program to solve the complicated mystery of cancer was given added impetus by the Cancer Research foundation. Organized in 1946, the foundation was engaged during 1947 in raising funds for a $5,150,000 building and equipment program. One million dollars had already been given by the Goldblatt Brothers foundation for the Nathan Goldblatt Memorial hospital—to be one of three in the nation devoted exclusively to cancer research. An anonymous grant of $980,000 had also been made toward the construction of the giant cyclotron whose proton beam was a promising possibility for super-X-ray-type radiation in cancer therapy. In an intensive campaign extending from Nov. 11 to Dec. 22, $1,200,000 was raised toward the initial cost of the Goldblatt hospital, $1,600,000; and of the cyclotron, $1,550,000; and for general needs in cancer activities. A $2,000,000 isotope laboratory for research and treatment with radioactive isotopes was the final and uncompleted part of the program.

The Goldblatt hospital, scheduled for construction in the spring of 1948, would provide an out-patient clinic, a radiology clinic, operating suites and two floors for patients and research. It would also serve as headquarters for the university's 21-man committee on cancer, including Nobel prize winners James Franck and Harold C. Urey. Dr. Charles B. Huggins was named chairman of the co-ordinating group, which in recognition of the fundamental nature of the cancer problem comprised representatives from 17 scientific departments in the university. Research at the university had already made significant contributions to the progress against cancer. These included the first-known chemical test for a form of cancer, a hormone suppression treatment for prostatic cancer, the nitrogen mustard treatment for leucaemia and operative techniques for cancers of the oesophagus and pancreas.

In addition to the cancer research facilities, plans were also under way in the university clinics for construction of the Charles Gilman Smith hospital for infectious diseases, and the Gertrude Dunn Hicks wing to Albert Merritt Billings hospital.

The year 1947 marked the golden anniversaries of Yerkes observatory and of the downtown adult education centre, University college. The 50th anniversary of Yerkes was observed in Williams Bay, Wis., with a special meeting of the American Astronomical society, also commemorating its semicentennial, and with a three-day symposium on planetary atmospheres.

Chancellor Hutchins returned to the university June 30, 1947, after a leave of absence for the academic year to participate in the expanded adult education activities of the Encyclopædia Britannica, Inc. and its affiliated company, Encyclopædia Britannica Films Inc. Hutchins also continued as editor of Great Books of the Western World.

The university's Committee to Frame A World Constitution —headed by Hutchins, Richard P. McKeon, G. A. Borgese, Wilber G. Katz, Robert Redfield, Rexford Guy Tugwell and other authorities in the field of world government—planned to present its preliminary constitutional draft in 1948.

Buildings under construction at the university in 1947, in addition to the ion accelerator building, included a $920,000 administration building, the first unit in the $2,000,000 faculty housing project, and a $500,000 building to house the laboratories of the American Meat Institute foundation. The six-story administration building, providing facilities for effective intercommunication among the principal administrative offices and for conducting business with students and public, was scheduled for occupancy in the spring of 1948. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.)

Child Labour. **United States.**—Although employment of children and young people decreased with the disappearance of war-production pressures, the number of boys and girls under 18 at work was still in the millions during

1947. Apparently the sudden postwar drop in employment of minors was beginning to level off by 1947. In Oct. 1947, after children had gone back to school, the number of young workers 14 through 17 years of age estimated as employed full time or part time was 2,240,000, nearly as many as in Oct. 1946 (2,370,000). Two-thirds were in service trades and in manufacturing, commercial and other nonagricultural industries; one-third were doing farm work. Almost three-fourths of the 16- and 17-year-old workers and half of the 14- and 15-year-olds were working in nonagricultural industries.

In 1947 some advances in state child-labour legislation were made, though fewer than had been hoped. Alabama became the 18th state to establish a basic 16-year minimum age for employment. Massachusetts strengthened its basic 16-year minimum age standard. Another significant development was the establishment or improvement in a few states of standards for employment of children in agriculture.

The child-labour provisions of the Fair Labor Standards act, applying to establishments producing goods for interstate or foreign commerce, with a basic 16-year minimum age and an 18-year minimum in occupations found and declared particularly hazardous, had been a strong influence in reducing industrial employment of children and in supporting state child-labour standards. The co-operative program carried on by the U.S. labour department with state labour and education officials, under which state certificates of age were made available as proof of age for minors, continued during 1947. This program helped prevent violations by giving employers a means of being certain that the children employed were of legal age.

An investigation of the accident hazards of pulpwood logging resulted in the extension of Hazardous Occupations Order No. 4 to include pulpwood logging as well as saw-timber logging.

The child labour program of the U.S. department of labour, which in July 1946 was separated from the children's bureau under the president's Reorganization Plan No. 2 of 1946, was again reorganized in July 1947 and was transferred from the division of labour standards to the wage and hour division. The child-labour research and the age-certification activities were now carried on by the newly-created child labour branch of that division, while the enforcement of the child-labour provisions of the Fair Labor Standards act was merged with the enforcement of the wage and hour provisions of the act.

Great Britain.—According to a report of the ministry of labour and national service published in 1947, the number of boys and girls under 18 years of age insured under the unemployment-insurance acts in mid–1946 was 1,765,000. These figures excluded some workers in agriculture and all workers in domestic service.

The industrial distribution of boys and girls who did not go to work until 16 or 17 was different from that of those who went to work before reaching the age of 16. Thus, in the period from mid–1945 to mid–1946, 25% of the boys and 40% of the girls in the upper-age class entered public utilities, professional services, entertainment, commerce and finance and government service, whereas the corresponding proportions in the lower-age class were 7% of the boys and 10% of the girls. On the other hand, among both boys and girls about 50% of the entrants 14 and 15 years old went into manufacturing industries, compared with 39% of the boys and 28% of the girls in the 16- and 17-year-old class.

On April 1, 1947, the school-leaving age provisions of the Education act for England and Wales and the Education act for Scotland went into effect, raising from 14 to 15 the age for compulsory full-time school attendance. A 16-year minimum age for required full-time attendance was to be established as soon as practicable, and compulsory part-time education was to be required up to 18 years of age, this provision to go into effect not later than April 1, 1950.

Japan.—A minimum age of 15 for employment was established, except as light work in specified industries was permitted outside school hours for children between 12 and 15. Other sections of the law related to hours of labour, to prohibition of hazardous occupations and of night work and to employment certificates. (E. S. J.)

Children's Books. Most significant to the field of children's literature in 1947 was the publication *Illustrators of Children's Books* by Bertha Mahony, Louise Latimer and Beulah Folmsbee. More books were published than during 1946, and colour in picture books continued despite the increased publishing difficulties, as witness *The Golden Egg Book* by Margaret Brown. *The Little Red Ferry Boat* by Russell Potter and the delightful photographs by Ylla in *The Sleepy Little Lion* appealed to the realistic taste. *Curious George Takes a Job* by Hans Rey and *Down Huckleberry Hill* by Leonard Weisgard delighted, and again Dr. Seuss (T. S. Geisel) captivated all with *McElligot's Pool.* The comic-strip device was successfully employed in the illustrations of Marie Ets in *Oley the Sea Monster* and by Helen Sewell in *Three Tall Tales.* Easily read books were Carolyn Haywood's *Little Eddie* and Edith Heal's *The Golden Bowl.*

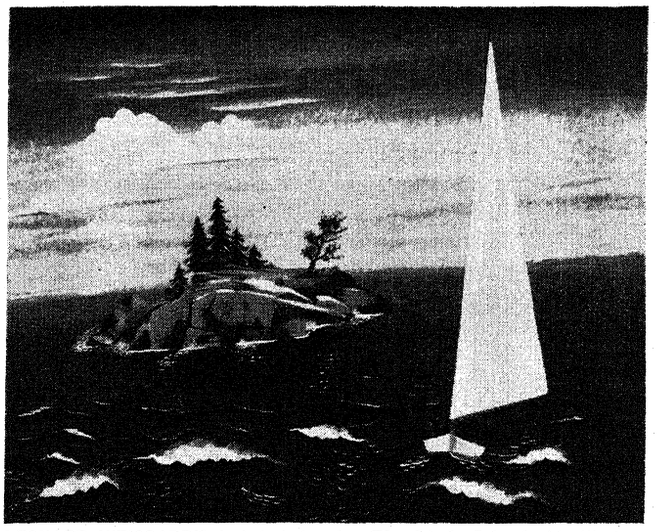
Additions to folklore were *The Cow-Tail Switch* (West Africa) by Harold Courlander and George Herzog, John Ewers' *Written in Sand* (Australia), *Winter-Telling Stories* (Kiowa Indians) by Alice Marriott and Alexei Tolstoy's *Russian Tales for Children;* adapted and given fine format was *Stone Soup* by Marcia Brown while Wanda Gag left a fitting bequest in *More Tales from Grimm. By His Own Might* (Beowulf) by Dorothy Hosford and *Rogue Reynard* by Andre Norton enriched traditional literature.

Realistic stories for girls of eight to ten years were represented by Elizabeth Coatsworth in *Plum Daffy Adventure* and by Helen Daringer with *Adopted Jane.* Mabel Hunt wrote of Quakers in *The Double Birthday Present* and Lois Lenski continued her regional stories in *Judy's Journey* (Alabama and Florida). Poignant was *Pancakes—Paris* by Claire Bishop, a mystery characterized *Star of India* by Jean Bothwell and a story of China was *The Secret of the Porcelain Fish* by Margery Evernden. *Jared's Island* (the Jersey coast, 1760) by Marguerite de Angeli and *Benjamin West and His Cat Grimalkin* by Marguerite Henry and Wesley Dennis were of historical interest.

Humour characterized *The Twenty-One Balloons* of William du Bois and *Mr. Twigg's Mistake* of Robert Lawson. *Bambino, the Clown* by Georges Schreiber was beautifully illustrated while *Positive Pete!* was a rollicking yarn by Phil Stong. Fantasies of varying appeal were *The King Gives a Party* by Samuel Webster, *Sky High* by Walter Hodges and *The Other Side of the Green Hills* by John Cross.

Horse stories were popular, *Windy Foot at the County Fair* by Frances Frost being for younger and *The Magnificent Barb* of Dana Faralla for older. Stephen Holt wrote *Prairie Colt* (Alberta); and Iris Vinton, *Flying Ebony* (Long Island, 1848) while *A Horse to Remember* by Genevieve Eames won the Julia Ellsworth Ford award. A boy and his dog appeared in *Bird Dog Bargain* by Kenneth Gilbert and two stories of cats were *Miss Kelly* by Elisabeth Holding and *The School for Cats* by Esther Averill. Unusual animal heroes were *The Story of Pamela* (chimpanzee) by Mabel Woodbury and *Princess of the Channel Isles* (cow) by Eleanor Hoffman.

Multiple interests in nonfiction ranged from *You and the United Nations* by Lois Fisher for younger and *How the United*



LEONARD WEISGARD'S jacket design for *The Little Island;* his illustrations won for the book the Caldecott medal for the most distinguished picture book for children in 1947

Nations Work by Tom Galt for older, to *All About Us* (anthropology) by Eva Evans and *Anywhere in the World* (nature) by Irma Webber. Herbert Zim's *Plants, a Guide to Plant Hobbies* appealed to junior high. *The Great Heritage* by Katherine Shippen was on natural resources of the U.S., and for stamp collectors was *America's Stamps* by Maude and Miska Petersham. Stimulating was Marion Downer's *Discovering Design; Rhymes and Verses* represented the collected poems of Walter de la Mare and younger children enjoyed *The Rainbow Dictionary* by Wendell Wright. Biography was creditably handled, as in *David Livingstone, Foe of Darkness* by Jeanette Eaton and *Gilbert & Sullivan, Masters of Mirth and Melody* by Claire Purdy.

North Star Shining by Hildegarde Swift was thought-provoking on the Negro contribution, and other enjoyable stories were *River Treasure* (North Carolina) by Mebane Burwyn and *Jasper, the Drummin' Boy* by Margaret Taylor.

Older girls occupied with problems of today read *Willow Hill* by Phyllis Whitney and *The Divided Heart* by Mina Lewiton. Helene Laird answered many questions in *Nancy Keeps House,* while *By-Line Dennie* by Natalie Frazier concerned a small-town newspaper and Florence Means in *Assorted Sisters* presented an unsentimental picture of missionary life. Unusual were *The Story of Christina* (circus) by Hope Newell and *Nikoline's Choice* (Danes in Utah, 1880) by Margaret Maw.

Older boys read *Shad Haul* by Paul Corey (about co-operatives), *Danger to Windward* by Armstrong Sperry (about whaling) and *Partners of the Powder Hole* by Robert Davis. Sport and school stories were represented by *Gridiron Challenge* by Jack Scholz and *Bertie Comes Through* by Henry Felsen. *Mark of the Leopard* by Alden Stevens and Patricia Kendall continued the story of Simba of central Africa.

Notable were *A French ABC* by Francine Dauphin and *Song of Robin Hood* by Anne Malcolmson; Florence Fitch interpreted oriental religions in *Their Search for God.* Collections of stories were *The Treasure Bag* edited by Lena Barksdale, *Read-to-Me Storybook* (modern stories) by the Child Study Association of America and *The Enchanted Book* edited by Alice Dalgliesh. *Writing Juvenile Fiction* by Phyllis Whitney and *Writing for Children* by Erick Berry and Herbert Best were welcomed. Christmas stories by Dorothy Lathrop, Elizabeth Yates and Lavinia Davis appeared. Fritz Kredel illustrated a new edition of *Aesop's Fables* and Tasha Tudor did *A Child's Garden of Verses;* a deluxe edition of *The Wonderful Adventures of Nils* by Selma Lagerlof and *The Violet Fairy Book* and *The Crimson Fairy Book* received new formats. (*See* also BOOK PUBLISHING; LITERARY PRIZES.) (E. A. Gs.)

Child Welfare. **International Services.**—Hunger and malnutrition remained foremost among the war-created afflictions still borne by children. Civil wars, especially in China, continued to add in 1947 to the number of children thus handicapped. The year's most significant new development for meeting the needs of these children was the International Children's Emergency fund (I.C.E.F.) with headquarters at Lake Success, N.Y. This organization, established in Dec. 1946 by the general assembly of the United Nations, was not operating until the year was well advanced. It took over some of the responsibilities previously carried by the United Nations Relief and Rehabilitation administration (U.N.R.R.A.) whose council recommended creation of I.C.E.F.

There were, by the end of the year, in excess of 3,000,000 children in Europe for whom I.C.E.F. was providing or had plans for providing a daily supplementary meal. This service was in operation in Austria, Bulgaria, Czechoslovakia, Finland, Greece, Hungary, Italy, Poland and Rumania. Preparations had been made to extend the feeding program to Albania and Yugoslavia. Unfavourable conditions existing in France led to plans for serving a large number of children in that country. Plans also called for 1948 aid to children in China and other areas in the far east.

The I.C.E.F. proposed to use its resources for the following, with priorities in the order indicated: (1) supplementing essential food and other supplies needed to alleviate malnutrition and disease in children and to safeguard the health of expectant and nursing mothers; (2) encouraging the re-establishment of children's institutions and services destroyed by war through supplying clothing, shoes, cod-liver oil and medical supplies and (3) enlisting co-operation of the U.N. and other organizations in giving assistance for fellowships for the training of health and welfare personnel for children's work.

The substantial but inadequate amount of $38,932,000 had been contributed or pledged to I.C.E.F. by Dec. 1947. Fourteen governments contributed or pledged $27,267,000 and the balance of $11,665,000 was derived from other sources, mostly U.N.R.R.A. assets.

Children in countries not reached, as well as in those reached, by U.N.R.R.A. and I.C.E.F. were well served by the sectarian relief agencies under Jewish, Protestant or Roman Catholic auspices. Many were privately aided through the Co-operative for American Remittances to Europe (CARE). The hesitation of governments to appropriate in proportion to needs for international relief seemed to stimulate contributions from individuals through nonsectarian and sectarian channels. Steps to co-ordinate the financial and service activities of such agencies were being taken in 1947.

The Commission on International Educational Reconstruction, 744 Jackson place, N.W., Washington, D.C., established late in 1946, became effective in 1947. This voluntary organization, sponsored by the American Council on Education, was designated by the U.S. national commission for the United Nations Educational, Scientific and Cultural organization (U.N.E.S.C.O.) as the agency to stimulate and co-ordinate U.S. voluntary efforts on behalf of education in devastated countries.

Resumption of international conferences of professional workers who specialize in service to children was well under way by the end of the year. The fifth International Congress of Pediatrics, held in New York city in July 1947, was attended by pediatricians from 63 countries. Announcements had been widely circulated of the plans and programs of the ninth Pan-American Child congress, Caracas, Venezuela, to be held in Jan.

1948; the International Conference of Social Work, Atlantic City, N.J., to be held in April 1948 and the International Congress on Mental Health, London, England, to be held in Aug. 1948.

The U.N. interest in child welfare was expressed on numerous occasions by the Economic and Social council and the Social commission. Most of their activity was limited to studies and resolutions, but in these 1947 may have seen the sanctions needed to assure later development of international organizations and services whereby children of all lands may profit from professional achievements and social planning, wherever they occur. The publications of these and related bodies were receiving increased attention throughout the world.

National Developments. — European countries which were neutral during World War II, especially Sweden and Switzerland, sustained their previously superior services in the fields of education, health and welfare and carried to adjoining countries material aid and much-needed cultural leadership.

Even those seriously damaged by war took steps to improve their services to children. Finland extended its well-baby clinics, which soon would be required by the public-health law in every community. France extended school health services, and its social-security benefits for maternity leave and services were maintained under extremely serious economic strain. Russia's extension of various professional services for children was continued.

Occupied countries in Asia and Europe found military governments beginning to supply local child-welfare services which had been missing. Consultants on child welfare went to Germany, Japan and smaller countries during 1947.

China's plight called for more than the services its children had received from the Chinese Relief and Rehabilitation administration (C.N.R.R.A.), successor to U.N.R.R.A. Religious bodies and other agencies resumed services to children, many of which were under Chinese control even though subsidized by missionary organizations or some of the constituent units of United Services to China. But Asia, like Africa, had few favoured areas in which morbidity and mortality rates were kept under the social controls developing in other parts of the world.

Several Latin American countries extended their health services to children though much of this work remained on an occasional or demonstration basis. Social security, including maternity benefits, was authorized even in the smaller countries of Central America though it was too early to observe the effect of such legislation authorized late in 1946 in the Dominican Republic and Guatemala.

Australia, Canada, New Zealand and the United Kingdom continued to provide a more universal coverage than in other large countries, both in child health services and the various forms of social security for children and mothers established under the Beveridge plan (U.K.) and the Marsh plan (Canada). Dental services in Australia and New Zealand and the Child Endowment in Australia assured basic health and adequate nutrition as in no other parts of the world unless it was in the smaller and highly developed European countries least damaged by World War II.

The United States continued to present contrasts of unmet needs, including illiteracy in some states, and in others some of the world's most advanced services in education, health and welfare. The traditional inadequacy of Aid to Dependent Children (A.D.C.), intended to keep children with their mothers or other close relatives when otherwise they might require care in foster homes or institutions, remained seriously meagre in all but a few states. For Sept. 1947 the Social Security bulletin (Nov. 1947) reported the average per family receiving A.D.C. grants to be less than $40 monthly in 11 states and more than $75 monthly in only 17 states. In California the grant per family averaged $101.43 for that month and in New York $101.04, but in all other states the average was less than $100 a family. Such aid was received by a total of 407,610 families and 1,037,210 children. The total amount paid, including federal and state funds, was $25,472,965, a significant and substantial monthly outlay in the country's efforts to provide the security of home life for its children, but also only a fraction of the amount these families needed with the 1947 costs of living higher than in previous years.

Various forces hard to reconcile placed the welfare of children in the United States in hazard. Recovery from wartime conditions was sufficient to permit many families to reunite and new families to establish themselves within the previous two years, with the result that more children were born in 1947 than in any previous year, the estimated number exceeding 3,500,000. This happened in spite of the continued scarcity of housing and the increased costs of living.

Marriage at younger ages than before the war was common. With this trend sustained, the status of family life and child welfare was expected to be affected. Marriage at older ages was resulting in an excessive number of one-child families. Now with fewer single-child families the economics of child care was expected to require more attention from communities as well as from parents.

The use of day-care facilities remained nearly at wartime levels, the number of mothers employed in many communities keeping pace with the unprecedented rate of general employment. Withdrawal of certain wartime support and the increased cost of operating day-care facilities led to the closing of many child-care centres. Statistics on this trend were unavailable; but it was observed, especially in surveys of social needs and resources, that there remained an inadequate amount of organized day-care service. With the closing of established day-care units, parents turned to independent arrangements, too often leaving little children under care of older boys and girls.

The necessity of improvising resources for occasional care of children led to an unprecedented employment of "baby sitters." As part-time employment this type of child care previously was regarded as inconsequential, but to consider child welfare in 1947 and ignore the baby sitter would be unrealistic.

The increased demand for literature aimed at parent education suggested progress in the understanding of children which might be the year's greatest achievement in child welfare.



"BY THE THROAT," Duffy's version, in the *Baltimore Sun*, of the widespread hunger which was undermining the health of European children in 1947, leaving them easy prey to tuberculosis and deficiency diseases



Above: GERMAN youngsters suffering from malnutrition are shown boarding train at Berlin in May 1947, for a three-month period of rehabilitation in Switzerland



Above: SLUM COURTYARD of a tenement district in Rome, Italy. The area housed about 10,000 unemployed and their families in 1947, most of them living in one-room apartments



Above: JAPANESE school children in Tokyo being sprayed with DDT to check the spread of disease in 1947. Girls proved the chief carriers of lice as most boys were customarily close-shaven



Left: POVERTY-STRICKEN Rumanian family approaching a Red Cross depot in Moldavia where they hoped to receive clothing and medical supplies. Starvation in northern Rumania was aggravated by a severe drought early in 1947

Adoption of children claimed an unusual amount of attention. The U.S. children's bureau reported (*The Child,* May 1947) that at least 20 state legislatures in session during the year considered extensive changes in their adoption laws and related procedures. Only about one-fourth of the states had adoption legislation which adequately protected the child, his natural parents and his adoptive parents. The importance of such protection is obvious with about 30,000 of the 50,000 children for whom adoption proceedings are initiated annually being born out of wedlock. The bureau's recommendations on adoption legislation, sponsored by the Council of State Governments in its proposals for state action in 1947, were:

1. Adoption proceedings should be held before a court accustomed or qualified (otherwise) to handle children's cases, in the locality or state where the petitioners for adoption reside.
2. Consent to adoption should be obtained from the natural parents, or, if their parental rights have been legally relinquished or terminated, or if there is no parent, from the person or agency legally authorized to consent to the adoption.
3. The court in every proposed child adoption should have the benefit of study and recommendations by the state welfare department, or an agency designated by it. The department or the agency should have the right to appear at the hearings.
4. Court hearings should be closed to the public and the confidential nature of the records should be assured.
5. A period of residence in the adoption home, preferably one year, should be required prior to issuance of the final adoption decree, so that the suitability of the adoption may be determined.

Child labour safeguards were less than in other previous years. The U.S. congress voted reduced appropriations for federal child labour activities and made several important changes in the administration of this work. For enforcement work, $35,819, about one-third of the amount allowed for 1946, was allowed, and for research into child labour and youth employment problems $110,328, about one-half the 1946 appropriation, was allowed. The child labour and youth employment branch of the division of labour standards of the labour department no longer existed. The child-labour law enforcement work was transferred to and assimilated by the wage-hour division. A child labour branch was set up in the wage-hour division with activities limited primarily to an age-certification program, research involving matters related directly to the child labour provisions of the Wage-Hour act and the statistical, informational and public-relations work.

Scarcity of professionally trained social workers continued to be one of the country's serious child-welfare problems. The Child Welfare League of America, with the co-operation of the Russell Sage foundation, in a study of salaries of child-welfare workers, found substantial increases in salaries as compared with those paid during war years. A lag in the provision of adequate salaries in many communities, however, left child welfare services confronting the same embarrassing shortages in skilled personnel which hampered schools and hospitals as they sought their complete complements of teachers and nurses.

The National Commission on Children and Youth played an important role in co-ordinating planning for child welfare, especially the services under governmental auspices. Its program of action for 1947 and 1948 focused attention on unmet needs in the fields of education, health and welfare. From its beginning the commission brought together leaders in the professions serving children in these fields and thereby advanced badly needed and more comprehensive thinking and planning. (*See* also BIRTH STATISTICS; CENSUS DATA, 1947; CRIME; FEDERAL BUREAU OF INVESTIGATION; INFANT MORTALITY; JUVENILE DELINQUENCY; MARRIAGE AND DIVORCE; SOCIAL SECURITY.)

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Chile. A republic fronting on the south Pacific coast of South America for about 2,600 mi., its average width being only 110 mi. Area, 286,323 sq.mi.; pop. (1945 est.), 5,389,554; density (1944), 18.29 per square mile. The racial composition is largely white; mestizos are estimated at 15% and Indians (chiefly Araucanians in the far south) at 5%. The bulk of the population lives in the central valley; Santiago province alone has (1945 est.) 1,535,969 inhabitants (density per square mile, 223.12). The capital is Santiago (pop., including suburbs, 1940 census, 952,075). Other important cities (with pop. in 1940 census) are Valparaíso (212,072), Concepción (85,938), Viña del Mar (70,013), Talca (45,462), Antofagasta (50,244), Chillán (39,909), Temuco (39,217), Iquique (37,713), Talcahuano (30,082), Valdivia (34,600), Lota (1945 est., 34,445), Rancagua (21,621), Punta Arenas (29,883), Osorno (25,075), La Serena (21,383), Puerto Montt (21,552) and Curicó (19,532). Roman Catholicism is the dominant religion. President in 1947: Gabriel González Videla.

History.—The year 1947 was characterized especially by the increasing sharpness of the communist issue, the climax coming in the breaking of diplomatic relations between Chile and the Soviet Union in October. The first test of political strength came in municipal elections April 6. The anticommunist front elected a total of 834 municipal councilmen to 568 won by parties in the leftist Democratic alliance. Of the rightist parties, the Conservatives won 277 and the Liberals 208. The communists, who made their chief issue out of the Truman doctrine, approximately tripled their previous voting strength; they were reported even in early returns to have won 137 municipal council seats as compared with 65 won in municipal elections in 1944. President González on April 16 swore in a new cabinet composed of 11 Radical party members (his own party) and one Democrat. Labour conflicts, allegedly communist inspired, increased sharply in May. On June 5, the Chilean Confederation of Labour withdrew from the C.T.A.L. (Confederación de Trabajadores de América Latina), charging that under the presidency of the Mexican labour leader, Vicente Lombardo Toledano, that organization had succumbed to communist influence. A strike of bus drivers in Santiago resulted in a presidential decree on June 13 placing the capital under a state of emergency; the strike was settled on June 20.

President González on Aug. 2 formed a new "nonpolitical" cabinet. On Aug. 21 the chamber of deputies authorized the government to suspend individual constitutional guarantees in a move to deal with a series of reportedly communist-led strikes. Large parts of the country's postal and telegraphic services were paralyzed from Aug. 12 to Aug. 16 by a strike in those services. A serious coal strike of 20,000 miners belonging to communist-dominated unions was brought to an end on Aug. 23. In a later coal strike the government on Oct. 6 ordered troops to take over affected mines of the Central Chilean Coal company; 30 alleged communists were arrested as strike leaders. Two days later the government deported two Yugoslav diplomats, Andrej Cunja and Dalibor Jakasa, to Argentina, charging that they were communist agitators largely responsible for the current strikes. The government's statement linked communist activity in Chile with the revived communist international organization and asserted that Gen. Ljubmir Ilitch, Yugoslav minister to Argentina and Marshal Tito's representative at President González' inauguration in 1946, had been instructed to intensify and co-ordinate a campaign against the United States, to attack the policy of continental defense and to develop a plan of sabotage. On Oct. 11 Yugoslavia severed diplomatic relations with Chile, calling the Chilean charges "fantastic libels" and charging Chile with acting in the expansionist interests of certain unnamed powers. The following day the Chilean ambassador to the Soviet

Union apologized to that government for a machine-gun attack on the soviet embassy in Santiago.

The government concluded an agreement on Oct. 15 for purchase of U.S. coal and asserted the following day that the 13-day coal strike was virtually over, although independent sources said at the same time that only 8,000 of the 20,000 striking miners had returned to work. The miners had reportedly been threatened with court martial on Oct. 13. The government on Oct. 21 severed diplomatic relations with the Soviet Union and Czechoslovakia, charging inspiration of communist unrest among the coal miners. González at the same time announced the end of a 12-day strike in the Schwager mines in central Chile after 2,000 miners had battled troops with dynamite in pits running under the Pacific. On Oct. 22 police arrested 200 communist leaders on charges of inciting rebellion among the miners, arrested the staff of *El Siglo* and placed four mineral-producing provinces under military control. Two days later the government announced that soviet and Czech envoys would be held until Chilean diplomats were permitted to leave Moscow and Prague. The government on Dec. 5 broke a 24-hr. railway strike, allegedly communist-led, by authorizing the military railway management to discharge undesirable workers.

The government during the year considered a five-year plan of hospital construction to cost 600,000,000 pesos.

Education.—A state technical university was created in April 1947 as a branch of the ministry of education; it was designed to embrace a number of educational institutions already established, including the school of industrial engineering, parts of the vocational schools, three schools of mines and two industrial schools. Extension classes of the University of Chile were organized as the Valentín Letelier People's university.

Finance.—The monetary unit is the peso, valued on Oct. 31, 1947, at from 1.96 to 5.16 cents, U.S. currency, depending on the type of exchange. Government expenditures in 1947, the finance minister reported on Sept. 3, would total 8,244,000,000 pesos and those for 1948 were estimated at 7,716,000,000 pesos. The treasury deficit for 1947 was anticipated to be about 855,000,000 pesos and an estimated 1948 deficit of 293,000,000 pesos was forecast. The government on Nov. 7 revalued the gold reserves on the basis of 31 instead of 30 pesos to the dollar, thus giving the treasury a profit of 930,943,863 pesos. Currency in circulation May 27 was 3,728,800,000 pesos; rediscounts of commercial banks on the same date totalled 564,700,000 pesos. The treasury deficit on June 30 was 2,159,000,000 pesos. Shortage of foreign exchange was serious during the year and on July 10 the government banned dollar allotments for luxury imports and also for trips abroad for pleasure. Further import restrictions were adopted on July 23. The government concluded a financial agreement with Great Britain on July 12. A total of 1,360,000,000 pesos was allotted for public works expenditures in 1948, an increase of 530,000,000 pesos over the corresponding 1947 figure, accounted for chiefly by an allocation of 300,000,000 pesos for improvements in the state railways and 200,000,000 pesos for construction of public buildings. The price index for Chile increased 497% between 1928 and 1946 and the cost-of-living index gained 393% in the same period.

Trade and Communications.—The favourable merchandise trade balance for 1947 as of July 30 was only 22,800,000 gold pesos (gold peso equals 20.597 U.S. cents). Nitrate exports in 1946–47 were 1,571,898 metric tons (1945–46: 1,614,615 tons). Agricultural exports as a whole in 1946 were valued at about $50,000,000; rice exports during the same year were valued at almost $8,000,000, the highest value of any single agricultural item. Onion exports in 1946 were 5,075 metric tons (1945: 2,607 tons), of which the U.S. took 35%; garlic exports in the same year were 4,690 metric tons (1945: 3,163 tons) valued at $1,482,366 (1945: $714,922). Raw cotton imports in the first five months of 1947 were 4,369 metric tons (same period in 1946: 2,478 tons); cotton yarn imports in the same period were 606 metric tons (same period in 1946: 654 tons). The government concluded two important commercial agreements with Argentina. One, concluded at the end of 1946 (Dec. 13), was a treaty of customs union, economic and financial co-operation; it provided for establishment of a revolving Argentine credit of $26,800,000 to help Chile finance its unfavourable trade balance with Argentina, pointed toward an Argentine investment of $80,430,000 in Chilean industrialization (especially copper, iron, steel, nitrates, coal, wood and electric power) with Chile guaranteeing excess production for sale to Argentina, provided a like sum as an Argentine loan to Chile for public works construction (especially roads and railroads) which would be aimed at promoting Chilean-Argentine commercial exchange and aimed at the elimination of tariffs except on competing items and products. In the second agreement, signed July 12, Chile pledged to give Argentina a favoured position in purchase of Chilean nitrates in return for which Argentina would abandon manufacture of synthetic nitrates. Negotiations with the U.S. resulted on May 8 in extending the two countries' provisional commercial agreement for one year from July 1, to be followed by negotiations for a treaty of friendship, commerce and navigation.

Railway passenger, baggage and freight rates were increased by an average of up to 50% in 1947, a total average increase of 243% from 1928; the anticipated deficit for operation of the state railways in 1947 was 505,308,000 pesos. Chile concluded a bilateral aviation agreement with the United States on May 10, an agreement with Brazil on July 4



CHILEAN TROOPS searching workers rounded up during a clash between police and striking bus drivers in Santiago on June 12, 1947. A 30-day state of emergency was ordered in the province after the death of 4 persons

dealing with air transportation, economic co-operation, passenger transit and tourist travel and commerce, and one with Peru on aviation on Aug. 7.

Agriculture.—Estimates of production of various specialty crops in the agriculturally rich central valley in 1946–47 included: oranges 500,000 boxes (1945–46: about the same); lemons 450,000 boxes (1945–46: 350,000 boxes); hemp fibre 3,904 metric tons (1945–46: 5,369 tons); flax fibre 1,165 metric tons (1945–46: 1,365 tons); onions 68,932 metric tons (1945–46: 49,134 tons); rice 89,084 metric tons (1945–46: 117,941 tons). Of cereal crops, the estimate of wheat production for 1946–47 was down 3%, that of oats was down 20%, that of rye was down 9% and that of barley was up 32%; most cereal crops were damaged by excessive rains but otherwise growing conditions were favourable. A new law on farm labour organization became effective July 29. The government planned an irrigation project in the Azapa valley in northern Chile at an estimated cost of 29,072,000 pesos.

Manufacturing and Mining.—Production of cotton yarn in 1947 was estimated at 9,440,000 kg. Nitrate production in the year ending June 30 was 1,540,000 metric tons (1945–46: 1,603,820 tons); production in 1947 was seriously interfered with by the series of strikes; bad weather, which prevented loadings for a period of two weeks in June, and port congestion were other unfavourable factors. A new process was developed in 1947 for recovery of potassium nitrate. Coal production was even more seriously cut by strikes in 1947; the government early in the year adopted a program to increase coal production over a five-year period at an estimated cost of 84,000,000 pesos. Whale-oil production in 1946 was 2,985 metric tons (1945: 3,456 tons); the catch of whales in 1946 was 585 (1945: 477) and in the first four months of 1947 was 277. The 1946 production of fish and shellfish was 61,000 metric tons, with an increase expected for 1947. A serious electric power shortage developed in central Chile in May because of low water levels.

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(R. H. FN.)

China. A republic of eastern Asia. Area: about 3,876,956 sq.mi., divided into 35 provinces, including Taiwan (Formosa), the 9 provinces of Manchuria and a special territory, Tibet. According to the 1947 official estimate, the total population was 455,900,468. The 12 leading cities, under direct central government control in 1947, were Nanking (capital) 1,037,656; Shanghai 3,853,511; Peiping 1,602,234; Tientsin 1,679,210; Chungking 1,000,101; Canton 1,276,429; Mukden 1,175,620; Hankow 749,952; Tsingtao 752,800; Harbin 760,000; Dairen 543,690; Sian 523,183. The predominant beliefs are Confucianism, Buddhism, Taoism and Christianity.

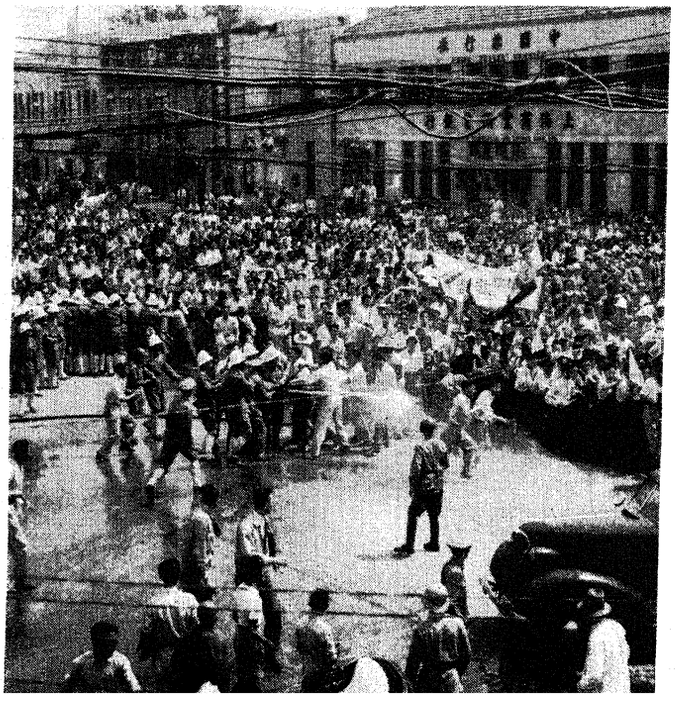
President (1947), Chiang Kai-shek; vice-president (1947), Sun Fo.

History.—Following Gen. George C. Marshall's departure from China on Jan. 8, 1947, and the release of his statement on the situation in China on the previous day, in which he condemned the extremists among the nationalists and communists for the continuance of civil war, Peng Hsueh-pei, then the minister of information, proclaimed the government's willingness to continue peace negotiations with the communists. In the meantime it named Gen. Chang Chih-chung to go to Yenan in an attempt to renew peace negotiations and gave its proposal to the communists through U.S. Ambassador John Leighton Stuart. The communists insisted on a return to the military positions of Jan. 13, 1946, and nullification of the new constitution as

conditions for renewing negotiations, terms which were previously rejected by the government. On Jan. 21 the government offered four points as the basis for a resumption of peace talks: cessation of hostilities, with troops retaining their existing positions; army reorganization; reopening of communications; a just and equitable solution of the problem of regional administration. In the meantime the communists resumed an offensive in Manchuria while government troops launched big drives on the communists in Shantung and Shensi. Early in March the government ordered all communist personnel to leave government territory and on March 15 Chiang Kai-shek charged the communists with armed rebellion. The break between warring factions was final and complete. The capture of Yenan by government troops on March 19 elated the nationalists but the communist spokesmen expressed confidence in final victory by force. By the year's end the government military forces had made no further important gains, with the exception of the capture of Weihaiwei and Chefoo on the coast of Shantung in early October, which cut the communist sea lane to the southern ports in Manchuria. On the other hand, the communist raiders managed to move into central China in September and caused the closing of the Nanking gates on Sept. 18. In Manchuria the communists succeeded in reducing the government's control to Changchun and Mukden, an isolated pocket in Kirin, and the rail line leading from Mukden into China proper.

The reorganization of the government was partly precipitated by the economic and financial crisis during the early part of the year. To stimulate China's meagre export trade, Premier T. V. Soong announced on Feb. 5 that the government would grant a 100% bonus to exporters and that an ad valorem surcharge of 50% would be imposed on selected categories of imports. On Feb. 8 the U.S. consulate in Shanghai notified the Chinese government that for every cent it paid as a subsidy on exports an equal amount would be collected by the United States in addition to normal duties. This ruling blasted China's bonus plan and caused a further rise in prices and depreciation of the Chinese dollar. To meet the crisis Chiang ordered reorganization of the government and sweeping economic reforms. On March 1 Soong resigned as the premier, but because of prolonged negotiation with minority parties, reorganization did not become effective until April when a new state council was established to replace the supreme national defense council of the Kuomintang. It provided for 40 seats, but by the end of 1947 only 29 seats were filled: Kuomintang 17; Young China party 4; Democratic Socialist party 4; Independents 4. The other 11 seats were reserved for the communists and the Democratic league. However, the communists denounced the new government as a reactionary and traitorous regime, and the Democratic league was outlawed in October on the charge of plotting with the communists against the government. The post of vice-president was created and in April Sun Fo assumed this office and Gen. Chang Chun became premier. The executive yuan or cabinet was enlarged to include 26 members in order to accommodate a minority of ministers who were not Kuomintang appointees. With this reorganization the one-party regime was supposed to come to an end. From Nov. 21 to 23, millions of registered voters participated in the first national election to elect delegates to the national assembly, which, in turn, was empowered to elect the president and vice-president for six-year terms. The election of the members of the legislative yuan was postponed to 1948.

STUDENT DEMONSTRATION in Nanking, China, being broken up by police using a hose-line on May 20, 1947. Students were marching on a meeting of the People's Political council to demand higher food rations and an end to civil strife



China's internal strife was closely linked with its diplomatic relations with the United States and the Soviet Union. After one year of continuous effort to bring the national government and communists together, the United States government abandoned its task as a mediator in the Chinese civil war by withdrawing from the Committee of Three and the executive headquarters in Peiping in February. The United States policy became unpopular in China. To avoid further complication in China's affairs, the U.S. government informed the Soviet Union that U.S. forces in China would be reduced to 6,180 men by June 1. However, the deterioration of the economic and military situation in China and the spread of communism in eastern Asia led to the appointment of a U.S. fact-finding mission to China and Korea headed by Lieut. Gen. Albert C. Wedemeyer, who arrived in Nanking on July 22. His mission was welcomed by the Chinese government but attacked by the communists as imperialistic. On his departure from China, Wedemeyer stated, on Aug. 24, *inter alia* that "if the Chinese Communists are truly patriotic . . . they will halt voluntary employment of force" and that "to regain and maintain the confidence of the people, the Central Government will have to effect immediately drastic, far-reaching political and economic reforms." The latter statement displeased the Chinese government and Premier Chang Chun declared on Sept. 2 that China would not alter either its domestic or its foreign policy as a result of Wedemeyer's mission. The department of state withheld Wedemeyer's report on China from publication. On Nov. 11 Secretary of State Marshall submitted a program to congress calling for $300,000,000 in new relief for China.

At the Conference of Foreign Ministers in Moscow in March, Vyacheslav Molotov of the Soviet Union proposed the inclusion of China as an item on the agenda, but the Chinese government opposed soviet participation in mediating the Chinese civil war. Upon the strong insistence of General Marshall, the soviet proposal was dropped. Soviet delay in turning Dairen and Port Arthur back to China evoked two notes of protest from the U.S. government: one on Jan. 3 and the other on Aug. 21, as all foreign shipping was barred from the international port of Dairen by the Russians. On June 25 the Chinese foreign office declared that the repeated refusal of the soviet government to agree to the stationing of Chinese troops in Port Arthur and Dairen as agreed to in the Sino-soviet treaty of Aug. 1945, and the formation, expansion and strengthening by the Chinese communists of their armed forces in their vicinity left the Chinese government free at any time to decide on the exercise of the



EVACUATION OF YENAN, capital of the Chinese communists after 1936. The city was found stripped and deserted when taken by nationalist forces on March 19, 1947

right of sending troops and police to the Port Arthur area and Dairen. The soviet government justified its position by arguing that a state of war still existed with Japan. Sino-soviet relations were further strained by the participation of the Korean communists in the Chinese communist forces in Manchuria and by the border clashes in Sinkiang. Concerning the making of a peace treaty with Japan, China was in favour of the treaty's being drafted by the 11 countries represented on the Far Eastern commission with the concurrent vote of the Big Four. China was not in favour of a separate peace and feared a resurgent Japan under U.S. policy.

Education.—The 1947 program was directed mainly toward the promotion of mass and normal education and the strengthening of vocational education. The universities and colleges in 1947 increased to 193 with a total enrolment of more than 120,000 but the quality remained low. Political and social instability caused student unrest and strikes and the arrest of students by the government. In 1946 there were 4,530 secondary schools with an enrolment of 1,394,844 and 785,244 primary schools with 21,831,898 pupils. About 4% of the 1947 budget was devoted to educational and cultural purposes.

Defense.—According to the 1947 official tabulation the army, navy and air force numbered 4,557,362 including 536,913 officers. The total strength of the communist army was given as 1,170,000 by Gen. Chen Cheng. China maintained an effective air force of 300 planes with about 700 personnel. The Chinese navy of about 60 small vessels was augmented by Pres. Harry S. Truman's April 26 order to transfer to China without cost not more than 271 small and obsolete vessels. Military expenses occupied about 80% of the national budget.

Finance.—On Feb. 16 the official rate of exchange of the Chinese dollar (yuan) further depreciated to 12,000 to $1 U.S., but the black-market rate of exchange exceeded Ch.$100,000 to $1 U.S. toward the end of the year. Prices in the metropolitan areas were more than 10,000 times the prewar level. At the end of 1946 the volume of note issuance was officially given as Ch.$2,150,000,000,000. In Nov. 1947 the note issue exceeded 20,000,000,000,000 yuan. The 1946 budget was 2,524,000,000,000 yuan. The actual expenditures more than doubled this figure. The 1947 budget was placed at 9,370,000,000,000 yuan although in April the expenditures had already reached 5,000,000,000,000 yuan. Only about one-third of the budget was met by revenue. China's wartime loans totalled $1,345,080,568 and from V-J day to July 15, 1947, the total stipulated amount of U.S. aid was $1,240,450,000 but the total value of supplies actually received was $561,398,672. There were about 600 banks with more than 2,350 branch offices.

Trade and Communication.—In 1946 the total imports, one-half of which came from the United States, were valued at Ch.$1,501,165,246,000, and exports at Ch.$412,111,811,000. The value of the imports and exports for the first eight months of 1947 was Ch.$4,022,028,000,000 and Ch.$1,772,164,000,000, respectively. The adverse balance drained off China's foreign exchange which was estimated at only $300,000,000 U.S. Chief imports were cotton goods, gasoline, kerosene, metals and ores, machines and tools, chemicals and drugs. Tung oil, wax, animal products, seeds and kernels, tea and silk made up the main exports.

Less than half of China's 18,000 mi. of railways were in operation in 1947. Because of the delay in delivery only two-thirds of the expected shipping tonnage of 1,500,000 was reached. More than one-third of China's 100,000 mi. of highway badly needed repair. Excluding military vehicles, automobiles numbered about 60,000. Civil aviation, telecommunication and radio remained undeveloped.

Agriculture, Manufactures, Mineral Production.—China needs 24,478,000 metric tons of wheat and 51,432,000 metric tons of rice annually. The estimated wheat and rice crops in 1947 were 21,528,000 metric tons and 48,344,000 metric tons, respectively. Poultry and livestock were greatly below the prewar level. The food shortage remained serious. More than 60% of the heavy industries were under the direct control of the National Resources commission. Production lagged behind prewar level and the expected output of several minerals for 1947 was: coal 7,000,000 tons; iron and steel 250,000 tons (meeting about one-third of the demand); crude oil 12,000,000 gal.; gasoline 18,000,000 gal. The production of tungsten, antimony and tin was also far below former capacity.

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(H. T. CH.)

Chinese Turkestan: *see* SINKIANG.
Cholera: *see* EPIDEMICS.
Chosen: *see* KOREA.

Christian Science. Continuing its relief program begun in 1941, the First Church of Christ, Scientist, in Boston, Mass. (the Mother Church), added several interesting features to its postwar work in 1947.

Gift literature sent to Germany during the year brought the two-year total to more than 30 tons of Christian Science books and periodicals.

Through the participation of Christian Science branch churches and societies in the United States and Canada, a food-parcel program sent more than 345,000 packages of food to needy persons in 25 countries. As a member of Cooperative for American Remittances to Europe, Inc., the committee augmented the food parcels with thousands of CARE packages shipped throughout the world to Christian Science churches for distribution. The climax of the 1947 program was a shipment to Germany, valued at $143,000, consisting of 974 cases of clothing, food and Christian Science books.

Christian Science servicemen at approximately 105 military and naval training centres were being served by the Mother Church. Christian Science workers had been assigned to 156 veterans' hospitals in the United States and Canada, in addition to 48 army and navy hospitals. Christian Science chaplains, assisted by volunteer workers, were stationed with the occupation troops in Germany and Italy. There was a Christian Science chaplain at Pearl Harbor, Hawaii, and volunteer workers were serving in Alaska, Panama Canal Zone, Japan, Guam, Okinawa, Korea and the Philippines.

During 1947, 1,132 Christian Science books were distributed by Christian Science chaplains and workers, and 2,580 subscriptions to Christian Science periodicals were sent to army and navy training centres and veterans' hospitals.

The Christian Science Monitor received second honourable mention in the F. Wayland Ayer Exhibition of Newspaper Typography, and a citation from the Institute for American Democracy, Inc., of New York city, for encouraging a better understanding among men of all creeds, races and national origins.

The Monitor maintains a large staff of correspondents throughout the world. The editor of this newspaper became a *chevalier* in the Legion of Honour for his and his newspaper's service to France. The chief of the Washington bureau received an honorary degree of Doctor of Letters at the commencement exercises of Dartmouth college, Hanover, N.H. The assistant to the managing editor was awarded an alumni membership in the Phi Beta Kappa national scholarship fraternity at Harvard university, Cambridge, Mass. The foreign editor was the recipient of a medallion award for outstanding achievements in journalism during 1946 by Sigma Delta Chi.

Transcribed radio programs produced in the Mother Church were broadcast over nearly 300 stations throughout the United States (including Alaska and Hawaii), and in Cuba, Canada, New Zealand and Australia. Broadcasting of the regular Sunday morning service of the Mother Church in Boston twice a month and a 15-minute religious program direct from the church every Sunday morning was continued, as were special programs in the "Church of the Air" series of the Columbia Broadcasting system, on the devotional period of the Canadian Broadcasting corporation, and on the "Faith in Our Time" and "Radio Chapel" series of the Mutual Broadcasting system. (W. D. K.)

Christian Unity. Church unity movements in 1947 showed notable development on different levels in many lands. Several influential interchurch conferences were held, designed to promote the spirit of unity. These included the American Inter-Seminary conference, held at Oxford, O., which brought together probably the most extensive and representative group of young theological students ever gathered; the Second World Conference of Christian Youth held in Oslo, Norway, in July with about 1,000 official delegates from all continents; and the first postwar meeting of the International Missionary council representing virtually all of the Protestant mission boards of the world and federating national Christian councils in 29 countries or areas, which convened in Whitby, Ontario, Can., July 5 to 18 and took stock of the critical world situation in regard to foreign missions. The World Council of Churches sent a representative delegation to confer with Eastern Orthodox Churches in the Mediterranean countries outside the zone of Russian influence, which secured highly satisfactory responses concerning the participation of the Orthodox churches in the council.

Four additional Eastern Orthodox churches joined the council in 1947.

Various phases of the church federation movement took on enlarged activities. The Federal Council of Churches of Christ in America made influential representative utterances in respect to the economic order, religious liberty, civil rights, relations of church and state and international relations. After existing for a decade in provisional form because of the interruption of communications by World War II, the World Council of Churches completed final arrangements for its full organization and the adoption of the constitution at the first plenary assembly to be held at Amsterdam, Neth., in the summer of 1948. Major decisions with respect to this meeting were made at a session of the Provisional committee at Buck Hill Falls, Pa., in the fall of 1947.

A total of 34 additional churches in 21 countries joined the World Council of Churches in 1947, bringing the total number of member churches to 127.

Parallel with active discussion of plans for the permanent federal union of the Congregational, Methodist and Presbyterian churches in Australia and New Zealand, a sponsoring committee including former President Herbert Hoover, Mrs. Calvin Coolidge and Gov. Luther W. Youngdahl of Minnesota carried out an aggressive "Crusade for a United Church" under a federal plan. The campaign, conducted by the missionary, Dr. E. Stanley Jones, included 30 major American cities and was expected to visit an equal number in 1948. The crusade apparently elicited very strong approval for some type of union of the American churches on the part of the rank and file of church members to which it was specifically addressed. Without the predetermination of the particular form of union to be sought, strong ecclesiastical backing for a large American movement toward unity was given by influential Methodist bishops. The reinforcement of the entire group of movements by the urgency of the times was strikingly evidenced in many quarters.

Discussions and negotiations for the union of particular churches have been actively under way in many quarters of the globe. In the U.S., Baptists (Northern convention) and Disciples of Christ both secured stronger authorizations for their negotiating bodies. The United Presbyterian and Reformed in America churches and northern and southern branches of the Presbyterian Church also announced progress in their respective conversations. The movement to unite the Waldensians and Methodists in Italy was advanced. The union of a wide range of the denominations in Ceylon was showing promise of realization. After formal reference to the minor units or congregations of both bodies, voting upon the proposed merger of the Congregational Christian and Evangelical and Reformed churches in the U.S. was under way in the concluding months of the year, with strong majorities for the union which was expected to become effective by the middle of 1948.

The most notable achievement of the year in the field of

Christian unity was the consummation, after 28 years of negotiation, of the union of three great Protestant churches to form the new Church of South India. The merging bodies included the South India dioceses of the Anglican Church, similar units of the (British) Methodist Church, and the South India United Church, representing an earlier union of Presbyterian, Reformed and Congregational bodies, both British and American. The new church had more than 1,100,000 members. It united widely separated types of churches under a carefully guarded constitutional Episcopal system.

Conversations concerning possible union hinging upon the validity of their respective ministries in the establishment of intercommunion were actively under way between the United Church of Canada (combining the Congregational, Methodist and Presbyterian churches of the country) and the Church of England in Canada. Conversations approaching the same issue in a similar way were resumed by the Church of England and representatives of the leading Free churches in that country.

(H. P. D.)

Chromite. The output of chromite in the major producing countries of the world, and the estimated world total for late years is shown in Table I.

Table I.—*World Production of Chromite*

(Thousands of short tons)

	1940	1941	1942	1943	1944	1945	1946
Cuba	57.7	179.9	315.8	390.4	211.8	190.3	192.0
Greece	32.8	17.9	26.8	17.1	20.2	2.6	9.4
India	62.2	56.1	55.5	37.2	44.3	34.3	?
New Caledonia	61.5	71.1	74.6	51.8	60.9	45.0	27.4
Philippines	221.4	330	55	66	77	?	63
South Africa	180.4	156.4	372.2	179.9	98.0	109.2	208.2
S. Rhodesia	273.1	357.1	384.0	316.9	305.4	205.4	166.9
Turkey	187.2	165.7	159.5	217.0	203.5	162.0	120.5
U.S.S.R.	?	?	440	358	?	?	?
United States	3.0	14.3	112.9	160.1	45.6	14.0	4.1
Yugoslavia	78.3	?	110	72	?	?	?
Total	1,607	2,023	2,238	2,015	1,600	1,210	1,210

Note.—Figures without a decimal are estimates.

World production declined almost one-half from the 1942 peak, to about the 1936 level.

United States.—For comparison, the supply and demand in the United States during World Wars I and II are shown in Table II.

Table II.—*Chromite Data for the United States for the Periods of World Wars I and II*

(Thousands of short tons)

	Production	Imports	Supply		Production	Imports	Supply	Consumption
1914	0.7	83.7	84.4	1939	3.9	355.6	359.9	?
1915	3.7	85.7	89.4	1940	3.0	736.6	739.6	562.9
1916	52.6	129.9	182.5	1941	14.3	1,115.3	1,129.6	800.3
1917	49.0	80.9	129.9	1942	112.9	981.6	1,094.5	892.0
1918	92.4	112.2	204.6	1943	160.1	928.6	1,088.7	964.6
1919	5.7	68.9	74.6	1944	45.6	848.4	894.0	848.4
1920	2.8	168.3	171.1	1945	14.0	914.8	928.8	808.1
1921	0.3	90.2	92.0	1946	4.1	757.4	761.5	734.8

As happened at the close of World War I and was to be expected after the close of World War II, the production of chromite practically ceased in the United States, leaving the supply dependent on imports. The normal prewar pattern of supply was altered considerably by war conditions and the postwar readjustments were still under way late in 1947.

Domestic consumption was expected to continue to expand.

Table III.—*Imports of Chromite into the United States*

(Thousands of short tons)

	1940	1941	1942	1943	1944	1945	1946
Cuba	58.2	179.9	137.8	310.7	349.1	297.8	204.3
Greece	15.7	2.2	...	...	...	...	...
U.S.S.R.	...	...	30.1	99.9	112.3	166.1	99.0
India	36.6	10.9	21.3	2.8	...	...	17.3
Philippines	175.4	288.4	30.5	...	...	...	30.5
Turkey	78.5	61.8	119.5	90.8	98.8	70.8	9.0
South Africa	126.3	189.7	262.3	111.6	40.4	110.4	235.3
S. Rhodesia	177.9	269.2	277.3	243.5	187.8	221.9	99.6
New Caledonia	48.0	90.2	82.7	32.5	34.5	34.4	21.0
Total	736.6	1,115.3	981.6	928.6	848.4	914.8	757.4

The U.S. imports represented 51% of the world output in 1936 but 55% of the total in 1941. After 1942 world output had declined but the percentage of the total required for domestic consumption had increased to 62% in 1946.

New technological developments in the use of chromium and its alloys were expected to bring continued expansion in consumption, especially as applied to jet propulsion and other high-temperature alloys. (G. A. Ro.)

Chronology: *see* CALENDAR OF EVENTS, 1947, pages 1–16.
Churches, World Council of: *see* CHRISTIAN UNITY.

Churchill, Winston Leonard Spencer (1874–), British statesman, was born at Blenheim palace, Oxfordshire, England, on Nov. 30, the elder son of Lord Randolph Churchill. For his biography and his political career during World Wars I and II, see *Encyclopædia Britannica.*

In 1947 Churchill took further steps in his efforts for a United States of Europe, which he had advocated in a speech in Zürich, Switzerland, on Sept. 19, 1946. In January the formation of a United Europe committee, with Churchill as chairman, was announced. At a public rally in London on May 15, he called for "an organization in Great Britain to promote the cause of united Europe."

In the house of commons Churchill led the Conservative opposition. On Oct. 28, in moving an amendment to the king's speech he stated that the Conservative policy was to "establish a basic standard for life and labour, and (to) provide the necessary foods for all. Once that is done, set the people free." He was also active as leader of the party in its nation-wide campaign to prepare for the next election.

In May he visited Paris, where the premier, Paul Ramadier, decorated him with the *Médaille Militaire* in recognition of his services in the Allied cause.

Church Membership. The latest information concerning church membership in 54 religious bodies in the United States, each reporting more than 50,000 members, was that published by the *Christian Herald,* New York city, in June 1947 (*see* Table I). The total given for continental U.S. was 73,673,182 persons, mainly for years ending in 1946, compared with 71,700,142 reported by the same bodies the year previously. Some religious bodies do not compile and publish figures annually. In a few instances the latest data in the table are for the year 1936, the date of the last census of religious bodies taken by the federal bureau of the census. According to the official reports of the statisticians of the religious bodies, total church membership had been increasing for many years.

Church membership figures published in 1946 and 1947 represented the highest proportion of the total population ever reported in the religious bodies.

Table I.—*Church Membership in Continental United States, as Reported in 1947, for the Religious Bodies with More Than 50,000 Members*

Body	Members 1947	Members 1946
Adventists, Seventh Day	208,030	201,035
Assemblies of God	241,782	241,782
Baptist Bodies:		
Northern Baptist Convention	1,592,349	1,565,400
Southern Baptist Convention	6,079,305	5,667,926
National Baptist Convention, U.S.A., Inc.	4,122,315	4,076,380
National Baptist Convention of America	2,575,621	2,352,339
American Baptist Association	115,022	115,022
Free Will Baptists	221,317	228,643
National Baptist Evangelical Life and Soul Saving Assembly of U.S.A.	70,843	70,843
Primitive Baptists	69,157	69,157
United American Free Will Baptist Church	75,000	75,000

Table I.—*Church Membership in Continental United States, As Reported in 1947, for the Religious Bodies with More Than 50,000 Members—Continued*

Body	Members 1947	Members 1946
Buddhist Churches of America	70,000	70,000
Church of the Brethren	182,497	181,087
Church of Christ, Scientist	268,915	268,915
Churches of God:		
Church of God	77,926	101,441
Church of God (Anderson, Ind.)	95,325	88,176
Church of God in Christ	300,000	300,000
Church of the Nazarene	201,487	190,620
Churches of Christ	309,551	309,551
Congregational Christian	1,140,824	1,113,930
Disciples of Christ	1,889,066	1,691,374
Eastern Orthodox Churches:		
Greek Orthodox (Hellenic)	275,000	275,000
Russian Orthodox	300,000	300,000
Evangelical and Reformed	695,029	689,780
Evangelical		248,195
Evangelical United Brethren*	705,102	
Federated	88,411	88,411
Religious Society of Friends (Five Years' Meeting)	113,465	113,638
Independent Fundamental Churches of America	65,000	65,000
Jewish congregations	4,641,000	4,641,200
Latter Day Saints:		
Church of Jesus Christ of Latter Day Saints	911,279	810,644
Reorganized Church of Jesus Christ of Latter Day Saints	116,888	114,027
Lutherans:		
American Lutheran Conference:		
American Lutheran	601,839	584,499
Evangelical Lutheran Augustana Synod of N.A.	396,999	487,266
Evangelical Lutheran Church†	661,355	620,907
Lutheran Synodical Conference of N.A.:		
Evangelical Lutheran Synod of Missouri, Ohio and other states	1,422,513	1,394,134
Evangelical Lutheran Joint Synod of Wisconsin and other states	259,097	259,097
United Lutheran Church in America	1,748,183	1,719,821
Mennonite	52,596	51,611
Methodist Bodies:		
African Methodist Episcopal	868,735	868,735
African Methodist Episcopal Zion	489,244	489,244
Colored Methodist Episcopal	381,000	380,000
Methodist	8,430,146	8,083,767
Polish National Catholic	250,000	250,000
Presbyterian Bodies:		
Cumberland Presbyterian	75,427	70,567
Presbyterian Church in the U.S.	596,037	580,665
Presbyterian Church in the U.S.A.	2,174,530	2,104,443
United Presbyterian Church of North America	198,815	198,759
Protestant Episcopal	2,155,514	2,163,711
Reformed Bodies:		
Christian Reformed	134,608	128,914
Reformed Church in America	176,244	173,975
Roman Catholic	24,402,124	23,963,671
Salvation Army	210,000	206,412
International General Assembly of Spiritualists	100,000	100,000
Unitarian	74,789	61,948
United Brethren in Christ		433,480
Totals:	73,673,182	71,700,142

Source: "Church Membership" publication—by *Christian Herald*.
*A merger of the Evangelical Church and the United Brethren in Christ, Nov. 1946.
†Name changed from Norwegian Lutheran Church.

The religious bodies having more than 50,000 members had 97.4% of all the church members in continental United States, according to a compilation of the reports of 256 religious bodies, published in the *Yearbook of American Churches* (1945). The remaining 2.6% of the members were in more than 200 bodies. Of the total reported church membership in 1945, 32.3% was Roman Catholic, 1.3% Old Catholic, Polish Catholic and Eastern Orthodox; 6.4% Jewish and 60% Protestant. In 1945 there were reported by 256 religious bodies 72,492,669 members, of whom 59,717,181 were 13 years of age and over, mainly for years ending in 1944. (B. Y. L.)

Great Britain.—The figures in Table II rest for the most part on a calculation of communicants; the figures for the Church of England, however, are taken from the electoral roll membership, and those of the Roman Catholic Church represent the adult membership as given in the *Catholic Directory*. This difference between methods of calculating membership prevents a comparison between the churches; a clearer estimation of the comparative numbers of each church was not yet possible in 1947, since official returns had not in every case been made during and after World War II.

Table II.—*Church Membership in Great Britain*

	Members
Church of England	3,388,859
Church of Wales	196,389
Episcopal Church in Scotland	57,071
Roman Catholic Church: England	2,048,259
Scotland	488,248
Church of Scotland	1,264,125
United Free Church of Scotland	23,448
Presbyterian Church of England	74,575
Presbyterian Church of Wales	174,664
Methodist Church	767,465
Wesleyan Reform Union	11,910
Independent Methodists	9,976
Congregational Church	416,442
Baptist Church	382,337
Churches of Christ	12,764
Society of Friends	20,269
Brethren	80,000
Unitarians	30,000

Source: *A Christian Year Book* (London, 1947).

Figures for Northern Ireland are not included.

(A. J. Mac.)

Church of England. In the course of the year the church assembly inaugurated measures to improve the payment and pensions of the clergy. Separate sessions of the house of laity, held under Lord Grey, resolved to ask the laity to raise the stipends of the clergy to a minimum of £400 per annum, together with a house free of rates and dilapidation charges, and allowances for dependents; the church commissioners undertook to contribute £100,000 annually during the next six years for this purpose. Several diocesan boards supported the scheme, or a part of it, and in some cases the minimum stipend adopted was £500. A pensions measure, providing £200 at the age of 70 after 40 years of service, with £50 for widows and £25 for orphans or fatherless children under 18, received general approval. Contributions were at the rate of 5% per annum.

The work of reconstruction of the dioceses in bombed areas went slowly forward. The Pastoral Re-organization measure was approved; it provided for the union of benefices and holdings in plurality, the diversion of endowment income and the restriction, in some cases, of the rights of patronage. The City of London Tithe bill was passed by parliament, abolishing London tithe payments within 60 years and reducing the payments to the successors of existing incumbents by 33%. Lord Selborne's regulation to establish a Central Church of England Council of Education to co-ordinate the work of the five councils controlling different branches of educational activity received final approval. The convocations of Canterbury and York received the report of the Canon Law commission (chairman, Dr. Cyril Garbett, archbishop of York), together with a proposed new code of canons. The code of 1603 had been completely revised and modernized. Important new regulations concerning nullity suits in marriage cases and concerning the church courts were proposed.

On Sept. 27 the four dioceses of Madras, Tinnevelly, Travancore and Dornakal were severed from the Anglican communion and became the Church of South India. They united with the Presbyterians, Methodists and Congregationalists in that area. In convocation in October the archbishop of Canterbury formally condemned the book *The Rise of Christianity*, written by the bishop of Birmingham (Dr. E. W. Barnes), because it did not "adequately and faithfully express the general doctrines of the Church of England."

The bishop of London (Dr. J. W. C. Wand) conducted his primary visitation at five centres of the diocese, the first episcopal visitation of London for 30 years. Bishop Arthur Headlam of Gloucester died on Jan. 17. (A. J. Mac.)

Church Reunion: *see* Christian Unity.
Cigars and Cigarettes: *see* Tobacco.
Cinema Industry: *see* Motion Pictures.

Cinnamon: *see* SPICES.
C.I.O.: *see* CONGRESS OF INDUSTRIAL ORGANIZATIONS.
Citrus Fruits: *see* FRUIT.
City and Town Planning: *see* TOWN AND REGIONAL PLANNING.
City Government: *see* MUNICIPAL GOVERNMENT.
City Manager Plan: *see* MUNICIPAL GOVERNMENT.

Civil Aeronautics Administration.

The year 1947 was one of increased, though not always profitable, activity in civil aviation, resulting in a heavy workload for the Civil Aeronautics administration.

The scheduled air carriers added 41,500 route miles, or more than 30%. Nonscheduled air-carrier operations were brought under regulation for the first time, CAA issuing 1,479 certificates to such services, with 1,384 applications pending.

Student pilot permits were issued at the rate of about 200,000 a year, due in great part to activity under the G.I. Bill of Rights.

To assure prompt performance of the safety regulation functions involved in this growing volume, the system of designating qualified volunteer personnel in the industry was used to a greater degree. By the end of the year, more than 8,000 designees were acting for the CAA in specified inspection capacities.

Significant improvements were effected on the 40,000-mi. airways system operated by CAA. Regular commercial use of the CAA instrument landing system was begun by 11 air lines at 41 cities, making possible completion of schedules under lower ceilings and visibility than previously permitted.

More than 50 very high frequency radio ranges were installed under the program of converting the airways system to this virtually static-free form of transmission.

Use of airport surveillance and precision beam radar was begun by CAA at Washington National airport, La Guardia field, N.Y., and Chicago Municipal airport, with equipment turned over by the army air forces.

The Federal Aid Airport program was moving into high gear by year's end, with more than 100 grants made to communities for airport construction or improvement. Appropriations by congress to CAA for this program, which works on a matching basis similar to that used for public roads, totalled $77,500,000. A list of 908 projects to be handled with these funds was prepared by CAA—171 of them being class 4 or larger airports, the balance smaller fields, significant in the development of personal and local commercial flying.

Two technical advances of outstanding importance to personal flying were carried forward. One involved the development of cross-wind landing gear for seven types of planes, ranging from the Piper Cub to the DC-3. For this purpose the CAA had $150,000 in contracts with six manufacturers, three of whom already had completed successfully the application of cross-wind gear to smaller aircraft. It was hoped that this gear would make possible single-strip landing fields in metropolitan areas where undeveloped land is scarce.

The other big technical effort for personal flying is in the direction of quieter aeroplanes. At the request of CAA, the National Advisory Committee on Aeronautics was sponsoring a study of propeller and engine noise and had developed a multi-bladed propeller that considerably reduces the noise of light aircraft.

Other technical development work covered prevention and detection of fires; impact-resistant windshields; new types of airport and approach lights; distance-measuring equipment to be used in connection with the V.H.F. radio ranges; and crash-resistant fuel tanks.

Psychological research was carried out on the relationship of eyesight to the ability to learn to fly safely; improved methods for selecting, training and up-grading air line pilots on the basis of the critical requirements of the job; and stall-perception.

Assistance was furnished by CAA to state school systems in extending and improving their aviation education programs for peacetime purposes, through consultations, staging of institutes, preparation of materials, etc. Courses were given in the U.S. by CAA to trainees from Central and South America and the Philippines. (*See* also AIRPORTS AND FLYING FIELDS; AVIATION, CIVIL.)

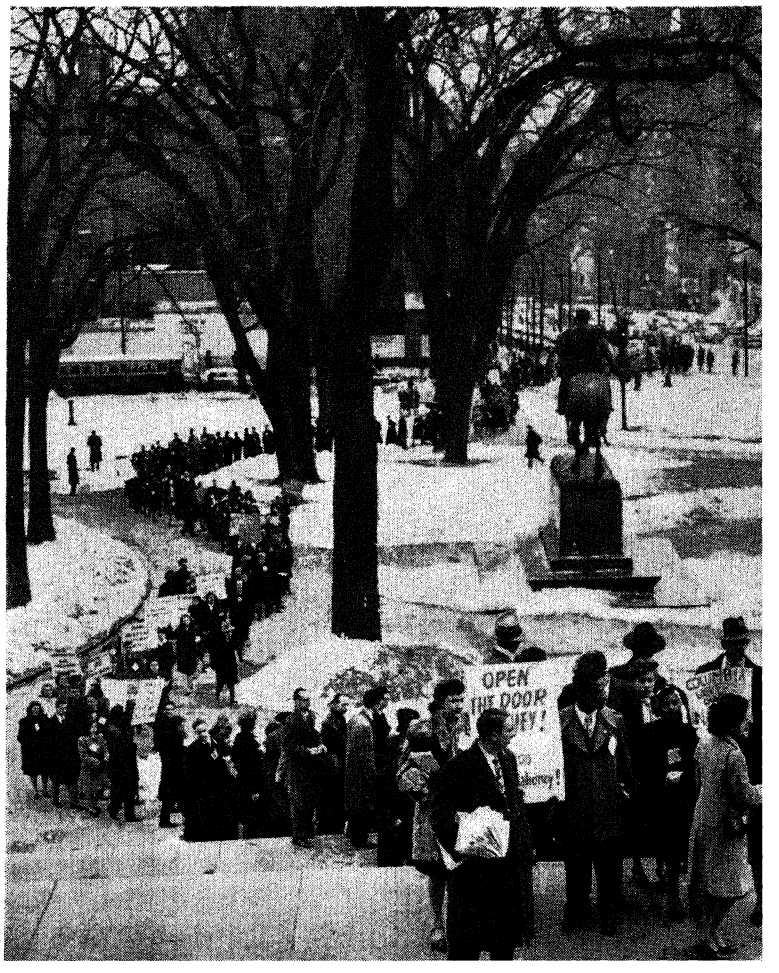
(T. P. W.)

Civil Liberties.

U.S. civil liberties experienced both progress and regression in the year 1947. On the affirmative side, a federal court held segregation by state law on interstate railroads unconstitutional. The supreme court reversed a conviction on the ground that the defendants were deprived of a fair trial because the state systematically excluded women from the juries. A federal court in California held that the segregation of Mexican-U.S. children in schools was unlawful. In Massachusetts, in the first important trial under a new statute, sale of the book *Forever Amber* was permitted.

Perhaps the most important forward step in decades was the report of the president's committee on civil rights. The committee of 15 issued a widely debated report emphasizing particularly the impairment of civil rights because of race, creed or colour. It proposed legislation strengthening federal criminal statutes, a bill against lynching, legislation directed towards equality of employment privileges, abandonment of restrictive covenants on the occupancy of real estate and the withholding of federal grants-in-aid to schools, hospitals or housing develop-

STUDENTS, demonstrating before the N.Y. state capitol at Albany in March 1947, demanded passage of a bill to outlaw racial and religious discrimination in the schools



ments practising racial or religious discrimination. It further proposed a system of full disclosure, through income tax returns and as a requirement for postal privileges, of the powers behind mass movements directed towards influencing thought.

In addition to its recommendations for federal action, the report stressed that U.S. democracy was dependent on local vigilance in maintaining civil rights and that much progress lay within the power of the individual states. The government began preparing legislation in support of some of the measures recommended by the committee.

The Labor-Management Relations (Taft-Hartley) act aroused criticism as being an impairment of many rights of labour, including the right to strike.

Also criticized were actions of the house of representatives committee on un-American activities, particularly the hearings involving political affiliations of Hollywood writers. Cases arising out of these hearings raised the fundamental question whether congress had the right to inquire into a person's political party affiliation, even without violating the secrecy of his ballot. A collateral question involved the problem of the government as an employer vis-à-vis persons who because of affiliation with underground organizations presented a potential danger of division of loyalty. The civil liberties question impinged primarily on the propriety of congress' instructing the state and defense departments to discharge suspected persons without any hearing. Employees of other departments of the government continued to be protected in their right to be presented with the charges against them, to have counsel and a full hearing and appeal by the president's proclamation on loyalty issued to forestall more stringent action by congress. An important civil rights question arose with respect to the right of an accused employee to be confronted with the witness who obtained the evidence against him. The rights of the individual sometimes conflicted with the fact that there were some areas where the government could not afford to sacrifice an investigating employee whose usefulness would be ended once his identity was known.

By 1947 a dozen states had already branded the Communist party as illegal and banned it from the electoral ballot. The only alternative which might succeed in preventing the spread of communism and yet preserve civil liberties seemed to be the proposal, submitted by the president's committee and approved by J. Edgar Hoover, that anonymity is unnecessary to any organization in a democracy and that repressive measures are unnecessary among a people informed as to the exact nature and sponsorship of organizations. (*See* ALIENS; ANTI-SEMITISM; BIRTH CONTROL; EDUCATION; LAW; LYNCHING; MOTION PICTURES; NEGROES, AMERICAN; NEWSPAPERS AND MAGAZINES; RADIO.) (M. L. E.)

Great Britain and British Commonwealth.—The economic crisis compelled the British government to introduce planning measures that were thought by some to be restrictive of liberty. The only measures which affected civil liberty appeared to be limited to: (1) the Control of Engagement order, which came into force on Oct. 6, 1947, providing that all engagement of employees should, with certain exceptions, be effected through an employment exchange; (2) the announcement that the powers of direction in Defense regulation 58A would be used more freely; (3) the restrictions under the Exchange Control act, 1947, and the Defense (Finance) regulations on the movement of travellers by prohibiting or limiting the taking of money out of the country; (4) the increased tax on foreign films; and (5) the limitation of the importation of books.

Lord Reading, for the Liberal party, introduced a bill known as a Bill of Rights into the house of lords which dealt with a miscellaneous collection of matters, including some recommendations of the 1932 committee on ministers' powers. The problems it dealt with were important but the bill was ill-drafted and, after severe criticism by the lord chancellor, was dropped. The Crown Proceedings act, 1947, increased the citizen's rights against the crown by removing mediaeval privileges which prevented action in the courts against a government department and by removing exceptional rights to which the crown was entitled. For nearly all practical purposes the crown (including government departments) was then placed on an equal basis with other litigants.

A small revival of fascist activities caused some concern, but the home secretary declined to introduce antifascist legislation because of the difficulty of defining fascism without including other parties or unnecessarily interfering with free speech. The existing law was enforced, however, whenever disorders were caused.

In Australia an act for the protection of approved defense projects provided heavy penalties for obstructing any such project and was introduced as a result of communist opposition to the experimental base for long-range rockets in central Australia. Freedom of speech could, according to the minister, be safe-guarded for pacifists and persons concerned with the Australian aborigine, since "reasonable cause" was a defense to a charge of obstructing a project by speech or writing.

Other Countries.—In Austria nazi activities were banned and members of the nazi party deprived of the rights to vote and to hold public office; they were barred from certain professions. In Bulgaria, Hungary and Rumania the peace treaties were ratified and came into force; in each, the state was forbidden to make a law abridging human rights or civil liberties. In Italy the new constitution was still under discussion in 1947.

The French constitution adopted at the close of 1946 contained in the preamble a definition of civil liberties and human rights; earlier in 1946, forced labour and other practices were suppressed in the French overseas territories.

During the year the United Nations Committee on Human Rights, appointed by the Economic and Social council, produced a draft international Bill of Rights which was under consideration by all governments. The adoption of such a bill would enable world public opinion to be focused on the need for civil liberties and on any state or body which interfered with them. (R. S. W. P.)

Civil Service.

During 1947, the civil service of federal, state and municipal governments in the United States achieved, for the most part, a return to peacetime conditions of operation after a readjustment period extending through the preceding year. An economy-minded congress ordered budget cuts for many federal agencies, resulting in further reductions in federal pay rolls that had already declined markedly from the end of the war. In contrast with the decline in federal employment, state and local government pay rolls increased somewhat during the year.

Toward the end of 1947, federal employment showed indications of approaching a stable postwar level after dropping steadily for more than two years. As the year began, there were 1,980,000 federal civilian employees within the U.S. and an additional 296,000 stationed outside the country—a combined total of 2,276,000 federal employees. During the next ten months this total decreased steadily, and by the end of October official figures showed 1,774,000 federal employees within the U.S. and an additional 250,000 employed outside the country—a net reduction of more than 250,000 employees. While turnover and the release of many war emergency employees accounted for most of this reduction, several thousand "career" employees were also laid off.

The year produced an upsurge of popular feeling against sub-

versive activity, and one of its by-products was an extensive program for checking on the loyalty of federal employees. This program, conducted jointly by the Federal Bureau of Investigation and the U.S. civil service commission, contemplated investigations of all current employees and all future applicants for employment. To protect employees against dismissal on unfounded charges of disloyalty, an appeal board was set up and staffed by a group of distinguished citizens. By the end of the year, the loyalty investigation program was well under way, but it was still too soon to determine how many actual cases of disloyalty would be disclosed. (*See* also CIVIL LIBERTIES.)

Strikes by government employees became the subject of restrictive legislation in several quarters during the year. The Labor-Management Relations Act of 1947 (the so-called "Taft-Hartley law") included a provision prohibiting strikes by federal employees under penalty of dismissal. Strikes by state and municipal government employees were also outlawed in ten states during the year: Indiana, Michigan, Minnesota, Missouri, Nebraska, New Jersey, New York, Pennsylvania, Texas, and Washington. One state, Virginia, had passed such a law during the previous year. Very few strikes among public employees were reported during 1947; those that occurred were minor in scope and of short duration.

An employee union, the United Public Workers of America, attacked the constitutionality of the Hatch act, restricting political activity by federal and certain state and local employees. The U.S. supreme court upheld the law, ruling that congress has full authority to enact such legislation whenever, in its judgment, such restrictions are needed to protect the integrity and competency of the civil service.

Several states and cities increased the pay of their employees to alleviate the economic pressure produced by mounting inflation. In most instances lower-paid employees received the greatest proportionate increases; in a few localities, however, elected officials and other higher-paid appointive employees also received pay raises.

Legislation establishing civil service systems was adopted in several localities during the year, including Hartford, Conn., University City, Mo., and Brown County, Wis. In Texas a law was passed requiring that a referendum be held in each of the state's larger cities on the question of adopting a civil service system for their fire and police departments. (J. J. DN.)

Great Britain.—In 1947 the civil service still carried a large, though declining, volume of work in winding up war activities. Thus, the number in the service and supply departments fell during the first nine months of 1947 by 15,000. The continued scarcity of so many goods and supplies did not permit any relaxation of rationing or of measures for the control of raw materials. These made heavy demands on manpower.

There was some expansion in the social service departments, the main feature being the building up of the ministry of national insurance, largely by transfers from approved societies, in preparation for the new scheme of social insurance which was to come into force in July 1948. Strong efforts were, however, made to reduce the total number in the civil service, which fell in 1947 from 722,000 on Jan. 1 to 690,000 on Oct. 1. The reconstruction recruitment competitions were more than half completed. Recruitment at the normal ages of entry was resumed.

A ministry of defense was set up at the beginning of the year under the Ministry of Defense act, 1946. A central economic planning staff was set up in April 1947. It was part of the cabinet office, but afterward served under the minister for economic affairs, appointed in October. The dominions office was renamed the commonwealth relations office and absorbed such functions of the India office as remained after the constitutional changes in that country. With the transfer of power to the Burmans Jan. 4, 1948, the Burma office was closed. (E. E. Bs.)

Clark, Thomas Campbell (1899–), U.S. lawyer and attorney-general, was born Sept. 23 in Dallas, Tex. He was graduated with an A.B. degree from the University of Texas (1921) and practised law. He was civil district attorney of Dallas county, 1927–32. In 1937, Clark was made special assistant to the attorney-general of the U.S. He was shifted to the department's antitrust division (1938), was later named co-ordinator of alien enemy control in the Western Defense command, and was given charge of the war frauds unit in the antitrust division in May 1942. Clark became assistant attorney-general of the antitrust division (March 1943) and in Aug. 1943, he headed the justice department's criminal division with his authority extending to the war frauds unit. President Truman named Clark to succeed Francis Biddle as U.S. attorney-general, May 23, 1945. Clark assumed office June 30.

The alarming growth of "red" hysteria in early 1947 led Clark to promise on May 10, in a Boston speech, that there would be no "witch hunts" in the government move to eliminate "subversive groups." However, on Dec. 4, after listing 90 organizations which he claimed were "subversive," Clark was criticized by civil liberties groups who urged that hearings be given the accused organizations.

In the summer of 1947, an effort made by G.O.P. to probe charges that Clark had blocked an investigation of vote frauds in Kansas City, Mo., was defeated by the Democrats in the upper house.

Clay, Lucius DuBignon (1897–), U.S. army officer, was born April 23 in Marietta, Ga. He was graduated from the U.S. Military academy in 1918, and during the latter days of World War I was an instructor at an officers' training school. In March 1942, he was made a deputy chief of staff in the army service of supply and was promoted to the rank of a major general the following December. Two years later (Dec. 1944), he was transferred to the Office of War Mobilization and Reconversion as deputy director for war programs and administration.

As the war in Germany was nearing its end, President F. D. Roosevelt appointed Clay (March 29, 1945) as deputy to Gen. Dwight D. Eisenhower in charge of civil affairs in Germany; the following month he was made a lieutenant general. On Jan. 6, 1947, he was named commander of U.S. occupation forces in the European theatre and commander-in-chief of U.S. occupation forces in Germany as well as U.S. military governor in Germany. He was made a full general on March 27.

At first Clay was tactful and friendly in his relations with the Russians on the Allied Control Council for Germany, but irked by their propaganda barrage, he announced (Oct. 28) that the U.S. would launch a counter propaganda program in the reich. His domestic policy in his zone was based on the concept of giving the Germans more local self-government; he also said they would have to decide for themselves on the question of whether they should have a capitalist or socialist economy. However, his criticism of German ineptness in handling their food program was reported (Sept. 6) to have brought down on him a Washington admonition not to overemphasize their "bungling" lest congress cut requested funds for food exports to the reich.

Clays. Data on the production and consumption of the various types of clays used in the United States (except bentonite and fuller's earth, which are treated separately) are shown in the following table, in thousands of short tons.

	1943	1944	1945	1946
Ball clay	147.8	155.7	174.5	243.1
Kaolin	929.4	873.1	940.0	1,322.3
Fire clay	7,798.2	6,344.4	6,090.4	7,908.0
Miscellaneous clays	11,215.3	9,080.7	10,848.7	20,190.3
Total	20,090.7	16,453.8	18,053.6	29,663.8
Sold as raw clay	4,140.4	3,520.7	3,611.9	4,455.2
Used by producer	15,950.3	12,933.1	14,441.7	25,208.6

The effect of the revival in the building industry is seen especially in the miscellaneous clays, used for brick, sewer pipe and other building materials. (*See* BENTONITE; FULLER'S EARTH.) (G. A. Ro.)

Clayton, William Lockhart (1880–), U.S. government official and cotton broker, formerly headed the firm of Anderson, Clayton and company in Houston, Tex. He joined the department of commerce in 1942 as an assistant secretary, and, in 1944, was appointed federal war surplus property administrator.

On Dec. 4, 1944, Pres. Franklin D. Roosevelt named Clayton assistant secretary of state, and on Aug. 1, 1946, he was appointed undersecretary of state for economic affairs, a newly created office.

In the summer of 1947, Clayton was the state department's representative at the Geneva, Switzerland, conference of the International Trade organization and at the European Conference for Economic Co-operation in Paris, which drew up the blueprint for the requirements of western Europe under the Marshall plan. At the latter parley, some foreign delegates objected to Clayton's insistence that the U.S. be permitted to oversee European expenditure of U.S. funds; although all conferees signed the 16-nation report on Sept. 22.

Clayton resigned his governmental office Oct. 15.

Cleveland. Sixth largest city in the United States, Cleveland, O., had a population of 878,336 by the federal census of 1940. Area 73.1 sq.mi.

Mayor Thomas A. Burke was re-elected chief executive of Cleveland Nov. 4, 1947, by the largest majority ever given a mayoralty candidate in the city. Burke, a Democrat, polled 168,412 votes to 85,990 received by his Republican opponent, former Safety Director Eliot Ness. Although there was a heavy turnover in the personnel of city council, the Democrats retained control of that body.

Nine judges were elected to municipal court, Chief Justice John J. Busher, and Judges Mary B. Grossman, Andrew M. Kovachy, Lillian M. Westropp, Joseph H. Silbert, Charles A. Vanik, James T. Cassidy, Frank D. Celebrezze and Edward F. Feighan. William J. Reichle was elected clerk of the court. Robert H. Jamison, Franklin A. Polk and Joseph M. Gallagher were elected to the Cleveland school board.

An amendment to the city charter which would put the community on daylight saving time from the last Sunday in April to the last Sunday in September was approved by the voters. Also approved were a 2.5-mill Cleveland tax levy, and a 6-mill Cleveland school levy. The county 1.3-mill welfare levy, requiring a 65% vote, hung in the balance as the first count showed it defeated by a small margin and a recount showed it winning by a single vote. A further recount was ordered and court action was threatened.

The city council voted a pay increase for all city employees. A $22,000,000 bond issue for the municipal traction system was approved by the council but the issue was not sold because of an unfavourable bond market. In its final meeting of 1947 the council enacted legislation to redistrict the city, making the population of the city's wards nearly equal for the first time in more than a quarter of a century. The city reduced its bonded debt $7,091,000 in the fiscal year ended June 30, 1947, bringing its gross bonded debt to $89,309,500, the lowest it had been in 25 years.

Mrs. Norma F. Wulff was re-elected president of the Cleveland board of education, and Mark C. Schinnerer was given the post of school superintendent.

The Lakefront airport for light planes was opened Aug. 28. At the close of 1947, employment in Cleveland stood at 586,000, close to a peacetime high. Of these, 215,000 were factory workers receiving an estimated $10,500,000 in pay each week. In 1947 there were 125 new manufacturing companies established in the city. Exports and imports of Cleveland companies totalled about $405,000,000 for the year. (P. By.)

Climate: *see* METEOROLOGY.

Clothing Industry. The year 1947 was one of profitable activity for the clothing industry. Prices in the United States and Canada rose to record heights as postwar inflation filtered through the industry. In comparison with the calendar year 1939, prices of woollen fabrics in the U.S. on June 30, 1947, had risen 116%; cottons were up 340%. The retail price of men's and boys' tailored wool clothing rose 79% during that period while wages increased 74%. The price of women's apparel and cotton garments in general rose higher, percentage-wise, than did woollen clothing. While unit production and sales held their own, as compared with 1946, dollar volume jumped greatly because of increased prices.

Despite the fact that profits were substantial, manufacturers faced many difficulties. Rising raw material costs made future operations hazardous; in staple sections of the industry (such as regular woollen clothing, shirts and workwear) that factor introduced a speculative note. Shortages of tropical worsteds and certain cotton constructions hindered production. A congressional investigation into alleged high clothing prices badgered the industry. Some special machines were still unobtainable. The most ominous fact of all, to some producers, was that consumers were asking for standard brands—which spelled trouble for newcomers in the industry. This was responsible for an increase in the quality of merchandise which, although not up to prewar standards, was substantial.

GERMAN manufactures of women's wear consisted largely of samples like these in 1947. Textiles were among the severest shortages in Germany during the year



Machinery research advanced. Several new cutting room devices promised added production and ease of operation. New variations of the electrically driven cloth spreader appeared; these included machines with trailer attachments (for laying material face one way) and knit goods machines. Aluminum cutting tables, featuring adjustable legs for uneven floors, came in short sections of any desired width. A new cutting machine feature provided automatic sharpening of cutting knives to different edges. New lights, needle coolers, pullers and feeders facilitated sewing. A new feed-off-the-arm felling machine (for joining long seams such as shirt sideseams) featured a pedestal mount for easier operation. An effort was made to introduce finger-tip control, compressed-air pressing machines; but their acceptability in the men's clothing industry, where pressers were used to handling heavy foot pedal machines, was problematical. Minor tools became available; but some small items were still short and new left-handed shears were virtually nonexistent.

Style changes were simple but noticeable. Shoulders were wide and backs were cut very narrow so that, from the front, suits had a straight hanging, tubelike effect. Sleeves were made wider at the top. Winterwear featured cotton garments lined with alpaca pile, spun glass or similar insulation. There was no style change in shirts, summer sportswear, work clothing or rainwear. The large sales of war surplus garments continued without seriously affecting other retail sales.

Textile development accented quantity. The enormous demand for U.S. fabrics placed emphasis on efficiency of operation. New and unusual synthetic textiles were not satisfactory for clothing.

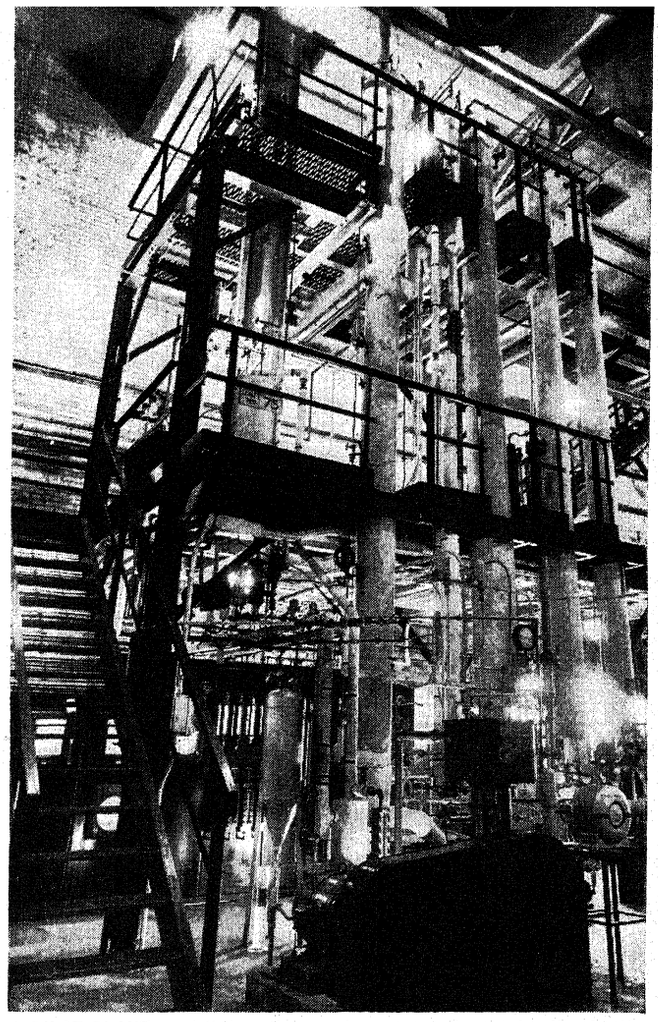
Labour did not lose ground in the clothing industry. The union and a manufacturers' central organization in the tailored woollen clothing trade set labour prices and conditions of employment. In the garment trades, however, negotiations were carried on individually by manufacturers and local union boards. A jurisdictional dispute between the Amalgamated and the International Ladies' Garment Workers' union in Rochester, N.Y., concerned the status of men's wear factories which were making ladies' tailored suits.

In other countries, the clothing industry suffered from a lack of dollar exchange which hindered the importation of efficient equipment. Manufacturers were especially interested in production techniques with emphasis on time and labour-saving devices and methods. Varied problems beset the industry in different lands. Australia experienced a manpower shortage, and many factories were operating at one-half prewar strength. Great Britain, to build foreign exchange, sacrificed woollens for dollars. South American countries, however, forged ahead with large modern installations. The reconstruction of world-wide clothing manufacturing facilities was a bright spot in the postwar era.

A great number of manufacturers and technicians went to the U.S. to observe factory methods and machines. A New York exhibit of garment textiles, machinery and equipment attracted 50,000 tradesmen, many from overseas.

Prices of consumer goods were high, and inventories were normal at the year's end. Great Britain prepared to regain its pre-eminent position as a style and production centre of men's wear; a new council was formed to gather technical data throughout the world and funnel it to London for analysis and distribution. A clearinghouse of such type would render invaluable aid to the industry. (S. L. S.)

Coal. Most of the gaps in production data for coal had been eliminated by the end of 1947, and Table I is more nearly complete than at any time since 1938. Also it is possible to show for the first time the approximate world totals for the years of World War II.



A PILOT PLANT, modelled on the one above, was under construction for the Pittsburgh Consolidated Coal Co. in 1947, as part of a revolutionary fuel project. If successful, coal was to be made into synthetic gas and liquid fuels at place of origin, rather than transported and burned as lump coal

Table I.—*Coal Production of the World, 1940–46*

(Millions of short tons—all grades)

	1940	1941	1942	1943	1944	1945	1946
Canada	17.57	18.23	18.86	17.86	17.03	16.51	17.80
United States	512.25	570.51	643.02	650.82	683.27	630.93	592.51
Belgium	28.23	28.50	27.43	26.12	14.89	17.33	25.11
Czechoslovakia	46.62	46.91	49.55	56.49	54.31	30?	37.00
France	45.18	48.34	48.37	46.77	29.30	38.65	54.56
Germany	511.52	527.57	547.42	500?	450?	180?	275?
Hungary	12.69	13.89	14.30	13.97	10?	4.43	7.00
Italy	4.84	4.88	5.32	2.62	?	1.46	2.95
Netherlands	13.61	14.94	13.90	14.20	9.43	6.85	9.71
Poland	84.96	84.15	92.56	100.70	96.33	30.17	52.13
Spain	10.40	10.53	11.42	11.69	12.88	13.16	13.31
United Kingdom	251.21	231.11	228.07	217.83	203.18	190.00	212.34
U.S.S.R.	181.44	175?	100?	145?	130?	160?	176?
China	6.31	6.61	6.23	6.61	6.02	?	?
India	28.66	33.00	32.97	28.66	29.26	32.67	32.79
South Africa	18.94	20.21	22.50	22.66	25.34	25.96	26.05
Australia	17.92	21.03	22.22	21.60	20.99	20.45	21.59
Total	1,983	2,044	2,076	2,080	2,000	1,650	1,750

Following the postwar slump, there was a marked improvement in coal output in most of the European countries, but far from enough to meet the demand for comfort, and hardly enough for bare existence in some areas. In few cases had outputs attained or even approached the prewar level of operations and so, with supplies inadequate for their own needs, surpluses for export were scarce.

United States.—The salient features of the coal industry of the United States are shown in Table II.

Coal output in the United States during 1946 declined to the lowest level since 1941, as a result of strikes in the industry during a quarter of the year. In 1947 the only major stoppage was in the "mourning period" in April that followed the Centralia,

Table II.—*Data of the Coal Industry in the United States, 1942–46*

(In thousands of short tons)

	1942	1943	1944	1945	1946
Production, total	643,021	650,821	683,278	632,551	592,507
Anthracite	60,328	60,644	63,701	54,934	60,507
Soft coals	582,693	590,177	619,576	577,617	532,000
Bituminous	579,762	587,428	617,022	574,949	?
Lignite	2,931	2,749	2,554	2,668	?
Anthracite					
Open-cut	9,071	8,989	10,953	10,056	12,859
Underground	51,257	51,654	52,748	44,878	47,648
Used locally	6,418	6,608	6,061	6,391	6,398
Shipped	53,910	54,036	57,641	48,542	54,109
Exports	4,439	4,139	4,180	3,691	6,507
Imports	140	166	12	0.1	10
Stocks	798	329	445	130	251
Consumption	56,500	57,100	59,400	51,600	53,900
Bituminous and lignite					
Open-cut	67,203	79,685	100,898	109,987	?
Underground	515,490	510,492	518,678	467,630	?
Used locally	4,888	5,252	5,258	5,102	?
Shipped	577,805	584,925	614,318	572,515	?
Exports	22,943	25,836	26,032	27,947	41,192
Imports	498	758	634	467	435
Stocks	93,022	62,359	63,401	50,751	52,783
Consumption	542,214	596,164	591,830	559,567	500,352
Railroads	115,410	130,283	132,049	125,120	110,166
Coke ovens	100,850	102,460	105,296	95,349	82,999
Power utilities	65,636	76,403	78,887	71,603	68,739
Steel mills	10,434	11,238	10,734	10,084	8,603
Cement mills	7,570	5,851	3,789	4,215	6,969
Other industrial	137,564	147,165	136,169	131,391	122,290
Retail dealers	104,750	122,764	124,906	121,805	100,586

Ill., mine disaster and the temporary government closure of more than 500 mines for safety reasons.

Up to August there was a pronounced downward trend in the 1947 weekly bituminous production figures; in the later months production improved, but failed to come back to the January average. Through the week ending Dec. 13, the bituminous output totalled 590,455,000 short tons, an increase of 17% over the same period of 1946. The final total for the year was estimated to be 618,800,000 tons, or somewhat better than the 1944 peak.

Table III.—*United States Production of Coal, by States, 1940–46*

(Millions of short tons)

	1940	1941	1942	1943	1944	1945	1946
Alabama	15.3	15.5	19.3	17.2	18.8	18.2	15.8
Colorado	6.6	6.9	8.1	8.3	8.2	7.6	5.9
Illinois	50.6	54.7	65.1	72.6	76.8	73.0	62.6
Indiana	18.9	22.5	25.4	25.1	28.0	25.2	21.8
Kentucky	49.1	53.7	62.2	63.2	71.4	69.6	66.8
Ohio	22.8	29.3	32.8	32.3	33.9	32.7	32.8
Pennsylvania	116.6	130.2	144.1	141.0	146.1	133.0	125.2
Tennessee	6.0	7.0	8.2	7.2	7.3	6.3	6.2
Utah	3.6	4.1	5.5	6.7	7.1	6.7	6.0
Virginia	15.3	18.4	20.1	20.3	19.5	17.2	16.3
West Virginia	126.4	140.3	155.9	158.8	164.7	152.0	142.1
Wyoming	5.8	6.6	8.1	9.2	9.5	9.8	7.8
Others	23.7	24.8	27.9	28.3	28.3	26.2	22.9
Total Bituminous	460.8	514.1	582.7	590.2	619.6	577.6	532.0
Anthracite	51.5	56.4	60.3	60.6	63.7	54.9	60.5
Grand Total	512.3	570.5	643.0	650.8	683.3	632.6	592.5

Anthracite operations were interrupted only to a minor degree in 1947, but there was decided lowering of the production rate, extending over practically the whole year, and the output suffered accordingly. Through the week ending Dec. 13, the anthracite output totalled 54,516,000 short tons, a drop of 6% from the same period of 1946. The final total for the year was estimated at 57,000,000 tons.

The total output, bituminous plus anthracite, through Dec. 13, 1947, was 644,971,000 tons, and the final total for the year was estimated to be 675,800,000 tons, just under the 1944 peak.

Great Britain.—On Jan. 1, 1947, the National Coal board, under the chairmanship of Lord Hyndley, took over 1,647 coal mines, 692,000 mineworkers and 20,000 officials, 1,000,000 ac. of land, 100,000 houses, and a host of railway wagons, ships, loading depots, brickworks and ancillary services. Colliery owners would receive £164,600,000 indemnity, in addition to the £66,450,000 paid when all unworked coal was taken over by the Coal commission under the Coal act of 1938. The National Coal board set up eight divisional boards to administer the coal fields of Great Britain and under them 49 area managements in charge of groups of pits. The latter became the board's "units of management" in place of the former 850 colliery companies. Colliery managers retained their statutory powers and responsibilities under the Coal Mines (Regulations) act of 1911, and the Mines inspectorate continued to function independently. The interests of the coal consumers at home were protected by two Coal Consumers' councils (industrial and domestic).

Scarcely had the new organization been set up when the fuel crisis of February and March hit the country. In averting the worst consequences of this crisis the coal-mining industry played a notable part, practically all collieries remaining at work in spite of terrible weather and many miners working extra hours, including Sundays, to help the country through.

This was only the first of the serious setbacks. On Aug. 15 there was the tragic explosion at Whitehaven, Cumberland, in which 104 men lost their lives, and this was followed by other disasters in Durham and Yorkshire.

From Aug. 11 to Sept. 15 came the unofficial Grimethorpe strike, which, starting as a dispute over an increased daily task under the five-day week agreement, spread throughout South Yorkshire and cost the country nearly 600,000 long tons of coal.

Throughout the year, the National Coal board pressed on with short-term measures to increase coal production and also with steps designed to improve the lot of the miner and to enlist his good will, including: five-day week (with attendance bonus); payment for six statutory holidays a year; wages increase, mainly for the lower-paid miner; doubling of the welfare levy of 1*d.* per ton; relief of the miners from maintenance charges for pithead baths; comprehensive schemes for training and education; establishment of a mines medical service; reorganization of the conciliation procedure; introduction of consultative procedure at all levels down to and including the pit.

The five-day week agreement and other measures resulted in an increase in costs of production necessitating an increase in the pithead price of coal by 4*s.* a ton, bringing the total increase to 23*s.*5*d.* per ton above the 1939 average, but this represented a percentage increase still well below that of other raw material prices during the same period.

After an initial spurt in production it was found impossible to produce sufficient coal for the nation's needs in five days a week, even with the help of 710,000 tons imported from the United States and Poland; an agreement was therefore reached between the National Coal board and the National Union of Mineworkers by which the miners volunteered to work longer hours, on overtime rates, during the winter months.

This had immediate results and towards the end of the year the weekly output reached and stayed at more than 4,000,000 tons, bringing within sight the achievement of the 200,000,000 long ton target (deep-mined and opencast) for the year, and also making it possible to resume, on a small scale, the export of coal as bunkers and to coaling-stations.

Improved production in the year was assisted by smooth working of machinery for the rapid settlement of pit disputes and by the establishment of consultative committees, representing the management, the deputies and the men, at national, divisional and colliery level. Though accused of a tendency toward overcentralization, the board could point at the end of the year to an increased annual production of 6,500,000 tons; to an average output per manshift 7% higher than 1946; to an absentee rate in December 35% lower than the year before; to the increase in the industry's manpower of 26,000, compared with a net loss in 1946 of 3,000 and in 1945 of 17,000; and considerable progress in the planning of new sinkings, the modernization of suitable long-life pits, and the development of shallow drift mines.

Opencast coal continued to be worked by the ministry of fuel and power and some 197,000 tons per week were produced from this source during the year. (*See* also FUEL BRIQUETTES.)



RELATIVES of 117 trapped miners waiting for news at the William mine in Whitehaven on the northwest coast of England after an explosion in undersea mine tunnels on Aug. 15, 1947. Only 13 colliers were rescued

Canada.—Coal production declined from 17,797,747 short tons in 1946 to 14,028,113 tons through Nov. 1947, a drop of 14% from the same period of 1946. To offset the decreased output, imports were increased to 21,538,532 tons through September, 17% over the same period of 1946.

India.—Production was proceeding at a uniform rate, with 32,790,000 short tons in 1946 and 18,286,000 tons through July 1947.

Japan.—Coal production in Japan rose from 1,447,000 short tons in Jan. 1946 to 2,421,000 tons in December, and 18,762,000 tons in the first eight months of 1947.

South Africa.—Production was 26,053,000 short tons in 1946 and 16,809,000 tons in the first eight months of 1947.

Australia.—Coal output declined from 21,589,000 short tons in 1946 to 10,322,000 tons through Aug. 1947.

European Countries.—In order to show the progress in the postwar revival of coal production in Europe, there are reproduced in Table IV the monthly production figures as reported by the Statistical office of the United Nations.

Table IV.—*Data of Coal Production in Europe*

(Thousands of short tons)

	Monthly average in		Monthly output in			Months reptd. to	Total tonnage reptd.	Monthly average 1947
	1938	1945	Jan. 1946	Jan. 1947	latest 1947			
Belgium	2,717	1,240*	2,143	2,366	2,211	Sept.	20,138	2,238
Czechoslovakia	2,928	2,466	3,204	3,560	3,795	Oct.	35,367	3,537
France	4,368	2,443	4,372	5,074	5,098	Oct.	45,617	4,562
Germany	32,508	13,685	20,307	21,908	23,476	Sept.	208,872	23,208
Hungary	859	442	546	783	821	Sept.	6,888	766
Netherlands	1,254	489	711	969	1,062	Oct.	9,784	978
Poland	3,500	2,315	3,968	5,013	5,916	Sept.	47,100	5,233
Spain	519	977	991	935	960	Apr.	3,738	934
United Kingdom	21,127	17,015	15,277	16,607	18,014	Sept.	183,401	18,340

*1944.

The first two columns of Table IV show the average monthly output reported in 1938, and in the lowest year, usually 1945. Columns three, four and five show the gradual recovery of output during 1946 and 1947. Column six shows the latest month in 1947 for which output was reported, while column seven gives the 1947 output up to and including that month, and column eight gives the monthly average during these months of 1947, for comparison with the averages during preceding years.

(G. A. Ro.; N. F. Ne.; J. A. S. R.)

Coast and Geodetic Survey, U.S.

During the year 1947 activities of the coast and geodetic survey were devoted especially to carrying on surveys and investigations in coastal areas of commercial importance and in the interior where planning for development of natural resources was contemplated. It is the function of this bureau to furnish basic engineering and scientific data essential in all surveying and mapping projects and for large scale public works and construction programs. Triangulation and precise levelling were performed along the tributaries and in major river valleys for purposes of developing multiple water uses. Growing appreciation of the economic value of tying local surveys to the national network of geodetic control was indicated.

A new program of systematic tidal observations in the western Pacific and in the areas along the continental and Alaskan coasts provided original data for the prediction of ocean tides.

Magnetic projects were undertaken in the arctic and antarctic as part of navy expeditions to those regions. In the study of earthquakes, 52 strong-motion seismographs were maintained in the western part of the United States and in seven countries of the western hemisphere subject to frequent earthquakes. Six moderately strong earthquakes were recorded and the records were distributed among co-operating agencies for further study.

There was an increase in the sale of charts to the mariner and the aviator. These charts provide information for the safe navigation of surface ships and aeroplanes and are one of the major products of the bureau. A series of radio facility charts covering the entire United States was issued to provide the latest information for air navigation along the national airways. The charts were revised and reissued at frequent intervals to show existing information and were widely used by the military services and by commercial and private aviators.

Nineteen survey vessels were operated in the coastal waters of the United States and Alaska. The ships conducted hydrographic surveys and oceanographic observations for the production of navigation charts for the mariner. The use of shoran was continued with good results during the year. The equipment was used to fix the positions of soundings taken in the waters of the western Aleutian Islands and off the Atlantic coast. The coast and geodetic survey electronic position indicator designed for installation on a low-lying shoreline was successfully used for extending hydrographic surveys well offshore in the Gulf of Mexico.

To compile topographic features of coastal areas, aerial photographs were obtained and photogrammetric surveys made of nearly 2,000 mi. of Alaskan coastline; this included the shores of Bristol bay, the Aleutians and the Arctic ocean.

Under authorization of congress, the bureau participated in the program for Philippine rehabilitation by providing for the resumption of the coastal survey work in the Philippines interrupted by the war. The program included the training of Philippine citizens in the technical operations of this work both in the Philippines and in the United States. Co-operative projects for exchange of surveying and charting techniques were continued with all of the American republics participating. (*See* also CARTOGRAPHY; GEOGRAPHY; OCEANOGRAPHY.) (L. O. C.)

Coast Guard, U.S. Coast guard activities during 1947 were highlighted by the dramatic rescue in mid-Atlantic of 62 passengers and 7 crew members of the transatlantic flying boat "Bermuda Sky Queen." The plane had left Foynes, Ireland, for Gander, Newfoundland, at 3:40 P.M. on Oct. 13. En route she passed over the coast guard cutter "Bibb," stationed 800 mi. east of Argentia, Newfoundland, as an ocean weather observation vessel. After the plane had flown another 100 mi. westward, and beyond the point of no return, Capt. Charles Martin of the "Sky Queen" found that violent headwinds had eaten so deeply into his fuel supply that he could not risk going on to Gander. He decided to double back to the "Bibb" and about 7 A.M. on Oct. 14, the cutter received a report that the "Sky Queen" was returning to weather station "Charlie" for a landing. A short time later the plane was sighted and soon made a perfect landing on a sea where the waves were running as high as 35 ft.

The moderating weather which had been forecast would have reduced the hazard of rescue, but by 3 P.M. the weather had shown no signs of moderating and the plane was beginning to leak. Transfer of personnel was begun, therefore, despite the high seas that were still running. Three merchant seamen aboard the "Sky Queen" volunteered to make the first trip in a small rubber life raft, and they were picked up successfully by the cutter. A larger raft completed three more trips safely bringing survivors to the "Bibb." On the fourth trip, with 16 persons aboard, the raft broke adrift. A motor surfboat was sent to the raft's aid and both were swamped. As the surfboat began to break up, the "Bibb" moved in with seamen over the side on landing nets. By miracles of courage and effort all those on the surfboat and in the water were rescued. By this time darkness had fallen and operations were suspended with 22 persons still on the plane. Early next morning the "Bibb" radioed "all passengers and crew safely aboard" and four days later she steamed proudly into Boston harbour, a broom lashed to her masthead signifying a "clean sweep" in the rescue operation.

Ocean weather stations, such as the "Bibb" was patrolling, are mid-ocean areas 10 mi. square, station "Charlie" being located at 52° 45′ N., 35° 30′ W. This and another station at 62° N., 33° W. were the only two U.S. weather stations operating in 1947 in the North Atlantic. A third weather station was maintained in the Pacific halfway between San Francisco and Honolulu. As a member state of the International Civil Aviation organization the United States had agreed to man seven of these stations, and one jointly with Canada as soon as appropriation would permit. The stations are a joint weather bureau-coast guard operation, the coast guard providing the ships and communication facilities and the weather bureau providing the observational personnel and special equipment required. They obtain surface observations every 3 hr., winds aloft observations every 6 hr. and transmit these to the weather bureau at Washington, D.C., together with twice daily radiosonde observations. Transocean aviation interests make wide use of these reports, basing their flights on them. The weather ships also serve as a radio beacon for the high-flying air liners. As they pass overhead, often unseen in the overcast, they are picked up on the weather ship's radar screen; radio communication is established and, if they request it, they are given a radar fix as to their actual course and speed as plotted aboard the coast guard cutter. When all 13 weather stations, United States and foreign, called for by international convention, are fully manned and equipped, no aircraft flying the Atlantic would ever be more than one and one-half hours' flying time from a source of rescue, and it would be possible to run a constant plot on all transatlantic planes during the entire time they were over water.

The "Sky Queen" rescue was one of a number of less-spectacular coast guard search and rescue activities which, during the fiscal year 1947, resulted in 5,755 lives being saved or persons rescued from peril. Brought into action by about 1,000 calls for assistance received each month in the eastern area of the U.S. alone, 180 lifeboat stations, 10 air stations, with 110 aircraft, and more than 2,000 vessels of all sizes, were able to carry out instant and systematic search and rescue procedure. In March the entire crew of a collier, wrecked off Cape Elizabeth, Me., was brought ashore by breeches buoy from a coast guard station. In October, coast guard vessels carried hundreds trapped by a forest fire at Bar Harbor, Me., to safety on the mainland. In November, coast guard planes dropped food and survival gear to 41 survivors of a vessel shipwrecked in Belle Isle straits. In December, two cutters went to the assistance of the "S.S. Michael" aground off Cape Charles, Va. The vessel, afloat later and under her own power, was escorted to Hampton Roads, Va. There were 1,074 flood rescues on the Mississippi and tributaries. Twenty-six coast guard radio stations, which supplemented land telephone lines and submarine cables operating along the coast, formed a constantly alerted system of communications, connecting land, sea and air units instantly effective in every maritime emergency.

During May and June, the coast guard cutter "Mendota" conducted the 1947 International Ice patrol. Ever watchful for icebergs which drift into the transatlantic shipping lanes in the

Grand Banks area, the cutter detected only 37 icebergs and growlers in what was one of the "leanest" years of ice occurrence on record.

The ice-breaking cutter "Mackinaw," cruising more than 9,000 mi. on the Great Lakes, helped free 641 lake carriers from the ice during the late winter and early spring. Thousands of tons of iron ore thus reached their destination at eastern blast furnaces earlier in the open season, augmenting thinning stock piles. Meanwhile, the icebreaker "Northwind" led a navy scientific expedition through south polar ice to Antarctica.

Coast guard emergency communications trucks were in contact with outside points 20 min. after the explosion at Texas City, Tex. Later other units engaged in fire-fighting and assistance work during the disaster. After a coast guard investigation, a special interagency committee appointed by the secretary of the treasury recommended steps to be taken for the handling of ammonium nitrate with greater safety.

In the interests of greater maritime safety the coast guard maintained 36,465 aids to navigation. These included lightships, lighthouses, buoys, daymarks, fog signals and radio beacons. Thirty-seven Loran stations located at widely separated points from Labrador, around the coasts of the United States and into the Pacific as far as Japan, assisted surface and air craft to determine their longitude and latitude at all times and under all weather conditions through a pulse radio transmission system. At the same time 14 Racon, or radar beacons, gave distance and bearings to aeroplanes or ships within 120 mi.

During 1947 the coast guard operated 307 cutters, ranging in length from 65 ft. to 327 ft. These included icebreakers, patrol craft, ocean-going tugs, cargo ships, buoy tenders, cable layers, harbour tugs and patrol boats.

In addition it had 1,740 motorboats in service ranging in length from 10 ft. to 65 ft.

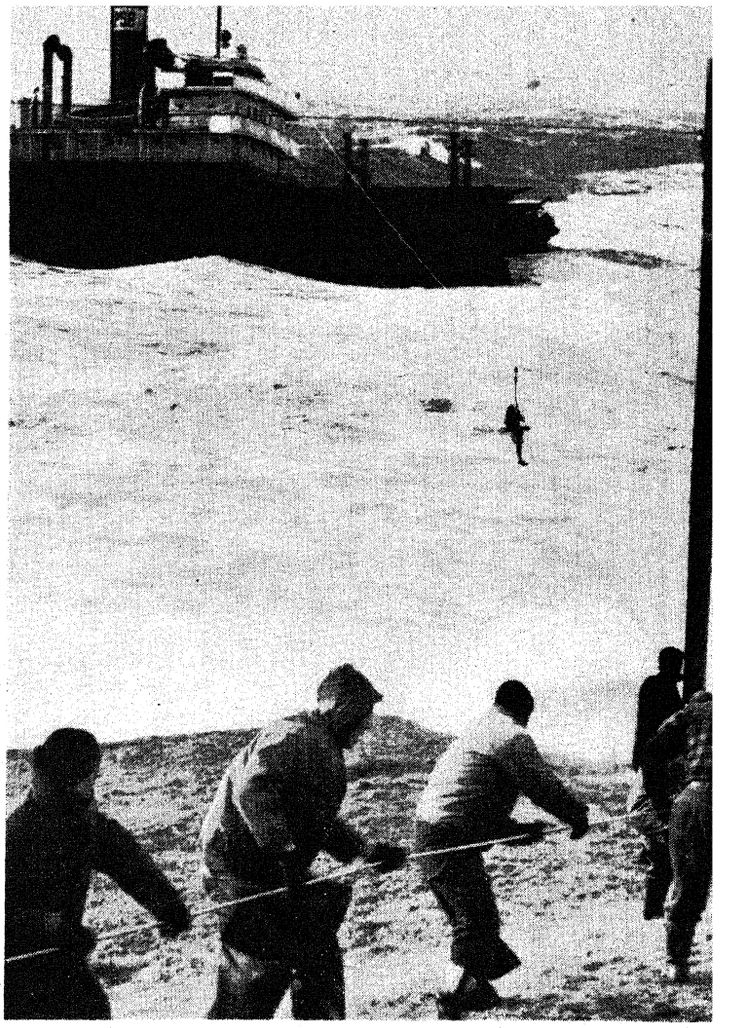
Among its 18,714 military personnel were 848 regular commissioned officers, 775 temporary service officers, 572 regular reserve officers, 227 cadets, 532 chief warrant and warrant officers and 15,760 enlisted men.

There were 4,535 civilian employees.

U.S. Coast Guard Academy.—The U.S. Coast Guard academy at New London, Conn., founded in 1876, is an institution of higher learning for the training of commissioned officers for the coast guard. Its present home, overlooking the Thames river, was constructed in 1932, with additions made just prior to World War II. The red brick, Georgian colonial buildings centre around the administrative building, Hamilton hall, named after Alexander Hamilton, first secretary of the treasury and founder of the coast guard in 1790.

At the end of 1947 there were 332 cadets. Entrance is restricted to unmarried men between 17 and 22 years of age, and appointments are obtained through competitive examinations. While emphasis is placed on a practical program in which engineering, navigation, seamanship, tactical signal drills and damage control drills are featured in a 21-week program, utilizing three training vessels, standard college courses in mathematics, languages and physical education complete a well-rounded curriculum. The academy confers upon its graduates the bachelor of science degree in engineering and a commission as ensign in the U.S. coast guard. About 100 cadets are graduated each year. (J. F. Fv.)

Cobalt. In the years prior to World War II Northern Rhodesia was the major producer of cobalt, but in late years about half of the world output has come from Belgian Congo. While the United States is the third largest producer, its output is limited to a few hundred tons a year. War demand brought the world total to about 6,600 short tons in 1945, an increase of about 50% over the normal output.



U.S. COASTGUARDSMEN and volunteers using a breeches buoy to bring a crew member to safety off Cape Elizabeth, Me., after a storm wrecked his vessel in March 1947

The consumption rate for cobalt in the United States during 1947 was about 2,000 to 2,200 short tons annually, about one-third of which went into the production of magnet steels. Other prominent uses were in stellite and related alloys, ceramic frits and enamels, and salts and driers. (G. A. Ro.)

Cochin-China: *see* FRENCH OVERSEAS TERRITORIES.

Cocoa (CACAO). The supply of cocoa for the year 1947–48 was estimated at about 643,000 tons by the International Emergency Food council in Oct. 1947. The U.S. cocoa market was thrown into disorder when OPA control ended with the price at 14.95 cents per pound. Prices advanced to the unprecedented peak of 49 cents per pound—about 900% above the 1939 price. This advance was said to be due to speculative buying, when United States supplies were short, from the West Africa crop, controlled by the British Cocoa Control board, as well as from Brazil. Allocations of 429,300 tons by the International Emergency Food council in Oct. 1947 included 184,000 tons to the United States.

The United States remained the world's largest consumer of cocoa, with Britain second and France third. During the year ending Oct. 1, 1947, the U.S. received a total of about 270,000 tons. The West Africa production of cocoa for 1947–48 was reported as about 10% higher than a year earlier. (J. C. Ms.)

Coconuts (COPRA). Imports of products of the coconut, copra or nut meat and oil, into the United States

increased rapidly during the 1946–47 fiscal year. A total of 1,304,000,000 lb. of copra was imported to July 1, 1947, compared with 314,152,000 lb. in 1946; 16,336,000 lb. of coconut oil were imported, compared with 10,181,000 lb. in 1946. An allocation equivalent to about 966,000,000 lb. of copra was made to the United States by the International Emergency Food council for the year 1947–48.

Prices of copra advanced sharply in 1947 to nearly $200 per ton—more than double the record of 1920, when world production was beginning to expand. Coconut oil advanced in a similar manner, from about 7 cents per pound in 1940 to 20 cents in 1947. Production was rapidly increasing in the Philippines and Netherlands Indies. (J. C. Ms.)

Coffee. The supply of coffee in the United States in 1947 was ample to meet all demands, but prices advanced slightly with the general price rise. Imports to July 1947 were slightly less than a year earlier—2,471,633,000 lb. compared with 2,860,487,000 lb. in the year ending July 1946.

World coffee production in 1947–48 was expected to reach 40,086,000 bags, compared with 37,500,000 bags in 1946–47. About 31,000,000 bags of the new crop were expected to be exportable, and Brazil had at least 3,000,000 bags of old coffee on hand.

The Brazil crop was estimated at about 16,600,000 bags, largest since 1939.

Production in Colombia was estimated at 6,500,000 bags, of which about 6,000,000 (50% above prewar) would be available for export. Brazil and Colombia together produced two-thirds of the world's total crop; very little coffee was exported from India or the Netherlands Indies.

World coffee consumption was expected to be about 28,502,000 bags in 1947–48.

Coffee consumption in the United States increased during World War II but later declined; stocks were large throughout 1947. Per capita consumption was estimated at 18 lb. green basis compared with 19.3 lb. in 1946. In Europe only 60% as much coffee was used during the war as previously, and European countries were buying as little as possible in 1947. Colonial nations bought all they could to acquire foreign exchange. Prices declined in all markets but were still high enough to encourage production in Brazil. (*See* also BRAZIL.)

(J. C. Ms.)

Coinage. The three United States coinage mints located at Philadelphia, Pa., San Francisco, Calif., and Denver, Colo., manufactured a total of 1,174,017,781 domestic and foreign coins during the calendar year 1947.

United States coin production was valued at $48,043,575.50 and consisted of the following denominations:

Denomination	Pieces
Half dollars:	
Regular issue	7,994,600
Booker T. Washington commemorative	300,051
Quarter dollars	43,426,400
Dimes	203,195,000
Five-cent pieces	157,542,000
One-cent pieces	484,305,000
Total domestic	896,763,051

The composition of half dollars, quarter dollars and dimes was 90% silver and 10% copper; five-cent coins, 75% nickel and 25% copper; and one-cent coins, 95% copper and 5% zinc and tin in conformity with the United States coinage laws.

Foreign coinage during 1947 totalled 277,254,730 pieces of various denominations and alloys for nine governments, namely —Colombia, Dominican Republic, Ecuador, El Salvador, Ethiopia, Panamá, Philippines, Saudi Arabia and Venezuela.

In addition to the coinage mints, four other mint service institutions were in operation in 1947—assay offices at New York city and Seattle, Wash.; gold bullion depository at Fort Knox, Ky.; and silver bullion depository at West Point, N.Y. The entire mint service is administered by the director of the mint, with administrative offices in Washington, D.C.

The United States government gold and silver holdings in custody of the several mint service institutions on Dec. 31, 1947, were as follows: Gold bullion, 650,107,101 fine troy ounces which, with a value of $35 a fine ounce, totalled $22,753,748,547; silver bullion amounted to 1,682,613,624 fine troy ounces. The mint institutions were in custody of additional values consisting of silver and minor coins running into several millions of dollars.

At the Philadelphia mint many medals and decorations were produced in 1947 for the armed forces, consisting chiefly of World War II victory medals, American defense medals and others. Special gold medals awarded by the congress were made for General George C. Marshall, General John J. Pershing, the late General William Mitchell and Admiral Ernest J. King. (*See* also DECORATIONS, MEDALS AND BADGES—MILITARY, NAVAL AND CIVIL.) (N. T. R.)

Coke. In Table I below are presented the coke outputs of the major producing countries and the estimated world total, so far as data were available for late years.

Table I.—World Production of Coke

(Thousands of short tons)

	1942	1943	1944	1945	1946
Australia	1,838	1,772	1,562	1,188	?
Belgium	4,858	4,862	2,257	2,071	4,251
Canada	2,796	2,987	3,546	3,316	2,850
Czechoslovakia	4,287	4,497	4,991	?	?
France	5,521	5,500	3,206	2,762	5,467
Germany	56,590	58,159	58,863	?	?
Great Britain	16,688	16,186	15,771	15,664	15,665
India	2,075	1,740	1,550	?	?
Italy	1,839	2,200	?	?	?
Japan	6,440	5,292	4,144	?	?
Netherlands	2,135	2,095	?	?	?
U.S.S.R.	6,708	8,599	10,929	14,300	?
United States	70,569	71,676	74,037	67,308	58,498
Total	188,213	191,928	191,179	126,708	129,453

United States.—Salient data on the production and consumption of by-product and beehive coke in the United States are shown in the following table.

Table II.—Coke Production in U.S., 1941–46

(In thousands of short tons)

	1941	1942	1943	1944	1945	1946
Production	65,187	70,569	71,676	74,038	67,308	58,498
By-product	58,482	62,295	63,743	67,065	62,094	53,929
Beehive	6,704	8,274	7,933	6,973	5,214	4,568
Breeze made	4,555	4,752	4,941	5,116	4,721	4,308
Coal charged	93,138	100,850	102,460	105,296	95,672	83,527
Consumption, total	64,944	70,107	71,407	72,971	66,074	57,322
By iron furnaces	49,470	54,695	56,701	57,072	50,653	43,098

Strikes in the steel and coal industries during the first half of 1946 cut the coke output to far below its normal level.

As a result, coke output for 1946 was 13% less than that of 1945 and 22% less than the peak of 1944.

There was a marked improvement in production in 1947, with a total production of 60,250,276 short tons of by-product and beehive coke in the first 10 months of the year, equivalent to a rate of 73,200,000 tons for the year. This 10-months' total included 54,840,633 tons of by-product coke and 5,410,043 tons of beehive coke.

In addition to the oven coke already reported, there were in 1946 the following outputs of other varieties of coke: 131,194 tons of low temperature coke accompanied by 14,490 tons of breeze, and 753,335 tons of gashouse coke accompanied by 96,819 tons of breeze.

The total coke output of all kinds in 1946 amounted to 59,382,377 tons, accompanied by 4,419,576 tons of breeze.

Canada.—The Canadian coke production decreased from

3,862,000 short tons in 1945 to 3,314,000 in 1946. Conditions improved somewhat in 1947 with a total of 2,600,000 short tons in the first nine months, against 2,402,000 tons in the same period of 1946. Imports play a large part in the Canadian coke industry, since 70–80% of the coal used is imported, and in addition coke is imported to the extent of about one-third of the local production. (G. A. Ro.)

Cold, Common. Large-scale attacks on the problem of the common cold were under way in 1947 at the National Institute for Medical Research in England, the National Institute of Health at Bethesda, Md., and Western Reserve Medical school in Cleveland, O.

The chief problems were to classify the apparent group of similar disease entities which compose what is called the common cold and to isolate the cause or causes—presumably viruses. According to current views in 1947, several distinct diseases give rise to symptoms of the common cold, but they are clinically indistinguishable, unless their special characteristics emerge when many patients are seen at once in an epidemic. These diseases were classified tentatively thus: (1) the common cold; (2) exudative pharyngitis; (3) a mild epidemic disease of which the viral pneumonias are the severe forms and (4) true influenza, the cause of which is now known. Another new entity was delineated and called acute respiratory disease. Once the various entities were accurately grouped and their causes determined, further advances might be expected in methods for their prevention and treatment.

During 1947 the customs of prevention and treatment were critically reviewed. It was obvious that much nonsense still prevailed, chiefly because of habit, tradition and the desire "to do something." So long as no injury was done and so long as the normal progress of recovery was not impeded, these procedures were harmless, but many involved needless expense. Nothing in a practical way could be done to prevent these diseases, except influenza, for which a vaccine had become available. Studies showed that colds are fewer among groups of persons living in atmosphere into which certain aerosols are sprayed or in which the air is irradiated with ultra-violet light, but neither of these procedures was available for practical use. The same could be said for the use of gamma globulin when injected into the muscles.

Many measures used for the treatment of colds have no beneficial effects except perhaps psychic ones. The use of cough syrups, antiseptic sprays or gargles, poultices, foot baths, expectorants, vitamins, cathartics, diuretics, agents to cause sweating or to reduce fever, and ultra-violet light have no value in shortening colds or in curing them. Some of these measures may be harmful.

In 1947 the measures considered most comforting during colds were rest, warmth, a normal amount of food and drink and regular elimination. Warm drinks and small amounts of alcohol provide relaxation, aspirin is helpful for aching, and lozenges or codeine relieve severe coughing. Nasal congestion and running nose are relieved by sprays of vasoconstrictive agents, but they should be used as seldom as possible and only to the point of opening the airways. Inhalation of steam containing camphor or other volatile substances gives similar relief.

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Colleges and Universities: *see* UNIVERSITIES AND COLLEGES.

Colombia. A republic situated in northwestern South America adjoining the Isthmus of Panama. It is the only South American country with both Caribbean and Pacific coast lines. Area: 439,714 sq.mi.; pop. (1946 est.): 10,342,519. Approximately 68% of the population is classified as mixed blood, 20% as white, 7% as Indian and 5% as Negro. Most of the inhabitants live in the highlands and mountain valleys of the interior. The capital is Bogotá (pop. in 1945, 443,520). Other principal cities are Barranquilla (206,630), Bucaramanga (66,220), Cali (135,610), Cartagena (101,520), Cúcuta (72,440), Ibagué (78,970), Manizales (109,820), Medellín (219,790), Neiva (38,270), Pasto (60,070), Popayán (34,550), Santa Marta (41,310) and Tunja (25,380). Language: Spanish; religion: predominantly Roman Catholic. President in 1947: Mariano Ospina Pérez.

History.—The year 1947 brought renewed grief to the Conservative administration as congressional, state and municipal elections returned majorities for the Liberal party. The economic and social situation was marked by stringent new trade controls to offset a critical shortage of foreign exchange credits and by vigorous protests from labour against the rising cost of living.

In the congressional elections of March 16 (in which senators were elected by direct vote for the first time), the Liberals were divided between the leadership of the extremist Jorge Eliécer Gaitán, unsuccessful presidential candidate in 1946, and the moderate Eduardo Santos, a former chief executive. The balloting, however, gave them control of both houses of congress for the second consecutive year. Receiving a total of 801,341 votes, the Liberals won 35 seats in the senate and 74 in the chamber while the Conservatives, polling 650,840 votes, elected 28 senators and 27 deputies.

The cabinet resigned after the elections to allow a more representative membership, and Pres. Ospina Pérez's new appointments included an equal number of ministers from each party. When the new congress convened on July 21, the Liberal majority elected Dr. Gaitán president of the senate and César Ordóñez Quintero, another extremist, president of the lower house.

On Oct. 5, municipal elections throughout the country gave the Liberals a majority in 472 city councils and the Conservatives control of 307, but the Liberal victory was by the narrow margin of 13% of the 1,309,534 votes cast, and 135 councils formerly dominated by the Liberals passed over to the administration's party.

On Oct. 26, Dr. Gaitán was formally endorsed as the 1950 presidential candidate of the Liberal party. In November, the territory of Choco was admitted as the 15th state of the nation.

In the United Nations security council, Colombia's representative formally denied that a Hispanic-American bloc was being formed to control the international balance of power. An agreement was signed in March with the intergovernmental committee on refugees to admit an unspecified number of European immigrants into Colombia. At Washington, D.C., in March, former President Alberto Lleras Camargo was elected director general of the Pan American union, and at Bogotá preparations were made for the Inter-American conference scheduled to meet there in 1948 to discuss military, social and economic matters not considered at the 1947 conference in Rio de Janeiro.

A formal suggestion by the United States that the special privileges of the Grand Colombia fleet constituted discrimination against U.S. shipping aroused popular demonstrations in September which damaged the U.S. embassy at Bogotá. The administration apologized for the incident and offered indemnities, but the chamber of deputies resolved to insist on maintaining Colombia's navigation system.

A precarious economic situation arising out of an unfavourable balance of trade was reflected in the rapidly rising cost of living in Bogotá. The general retail price index (100 in Feb. 1937) was 231 in January and 252.2 in July. As a protest, organized labour struck for higher wages in several localities, and on May 13, the Colombian Federation of Workers declared a 24-hr. general strike. This demonstration only partially halted normal business activity, and the federation was temporarily suspended for its efforts. The government did create a new price-control agency, with powers to ration, and tried with little success to alleviate the dollar shortage by establishing monthly quotas and priority lists for imports. In its long-range drive for centralized control of key industries, the government created national boards in 1947 for the administration of petroleum, water utilities, telecommunications and aviation.

Increased control over civil aeronautics followed a series of five commercial air line disasters during the first three months of the year, the most serious costing 53 lives when a four-engine air liner crashed into the peak of Mt. El Tablazo on Feb. 15. Other disasters during the year included three earthquakes which shook the city of Pasto in July, injuring seven, and the collapse of a suspension bridge at Pauna in December which killed 120 persons.

Education.—In 1945, 12,147 elementary schools reported enrolments totalling 788,143 pupils with 23,432 teachers; 1,830 secondary and vocational schools listed 94,669 students and 7,825 teachers (1,421 elementary and 606 other schools not reporting). There were six public and two private universities. Approximately 7.4% (14,733,953 pesos) of the 1945 national budget was allocated to public education. As of Jan. 1, 1947, there were 430 motion-picture theatres with a seating capacity of 250,000.

Finance.—The monetary unit of Colombia is the peso, valued officially on Sept. 30, 1947, at 56.98 cents U.S. The preliminary budget for 1948 provided for expenditures of 320,500,000 pesos (291,695,159 pesos in 1947). For the first four months of 1947 the fiscal deficit was $11,764,000. The national debt as of May 31, 1946, was 269,129,235.30 pesos, internal; 420,279,960.58 pesos, external. On Jan. 1, 1947, money in circulation amounted to 662,000,000 pesos; savings bank deposits, 88,000,000 pesos; commercial deposits, 498,000,000 pesos. Gold and foreign exchange holdings by the national bank totalled $151,000,000 on April 30, 1947.

Trade.—Exports for 1946 were valued at $200,900,000 ($140,566,000 in 1945) while imports totalled $230,000,000 ($160,555,000 in 1945). The United States took 78% and supplied 63% of the trade. During the first seven months of 1947, exports amounted to $129,200,000 and imports, $217,900,000. Coffee shipments in 1946 established a new record, 5,661,463 bags of 132 lb., and August estimates placed the 1947 exports at 6,500,000 bags. Other important shipments were petroleum, gold, silver and platinum; imports were chiefly manufactured goods and construction materials.

Communications.—In 1945 there were 2,159 mi. of railways, 9,850 mi. of improved highways, 4,620 mi. of navigable rivers, 72.5 mi. of aerial cables and 41 airports. Registered motor vehicles included 15,306 automobiles, 3,738 buses and 10,062 trucks. Air, rail and highway transportation continued to expand rapidly in 1947, but oceanic commerce was hampered by severe fire damage to the Pacific port of Tumaco and silt clogging of the Caribbean port of Barranquilla. Plans were announced in December for port improvements costing 46,000,000 pesos.

In 1945 there were 28,842 mi. of telegraph and 103,826 mi. of telephone lines, exclusive of municipal services. In 1946 there were 112 private radio broadcasting stations in addition to the national transmitter. In 1947 the national government planned more than 3,000 mi. of new telephone and telegraph lines with modern automatic equipment.

Agriculture.—The basic industry of Colombia is agriculture, and coffee is the main commercial crop. The 1946–47 coffee yield amounted to 6,500,000 bags (5,478,000 bags for 1945–46). Other crops (with 1946 production figures) are: corn (25,408,000 bu.), potatoes (16,902,000 bu.), wheat (65,000 tons), rice (3,999,000 bu.), cotton (22,000 bales), tobacco (40,785,000 lb.), sugar (96,000 tons), rubber (1,845,250 lb.) and cinchona bark (12,500 lb.). In 1945 livestock estimates included 12,334 cattle, 1,000,000 sheep, 2,500,000 hogs and 630,000 goats.

Manufacturing.—The leading manufacturing industries are foodstuff processing, textiles and beverages. In 1945 industrial establishments totalled 7,853, capitalized at 399,940,643 pesos and employing 135,400 persons at pay totalling 641,081,498 pesos.

Mineral Production.—The chief extractive industries (with 1945 production figures) are petroleum (22,825,026 bbl.), gold (506,695 troy oz.), silver (168,699 troy oz.), platinum (34,757 troy oz.), salt (90,627 tons) and cement (302,730 tons). In 1947 petroleum production was estimated at 24,966,000 bbl. (22,119,000 bbl. in 1946). Gold mining slumped during the year as production costs rose without a corresponding rise in the price of the metal.

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Colorado. A Rocky mountain state of the United States, in the west-central part; mean elevation above sea level, 6,800 ft., the highest of any state. Admitted to the union in 1876 as the 38th state and known as the "Centennial state." Area 104,247 sq.mi., including 280 sq.mi. of water surface. The U.S. owns 34.5% of the total land area and 59.3% is in private ownership, the remainder belonging to state, county and municipal governments.

The central and western portions are mountainous and the eastern half consists of rolling plains.

Population (1940) 1,123,296; 52.6% urban, 47.4% rural; 93.6% native, 6.4% foreign-born; white 98.5%, Negro 1.1%, other .4%; 102.6 males per 100 females. The 1940 census reported 2,734 Japanese, the largest in number of all races other than white and Negro. On July 1, 1947, the bureau of census estimated the civilian population at 1,159,000, a gain of 3.2% from 1940. Capital, Denver (1940 census, 322,412) 1947 est. (metropolitan district) 471,000; other cities, Pueblo (52,162) 1947 est. 63,800; Colorado Springs (36,789) 1947 est. 45,000; Greeley (15,995) 1947 est. 19,000.

History.—The 36th general assembly met in regular session from Jan. 1 through April 18, 1947. The first major action taken was the adoption of two public health bills; one reorganized the state department of public health and greatly enlarged the powers and duties of the department concerning such matters as the control of disease, the rendering of public health services, sanitation and sewage inspection, etc.; the other provided for the optional creation of district or county health departments.

To promote highway safety, the uniform financial responsibility bill was enacted, the personnel of the Colorado state patrol increased, a highway safety council was created and a state radio system authorized. The gasoline tax was increased from four cents to six cents per gallon to finance an enlarged highway construction program, covering not only state highways but county roads and city streets as well.

In the field of public welfare legislation, amendments made to the old age pension laws resulted in the payment of a maximum pension of $69 per month, the highest in the U.S. Aid to indigent residents afflicted with tuberculosis was increased, as were allotments of funds for dependent children and the blind.

To aid veterans, the duties of the state department of veterans' affairs were extended, the appropriation for the department greatly increased and its work co-ordinated with county veterans' officers. Municipalities were authorized to set up housing authorities and to give veterans preference in all housing constructed or acquired.

Increased state aid was given to schools, mainly for teachers' salaries, financed by an increase in the state income tax rates and in the ad valorem property tax. State employees' salaries were raised and for the first time based upon a classified salary plan. Workmen's compensation and unemployment compensation benefits were increased. In a series of 23 bills a 10-year building program for state institutions and agencies was authorized, to be financed by a mill levy on property.

Finally, the legislature referred to the people, to be voted on at the 1948 election, a measure providing for the racing of horses and other animals and legalizing pari-mutuel wagering at such race meets.

Education.—The 1947 legislature made appropriations of $2,150,000 for county school tax replacement and $6,000,000 for equalization and general participation. These direct appropriations, in addition to about $800,000 earned income from public school lands, provided roughly $9,000,000 for state support of Colorado schools.

The 1947 census of school population including ages of 6

through 21 years was 295,537, compared with 297,281 on the 1946 census.

Social Insurance and Assistance, Public Welfare and Related Programs.—Disbursements from the state public welfare fund in 1946 amounted to $30,137,775.34. A total of 40,692 persons received a monthly average old age pension payment of $41.49. In Jan. 1947 each pension recipient received a bonus of $220.80. Total pensions paid in 1946, including burials and 1946 bonus, amounted to $23,463,499. Allotments of state and federal funds for 10,027 aid to dependent children recipients were $2,022,077.31; 441 blind recipients received $162,090.32. Federal grants in 1946 for the above programs, including grants for child welfare services, amounted to $10,146,667.04. Allotments of state funds for general assistance to supplement county funds totalled $974,096.03. Tuberculosis allotments (matched 50% by counties, 50% by state funds) $114,724.98. Miscellaneous, including grants-in-aid for child care, and federal funds for child welfare administration, commodity distribution, etc., $56,109.33.

Communications.—Construction on the state highway system in 1947 was the greatest in history. Of the system's 12,416 mi., 4,045 were federal aid primary, 3,345 mi. were federal aid secondary and 5,026 mi. were state roads. City streets totalled 3,133 mi.; county and local roads 63,161 mi.; national forests roads 788 mi.; toll roads 8 mi.; total 79,506 mi. There were 24 railroads operating with 3,883 mi. of main line track. On July 1, 1947, the number of certified aircraft had increased to 1,088. There were 6 scheduled air lines serving the state; 93 designated airports and landing fields. As of June 21, 1947, Colorado had 321,165 telephones in use.

Banking and Finance.—As of Dec. 1946, there were 77 national banks and 65 state banks. Deposits in all banks at the close of 1946 amounted to $1,088,460,000. Clearing in Denver, Pueblo and Colorado Springs aggregated $4,393,339,745.03. The unexpended balance in the treasury on June 30, 1947, was $44,875,379.23, the largest on record. General revenue in the fiscal year of 1946 was $103,194,083.88. All expenditures, including functional services, debt services and transfers amounted to $100,574,449.36. Debts—bonded, $590,000; anticipation warrants, $12,315,000; warrants—cash and general revenue, $2,488,623.27. Investments totalled $26,701,510.29, which, plus an unexpended balance June 30, 1947, of $44,875,379.23 made a total of $71,576,889.52.

Agriculture.—New production records were established in 1947. Hay and roughage were ahead of 1946 and the 10-year average and the crops of peaches and beans were unusually large. Sugar beets harvested yielded 2,386,000 tons, a substantial increase over 1946. Farm wages were at a record high. Colorado marketed $20,000,000 worth of farm truck crops through the marketing agencies and Marketing act. Prices received by farmers for farm products in 1947 were higher than the 10-year average from 40% on fruits and vegetables to 120% on bean products.

Table I.—*Leading Agriculture Products of Colorado, 1947*

Crop	Unit	Indicated Yield 1947
Corn	Bu.	13,756,000
Wheat	"	39,245,000
Barley	"	13,856,000
Oats	"	3,350,000
Dry beans	100# bags	2,126,000
Sugar beets	Tons	2,386,000
Tame hay	Tons	1,760,000
Broomcorn	Tons	12,468,000
Potatoes	Bu.	20,626,000
All sorghum (grain)	"	1,850,000
Peaches	"	2,238,000
Apples	"	1,120,000

Manufacturing.—Colorado ranks high among the states in the manufacture of many commodities: beet sugar, chemicals, cement, coke, rubber products, mining machinery (in which Colorado is a leader in the world), canned fruits, vegetables, coffee roasting and grinding. It was estimated that in 1947 there were 1,500 industries in Colorado employing 57,800 workers, annually turning out an industrial product valued at $665,000,000.

Mineral Production.—Mining is Colorado's chief industry. It is a major gold-producing state and the largest producer of vanadium in the world. Colorado leads the entire world in the production of molybdenum and is among the first in the production of vanadium and uranium.

Table II.—*Mineral Production of Colorado, 1946 and 1945*

	Value 1946	Value 1945
Gold—placer and lode	$4,991,455	$3,532,725
Silver	1,810,042	1,583,488
Copper	568,296	400,950
Lead	3,713,848	2,931,568
Zinc	8,774,200	8,227,790

The production of coal in Colorado was 5,928,823 tons in 1946 compared with 7,653,979 tons in 1945. (P. AE.)

Colorado, University of.

The 1947 fall enrolment consisted of 8,700 on the Boulder campus, 500 in the medical and nursing schools in Denver, 2,500 in extension classes in Denver and other Colorado cities, and 5,000 in the correspondence school; a total of 16,700 individuals. Five out of six of the new dormitory buildings were completed, the total cost of the project amounting to $3,000,000. Approximately $400,000 was received from outside sources to support 90 research projects. The Bureau of Business Research compiled studies for state communities indicating the kind of industry the areas could support. The Division of Industrial Hygiene reduced industrial hazards and worked on ways of improving health of workers. In the Engineering Experiment station, 15 research projects were conducted on the Boulder campus, including experiments in solar heating which were expected to have an important effect on low-cost housing. The Child Research council work at the university medical centre in Denver was regarded as one of the most significant developments in the field of pediatrics. The university was one of 52 colleges and universities selected for the naval reserve officers' training corps educational program. A two-year program of cosmic-ray research was begun in June 1947. In December the university joined the Missouri Valley Intercollegiate Athletic association, which includes the universities of Kansas, Nebraska, Missouri and Oklahoma, Kansas State college and Iowa State college. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.)

(R. L. ST.)

Colour Photography: *see* MOTION PICTURES; PHOTOGRAPHY.

Columbia, District of: *see* WASHINGTON, D.C.

Columbia University.

An institution of higher learning in New York city. The budget appropriation for the academic year 1946–47 was $21,876,616.96. At a special meeting of the trustees on June 24, 1947, Gen. Dwight D. Eisenhower was elected 13th president of Columbia, to take office upon the termination of his service as chief of staff of the U.S. army; it was expected that General Eisenhower would assume his duties on June 7, 1948. Dr. Frank D. Fackenthal, acting president, became chairman of the trustees' committee on education. Upon the retirement of Virginia Crocheron Gildersleeve as dean of Barnard college, she was succeeded by Mrs. Millicent Carey McIntosh. The affiliation of Columbia with the New York Post-Graduate Medical school and hospital

was terminated during the year, and the university announced its affiliation, for purposes of medical instruction, with three hospitals in Cooperstown and New York city. A large cyclotron for experimental work in nuclear fission was being erected by the university at the Hamilton estate, Nevis, at Irvington-on-Hudson, N.Y. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.)

(M. H. T.)

Columbium. The production of columbium ores in the United States is relatively small—3,208 lb. in 1944 and 1,149 lb. in 1945, with 1946 production not yet reported at the close of 1947. The demand is met almost entirely from imports, which amounted to 1,842 short tons in 1944, 2,139 tons in 1945 and 1,213 tons in 1946, mainly from Nigeria. (G. A. Ro.)

Comets: *see* ASTRONOMY.

Cominform: *see* COMMUNISM; UNION OF SOVIET SOCIALIST REPUBLICS.

Commerce: *see* BUSINESS REVIEW; INTERNATIONAL TRADE.

Commerce, U.S. Department of: *see* GOVERNMENT DEPARTMENTS AND BUREAUS.

Commerce Commission, Interstate: *see* INTERSTATE COMMERCE COMMISSION.

Committee for Economic Development.

The Committee for Economic Development was formed late in 1942 by U.S. businessmen to plan during World War II for quick conversion, and the attainment of a new high level of peacetime production and employment after victory.

Originally C.E.D. was set up in two divisions. One, the field development division, was formed to stimulate planning at the grass roots toward the above objectives. The national field development division helped organize 2,900 local committees with 70,000 businessmen serving as volunteer members.

The other, the research division, sought through objective study to determine what policies of government, business, labour and agriculture would contribute best toward the attainment and later the maintenance of high national levels of peacetime production and employment.

Early in 1946, six months after final victory, work of the field development division was terminated, its task of helping to achieve high employment having been largely completed.

On the basis of a comprehensive survey of results, C.E.D. was able to report to President Harry S. Truman in Sept. 1945, that within 12 months the United States would have 58,000,000 gainfully employed workers, and hence that no prolonged period of serious unemployment was to be expected during the transition from war to peace. The accuracy of this report was shown just one year later when the U.S. census bureau reported 58,370,000 such workers.

In 1947 all of the activities of C.E.D. were directed toward the central target of a more stable dynamic economy with high-level employment and production. The objective, which the C.E.D. considers to be practical and obtainable, is a reduction in the cyclical business swings from a maximum of 50% to between 15% and 20%. If achieved, it could bring about a doubling of the average standard of living in the next 25 years.

The procedures followed by C.E.D. in its research activities consist of four steps. These are: (1) selecting for study those factors which have important impact upon employment and business stability; (2) designating the economists and businessmen who are to undertake each study and whose first step is to gather all pertinent facts; (3) sifting the facts by subjecting them to intensive discussion by the economists and businessmen and (4) integrating the facts into suggested policies for action and submitting the recommendations to the public.

Up to the end of 1947, 13 statements on national policy were produced and distributed by the C.E.D. Research and Policy committee of businessmen. These statements and the date of their issue follow:

Postwar Employment and the Settlement of Terminated War Contracts (Oct. 1943); *Postwar Employment and the Liquidation of War Production* (July 1944); *Postwar Federal Tax Plan for High Employment* (Sept. 1944); *Postwar Employment and the Removal of Wartime Controls* (April 1945); *International Trade, Foreign Investment and Domestic Employment* (May 1945); *The Problem of Changeover Unemployment* (Aug. 1945); *Toward More Production, More Jobs and More Freedom* (Nov. 1945); *Agriculture in an Expanding Economy* (Dec. 1945); *The End of Price Control—How and When?* (April 1946); *Fiscal Policy to Fight Inflation* (Sept. 1946); *Collective Bargaining: How to Make It More Effective* (Feb. 1947); *Meeting the Special Problems of Small Business* (June 1947) and *Taxes and the Budget: A Program for Prosperity in a Free Economy* (Nov. 1947).

During the same period 11 research reports also were completed for C.E.D. by independent scholars. These statements and their authors follow:

The Liquidation of War Production, by A. D. H. Kaplan; *Demobilization of Wartime Economic Controls*, by John Maurice Clark; *Providing for Unemployed Workers in the Transition*, by Richard A. Lester; *Production, Jobs and Taxes*, by Harold M. Groves; *International Trade and Domestic Employment*, by Calvin B. Hoover; *Agriculture in an Unstable Economy*, by Theodore W. Schultz; *Jobs and Markets*, by six members of C.E.D. research staff; *Postwar Taxation and Economic Progress*, by Harold M. Groves; *Financing Business during the Transition*, by Charles C. Abbott; *Controlling World Trade—Cartels and Commodity Agreements*, by Edward S. Mason; *Small Business—Its Place and Problems*, by A. D. H. Kaplan.

Most of the research reports and policy statements produced up to the end of 1946 dealt largely with problems of the transition. At that time there remained before the C.E.D. research division numerous incompleted assignments, studies of long-range economic problems. Many representatives of government, business, agriculture, labour and the public urged that the research program be continued until these assignments could be completed.

C.E.D. took two steps to meet the responsibilities of conducting such an intensive research program and making known the results of this research. One was to increase the membership of its national board of trustees from 26 to 100. The other was to form a national information committee, whose function is to bring to the attention of interested individuals and groups the results of this program.

During the year 1947, and growing out of the C.E.D. research program, an important activity was started in the field of higher education. Precedent for this had been furnished by the University of Wisconsin and other universities which carried on their liaison operations with C.E.D. beyond the termination of the latter's field activities. Under a fulltime director assigned by the University of Wisconsin, economic seminars were organized throughout the state at which educators and businessmen discussed important problems at the "grass root" level. This activity was so promising that it was becoming national in scope and was enlisting the interest of many leading universities and colleges.

The board of trustees is the governing body of C.E.D. Paul G. Hoffman, president of the Studebaker corporation of South Bend, Ind., was chairman of the board from the date the committee was organized. Ralph E. Flanders of Springfield, Vt., served as chairman of the Research and Policy committee until he resigned in Jan. 1947, following his election as United States senator from Vermont. He was succeeded by Raymond Rubicam of New York, co-founder and, until he retired, chairman of the board of the Young and Rubicam advertising agency. Sumner Slichter, Lamont professor of Harvard university, was chairman of the Research Advisory board.

Walter Fuller, president of the Curtis Publishing company of Philadelphia, was chosen as chairman of the National Informa-

tion committee when it was formed in 1946.

Officers of the corporation during 1947 were: executive director, Henry R. Johnston; research director, Theodore O. Yntema, professor on leave from the University of Chicago; associate research director, Howard B. Myers; director of information, John H. Van Deventer; field director, Robert S. Donaldson, and secretary, Elizabeth H. Walker.

C.E.D. is supported entirely by voluntary contributions from hundreds of business concerns. It has no relation whatever to any agency of government nor to any private business organization. It maintains offices in Washington, D.C., in Chicago and in New York. The address in the latter city is 285 Madison Ave., New York 17, N.Y. (P. G. H.)

Commodity Prices: *see* BUSINESS REVIEW; PRICES.

Commons, Members of House of: *see* PARLIAMENT, HOUSES OF.

Commonwealth Fund, The: *see* SOCIETIES AND ASSOCIATIONS.

Communism. During 1947 the world revolutionary movement of communism, under the leadership of soviet Russia, consolidated the gains which it made after 1944. But in spite of persistent efforts, it was unable to make further inroads against democracy, which regained its vitality and its confidence.

The strength of communism could be learned from membership figures of communist parties all over the world as published at the British empire communist congress in Feb. 1947. The influence of the movement, however, was many times greater. Several countries, above all the U.S.S.R., Yugoslavia and a large part of China, were totally controlled by communists although the party membership in each case represented only a small minority of the population. In other countries not so controlled the party represented only the hard and well-disciplined core of a movement whose influence was spread through a great number of organizations following the party line, especially in foreign policy, without actually adhering to the party.

According to the figures published at the British empire congress and later figures published in Moscow in Nov. 1947, the membership in the Soviet Union was placed at 6,000,000 in addition to 3,000,000 communist youth; Italy and China were reported to count more than 2,000,000 members each; France and Czechoslovakia had more than 1,000,000 members each. In most European countries membership was reported as having multiplied many times after 1938. The number of party members in Great Britain was listed as 43,000; in the United States, 74,000.

In Latin America 16 parties, many of which did not use the name "communist," had a total reported membership of 491,800; the strongest were those in Cuba, Brazil and Chile. Large votes were polled by the communists in the provincial elections in Bengal (India) and in the municipal elections in Brazil. The Communist party in Canada reported a membership of 23,000 and held one seat in the federal legislature until this member, Fred Rose, was convicted of giving wartime secrets to soviet agents. Communism was relatively weak in the middle east.

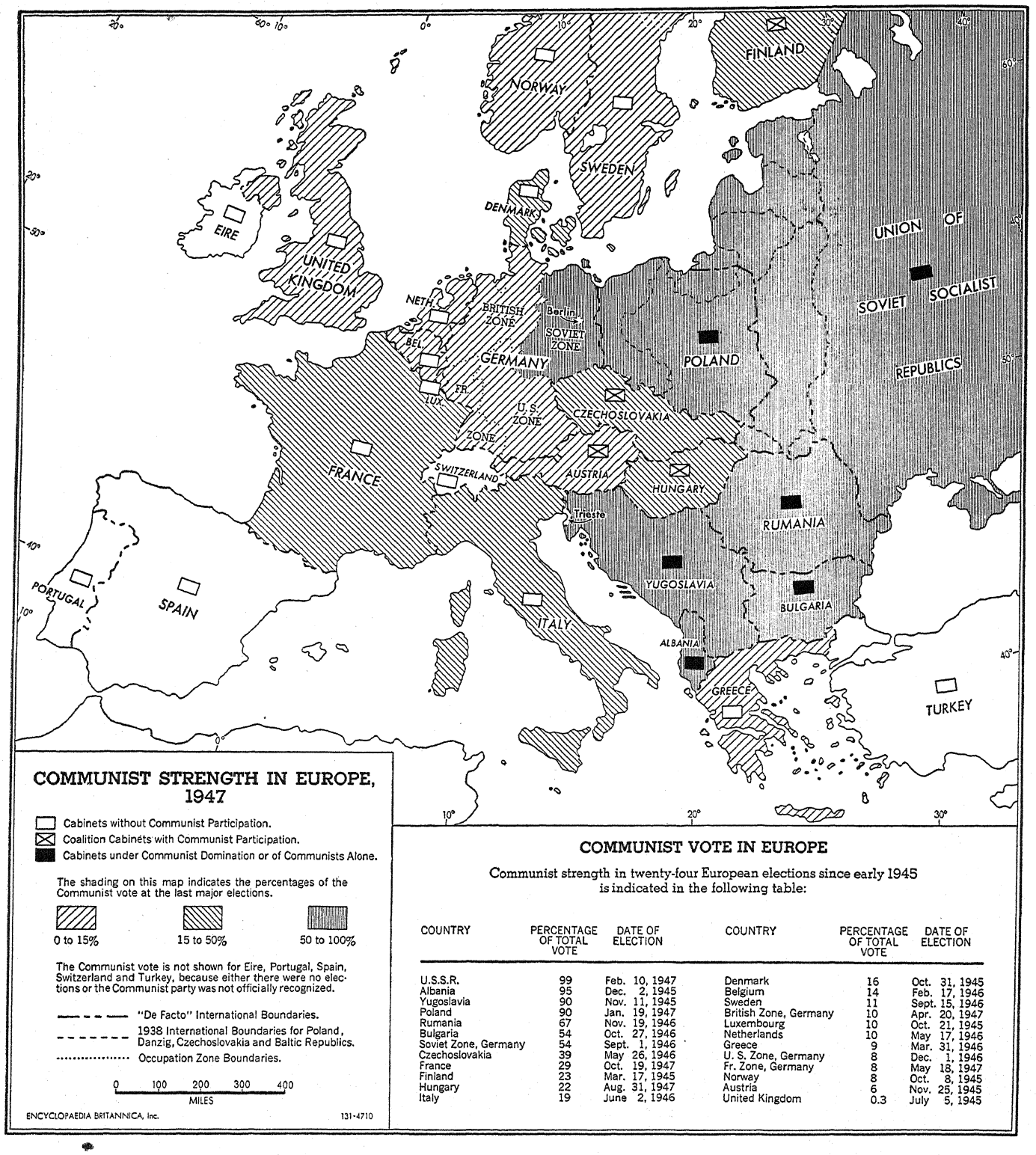
The competition between communism and democracy was especially strong where the "two worlds" met—in Germany, for example; at Greece's northern border and in Korea. In the soviet zone of Germany communism worked through the Socialist Unity party and the Free German Youth. These movements advocated a strongly centralized German government and proposed to arrive "by way of a plebiscite to the unity of Germany." In Germany, as throughout Asia, communism stressed the struggle against the imperialism of the western powers which "wished to enslave the world." This line of thought and proposed action was carried on through a number of organizations with world-wide affiliations which avoided use of the word "communist" and replaced it with derivatives of the word "democracy."

The communists called only communism or a pro-soviet attitude "democracy"; they called democracy "reaction" and an attitude critical of soviet policy or communist expansion "warmongering." In the struggle against reaction as defined by the communists, representatives of nine communist parties (U.S.S.R., France, Italy, Poland, Yugoslavia, Bulgaria, Rumania, Hungary and Czechoslovakia) met in Sept. 1947 in Poland and decided to establish a Communist Information bureau (Cominform) in Belgrade, Yugoslavia. This new unit represented the core of a united front against the threat of "reactionary and imperialist aggression" led by the United States. All those in favour of "democracy and peace" were asked to close ranks around this new people's front of "anti-imperialists." The attack against such European social democratic leaders as Léon Blum in France, Clement Attlee and Ernest Bevin in Britain, Karl Renner in Austria and others, was almost as strongly worded as that against U.S. "reaction." The Cominform established in Belgrade a fortnightly magazine, "For lasting peace—for the people's democracy." The first issue appeared on Nov. 15, in French and Russian. Weekly publication in several other languages was planned.

In the United States the loyalty of government employees in positions involving military security was checked, and a number of persons were dismissed. Government and public opinion in the U.S. asked the necessary precautionary measures to safeguard the rights and liberties of Americans against any indis-

REVIVAL of a communist international to defend the national sovereignty of European peoples "against U.S. aggression" was announced from Moscow on Oct. 5, 1947. This picture shows three members of a communist cell in Italy, one of the nine member nations of the new Cominform





COMMUNIST VOTE IN EUROPE

Communist strength in twenty-four European elections since early 1945 is indicated in the following table:

COUNTRY	PERCENTAGE OF TOTAL VOTE	DATE OF ELECTION	COUNTRY	PERCENTAGE OF TOTAL VOTE	DATE OF ELECTION
U.S.S.R.	99	Feb. 10, 1947	Denmark	16	Oct. 31, 1945
Albania	95	Dec. 2, 1945	Belgium	14	Feb. 17, 1946
Yugoslavia	90	Nov. 11, 1945	Sweden	11	Sept. 15, 1946
Poland	90	Jan. 19, 1947	British Zone, Germany	10	Apr. 20, 1947
Rumania	67	Nov. 19, 1946	Luxembourg	10	Oct. 21, 1945
Bulgaria	54	Oct. 27, 1946	Netherlands	10	May 17, 1946
Soviet Zone, Germany	54	Sept. 1, 1946	Greece	9	Mar. 31, 1946
Czechoslovakia	39	May 26, 1946	U. S. Zone, Germany	8	Dec. 1, 1946
France	29	Oct. 19, 1947	Fr. Zone, Germany	8	May 18, 1947
Finland	23	Mar. 17, 1945	Norway	8	Oct. 8, 1945
Hungary	22	Aug. 31, 1947	Austria	6	Nov. 25, 1945
Italy	19	June 2, 1946	United Kingdom	0.3	July 5, 1945

criminate accusations. Soviet Russia and the eastern European and Balkan governments under communist control tried to enlist the sympathy of U.S. citizens of Slav descent for soviet policy.

Energetic action against communism was taken in Latin America. In Brazil the Communist party was outlawed and the government broke off relations with soviet Russia. The same happened in Chile. Communist influence remained strong in Brazil even at the end of the year with the infiltration of party members and their friends into the administration of the states of Pernambuco and São Paulo. President Eurico Dutra of Brazil warned on Nov. 6 "against the infiltration of foreign ideologists into national political life and the alliance of communists with democratic forces which is as illogical as it is dangerous."

Growing strength was shown by the communists in China. Their leader, Mao Tse-tung, had succeeded in creating a strongly disciplined party under his authority and in winning the support of rural masses by intelligent consideration of their economic demands. In their foreign policy the Chinese communists followed the general party line against U.S. "reactionary imperialism," which was accused of having replaced Japanese and German fascism as the new common enemy of the peoples of the world. But they foresaw the triumph of the

"democratic" forces supported by the "progressives" in the United States and the broad masses everywhere. On Christmas day 1947 Mao Tse-tung called for a Cominform of the far east to co-ordinate the "liberation movement" of 1,000,000,000 Asiatics.

By the end of 1947 communism was battling on several fronts: in Germany it represented itself as defending German national unity and greatness, and organized in Berlin a National All-People's Congress for Unity and Just Peace with the intention of developing it into a parliament and government claiming the whole of Germany. In China, communist forces advanced south of the Lung-Hai railway, in Shantung province, and especially in Manchuria against the last government strongholds there. Under Marshal Tito's leadership the complete consolidation and unification of the communist-led bloc along the Danube and in the Balkans was achieved; the attempt was intensified to mobilize world opinion and to influence opinion in the United States against American policy. In France and Italy, communist-led strikes tried to overthrow the two governments for their co-operation with the United States; and in Greece a communist "democratic government" was proclaimed on the northern borders of the country and tried to capture Konitsa, a small Greek town on the Albanian frontier, as its capital. (*See* also DEMOCRACY; FASCISM; POLITICAL PARTIES, BRITISH; SOCIALISM; WORLD FEDERATION OF TRADE UNIONS.)

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(H. Ko.)

Community Chest. The community chest is the name given to a local federation made up of social-service agencies and individuals, the purpose of which is to promote joint planning for voluntary health and welfare services in the community and to raise, by a united annual campaign, the funds for their support.

Community Chests and Councils, Inc., was organized in Feb. 1918 as the national association of local community chests and councils of social agencies. It is a clearinghouse of information and ideas for its members and provides them with many services in the fields of health and welfare planning and fund raising.

Of the 1,247 community chests and councils of social agencies in operation in Aug. 1947 (897 chests and 350 councils), 854 chests and 325 councils were in continental U.S.; 4 chests and 3 councils in Hawaii; 35 chests and 21 councils in Canada; 2 chests in South Africa; 1 chest in the Virgin Islands; 1 chest in Puerto Rico; and 1 council in the British West Indies. Almost every city in the U.S. (except New York city, which has a limited joint financing organization) in 1947 had a community chest or similar plan of federated financing for its voluntary social services. In 897 cities in 1946 more than 16,000,000 contributions totalling $168,521,984 were given to community chests to be used during 1947 for voluntary social work in their communities and for national agencies. In 1946 the chest campaigns were united under the name "The Community Chests of America," using the national symbol of the Red Feather and the slogan "Everybody Benefits—Everybody Gives." In that year a national budget committee was organized by C.C.C., Inc. to review budgets of national and international services and relief agencies, and to make recommendations for their possible support by local chests.

Officers of C.C.C., Inc., for 1947 were: honorary president, Gerard Swope, New York city; president, Edward L. Ryerson, Chicago, Ill.; vice-presidents, J. B. Adoue, Jr., Dallas, Tex., H. L. R. Emmet, Erie, Pa., Philip Morgan, Worcester, Mass., Mrs. Henry P. Russell, San Francisco, Calif.; treasurer, Milton H. Glover, Hartford, Conn.; secretary, Mrs. Oswald B. Lord, New York city. Ralph H. Blanchard was executive director. The address of the association was 155 East 44th St., New York 17, N.Y. (*See* also RELIEF.)

(B. A.)

Community Trusts. Funds totalling $77,800,000 were under administration in 76 community foundations in the United States and Canada for charitable uses at the beginning of 1947.

In the preceding year, their aggregate appropriations for public purposes were $2,205,000.

A community trust consists of a number of trust funds of differing sizes and for varied charitable purposes, which funds retain their separate identities as investment units but are grouped for administrative simplicity into a single operational entity. If originally expressed desires of the founder of a fund concerning the purposes to be served by it become impossible or impracticable of execution, remedial action may be taken by a central distribution committee which has the donor's authorization and instruction to recast, if necessary or advisable, the philanthropic application of any fund within the trust.

Largest among community foundations at Jan. 1, 1947, was the New York Community trust in which were 76 funds valued at $17,543,000. Resources of the Chicago Community trust were $13,094,000.

The Cleveland foundation had $10,222,000; the Boston Permanent Charity fund, $6,030,000; and the California Community foundation, $4,283,000.

Out of the total disbursements of $2,205,000 in 1946, the New York Community trust allocated $580,059; Chicago, $349,012; Cleveland, $316,986; and Boston, $249,552.

New gifts to these foundations totalled $5,207,000 in that year. Winston-Salem, N.C., received $975,194; Chicago, $768,529; New York, $579,720; and Cleveland, $551,888. During the same period, the Seattle foundation became operative, the Pittsburgh foundation received its first funds and the Community Welfare foundation of Wilmington, N.C., made its initial outpayment.

(R. Hs.)

Composers, Authors and Publishers, American Society of: *see* SOCIETIES AND ASSOCIATIONS.

Confectionery: *see* CANDY.

Congo, Belgian: *see* BELGIAN COLONIAL EMPIRE.

Congregational Christian Churches. The Congregational Christian Churches of the United States represent a union (1931) of the Congregational Churches, established in 1620, and the Christian Churches, founded after the American Revolution. There were 5,783 churches in 1947, organized in 51 conferences, with a membership of 1,150,853. They are community institutions with no restrictions of race, creed or station, and each church elects its own minister and officers and writes its own covenant. Total contributions received for home expenses during 1947 were $21,718,437; for benevolences, $5,411,677; total property value was $186,408,296; and invested funds of the churches amounted to $34,593,156. There were 267 missionary churches of this fellowship in foreign lands, not including areas in Japan, north China and the Philippines where work was being resumed gradually. The central office of the denomination is the General Council of Congregational Christian Churches, 287 Fourth Ave., New York 10, N.Y. (*See* also CHURCH MEMBERSHIP.)

Congress, United States.

The 80th U.S. congress convened for its second session on Jan. 6, 1948. It comprised the following members (as of Jan. 6, 1948):

United States Senate

Presiding Officer: Arthur H. Vandenberg of Michigan[1]
Majority Leader; Wallace H. White, Jr., of Maine
Minority Leader: Alben W. Barkley of Kentucky
Republicans: 51; Democrats: 45.

State	Name	Party	Term Expires	Residence
Ala.	Hill, Lister	Dem.	1951	Montgomery
	Sparkman, John J.	Dem.	1949	Huntsville
Ariz.	McFarland, Ernest W.	Dem.	1953	Florence
	Hayden, Carl	Dem.	1951	Phoenix
Ark.	Fulbright, J. W.	Dem.	1951	Fayetteville
	McClellan, John L.	Dem.	1949	Camden
Calif.	Knowland, William F.	Rep.	1953	Oakland
	Downey, Sheridan	Dem.	1951	Laguna Beach
Colo.	Johnson, Edwin C.	Dem.	1949	Craig
	Millikin, Eugene D.	Rep.	1951	Denver
Conn.	McMahon, Brien	Dem.	1951	Norwalk
	Baldwin, Raymond E.	Rep.	1953	Stratford
Del.	Buck, C. Douglass	Rep.	1949	Wilmington
	Williams, John J.	Rep.	1953	Millsboro
Fla.	Pepper, Claude	Dem.	1951	Tallahassee
	Holland, Spessard L.	Dem.	1953	Bartow
Ga.	George, Walter F.	Dem.	1951	Vienna
	Russell, Richard B.	Dem.	1949	Winder
Ida.	Taylor, Glen H.	Dem.	1951	Pocatello
	Dworshak, Henry C.	Rep.	1949	Burley
Ill.	Brooks, C. Wayland	Rep.	1949	Chicago
	Lucas, Scott W.	Dem.	1951	Havana
Ind.	Capehart, Homer E.	Rep.	1951	Washington
	Jenner, William E.	Rep.	1953	Bedford
Iowa	Wilson, George A.	Rep.	1949	Des Moines
	Hickenlooper, Bourke B.	Rep.	1951	Cedar Rapids
Kan.	Capper, Arthur	Rep.	1949	Topeka
	Reed, Clyde M.	Rep.	1951	Parsons
Ky.	Barkley, Alben W.	Dem.	1951	Paducah
	Cooper, John S.	Rep.	1949	Somerset
La.	Overton, John H.	Dem.	1951	Alexandria
	Ellender, Allen J.	Dem.	1949	Houma
Me.	Brewster, Owen	Rep.	1953	Dexter
	White, Wallace H., Jr.	Rep.	1949	Auburn
Md.	Tydings, Millard E.	Dem.	1951	Havre de Grace
	O'Conor, Herbert R.	Dem.	1953	Annapolis
Mass.	Saltonstall, Leverett	Rep.	1949	Boston
	Lodge, Henry Cabot, Jr.	Rep.	1953	Beverly
Mich.	Vandenberg, Arthur H.	Rep.	1953	Grand Rapids
	Ferguson, Homer	Rep.	1949	Detroit
Minn.	Ball, Joseph H.	Rep.	1949	St. Paul
	Thye, Edward J.	Rep.	1953	Northfield
Miss.	Eastland, James O.	Dem.	1949	Ruleville
	Stennis, John C.	Dem.	1953	De Kalb
Mo.	Donnell, Forrest C.	Rep.	1951	Webster Groves
	Kem, James P.	Rep.	1953	Kansas City
Mont.	Murray, James E.	Dem.	1949	Butte
	Ecton, Zales N.	Rep.	1953	Manhattan
Neb.	Wherry, Kenneth S.	Rep.	1949	Pawnee City
	Butler, Hugh A.	Rep.	1953	Omaha
Nev.	McCarran, Patrick A.	Dem.	1951	Reno
	Malone, George W.	Rep.	1953	Reno
N.H.	Tobey, Charles W.	Rep.	1951	Temple
	Bridges, H. Styles	Rep.	1949	Concord
N.J.	Hawkes, Albert W.	Rep.	1949	Montclair
	Smith, H. Alexander	Rep.	1953	Princeton
N.M.	Hatch, Carl A.	Dem.	1949	Clovis
	Chavez, Dennis	Dem.	1953	Albuquerque
N.Y.	Wagner, Robert F.	Dem.	1951	New York City
	Ives, Irving M.	Rep.	1953	Norwich
N.C.	Umstead, William B.	Dem.	1949	Durham
	Hoey, Clyde R.	Dem.	1951	Shelby
N.D.	Langer, William	Rep.	1953	Bismarck
	Young, Milton R.	Rep.	1951	Berlin
Ohio	Taft, Robert A.	Rep.	1951	Cincinnati
	Bricker, John W.	Rep.	1953	Columbus
Okla.	Thomas, Elmer	Dem.	1951	Medicine Park
	Moore, E. H.	Rep.	1949	Tulsa
Ore.	Cordon, Guy	Rep.	1949	Roseburg
	Morse, Wayne L.	Rep.	1951	Eugene
Pa.	Myers, Francis J.	Dem.	1951	Philadelphia
	Martin, Edward	Rep.	1953	Washington
R.I.	Green, Theodore F.	Dem.	1949	Providence
	McGrath, J. Howard	Dem.	1953	Providence
S.C.	Johnston, Olin D.	Dem.	1951	Spartanburg
	Maybank, Burnet R.	Dem.	1949	Charleston
S.D.	Bushfield, Harlan J.	Rep.	1949	Miller
	Gurney, Chan	Rep.	1951	Yankton
Tenn.	McKellar, Kenneth	Dem.	1953	Memphis
	Stewart, Tom	Dem.	1949	Winchester
Tex.	O'Daniel, W. Lee	Dem.	1949	Fort Worth
	Connally, Tom	Dem.	1953	Marlin
Utah	Thomas, Elbert D.	Dem.	1951	Salt Lake City
	Watkins, Arthur V.	Rep.	1953	Orem
Vt.	Aiken, George D.	Rep.	1951	Putney
	Flanders, Ralph E.	Rep.	1953	Springfield
Va.	Byrd, Harry F.	Dem.	1953	Berryville
	Robertson, A. Willis	Dem.	1949	Lexington
Wash.	Magnuson, Warren G.	Dem.	1951	Port Blakely
	Cain, Harry P.	Rep.	1953	Tacoma
W.Va.	Revercomb, Chapman	Rep.	1949	Charleston
	Kilgore, Harley M.	Dem.	1953	Beckley
Wis.	Wiley, Alexander	Rep.	1951	Chippewa Falls
	McCarthy, Joseph R.	Rep.	1953	Appleton
Wyo.	O'Mahoney, Joseph C.	Dem.	1953	Cheyenne
	Robertson, Edward V.	Rep.	1949	Cody

[1]President pro tempore of the senate in the absence of a vice-president.

United States House of Representatives (*served in 79th congress)

Speaker: Joseph W. Martin, Jr., of Massachusetts
Majority Leader: Charles A. Halleck, of Indiana
Minority Leader: Sam Rayburn, of Texas
Republicans: 245; Democrats: 185; American Labor: 1.

State	Dist.	Name	Party	Residence
Ala.	1	*Boykin, Frank W.	Dem.	Mobile
	2	*Grant, George M.	Dem.	Troy
	3	*Andrews, George W.	Dem.	Union Springs
	4	*Hobbs, Sam	Dem.	Selma
	5	*Rains, Albert	Dem.	Gadsden
	6	*Jarman, Pete	Dem.	Livingston
	7	*Manasco, Carter	Dem.	Jasper
	8	Jones, Robert E., Jr.[1]	Dem.	Scottsboro
	9	Battle, Laurie C.	Dem.	Birmingham
Ariz.		*Harless, Richard F.	Dem.	Phoenix
		*Murdock, John R.	Dem.	Tempe
Ark.	1	*Gathings, E. C.	Dem.	West Memphis
	2	*Mills, Wilbur D.	Dem.	Kensett
	3	*Trimble, James W.	Dem.	Berryville
	4	*Cravens, Fadjo	Dem.	Fort Smith
	5	*Hays, Brooks	Dem.	Little Rock
	6	*Norrell, W. F.	Dem.	Monticello
	7	*Harris, Oren	Dem.	El Dorado
Calif.	1	*Lea, Clarence F.	Dem.	Santa Rosa
	2	*Engle, Clair	Dem.	Red Bluff
	3	*Johnson, Leroy	Rep.	Stockton
	4	*Havenner, Franck R.	Dem.	San Francisco
	5	*Welch, Richard J.	Rep.	San Francisco
	6	*Miller, George P.	Dem.	Alameda
	7	Allen, John J., Jr.	Rep.	Oakland
	8	*Anderson, Jack Z.	Rep.	San Juan Bautista
	9	*Gearhart, Bertrand W.	Rep.	Fresno
	10	*Elliott, Alfred J.	Dem.	Tulare
	11	Bramblett, Ernest K.	Rep.	Pacific Grove
	12	Nixon, Richard M.	Rep.	Whittier
	13	Poulson, Norris	Rep.	Los Angeles
	14	*Douglas, Helen Gahagan	Dem.	Los Angeles
	15	*McDonough, Gordon L.	Rep.	Los Angeles
	16	Jackson, Donald L.	Rep.	Santa Monica
	17	*King, Cecil R.	Dem.	Los Angeles
	18	Bradley, Willis W.	Rep.	Long Beach
	19	*Holifield, Chet	Dem.	Montebello
	20	*Hinshaw, Carl	Rep.	Pasadena
	21	*Sheppard, Harry R.	Dem.	Yucaipa
	22	*Phillips, John	Rep.	Banning
	23	Fletcher, Charles K.	Rep.	San Diego
Colo.	1	Carroll, John A.	Dem.	Denver
	2	*Hill, William S.	Rep.	Fort Collins
	3	*Chenoweth, J. Edgar	Rep.	Trinidad
	4	*Rockwell, Robert F.	Rep.	Paonia
Conn.	1	Miller, William J.	Rep.	Wethersfield
	2	Seely-Brown, Horace	Rep.	Pomfret Center
	3	Foote, Ellsworth B.	Rep.	North Branford

[1]Elected Jan. 28, 1947, to fill the vacancy caused by the resignation of John J. Sparkman, Nov. 5, 1946.

State	Dist.	Name	Party	Residence
Conn.	4	Lodge, John Davis	Rep.	Westport
	5	Patterson, James T.	Rep.	Naugatuck
		Sadlak, Antoni N.	Rep.	Rockville
Del.		Boggs, J. Caleb	Rep.	Wilmington
Fla.	1	*Peterson, J. Hardin	Dem.	Lakeland
	2	*Price, Emory H.	Dem.	Jacksonville
	3	*Sikes, Robert L. F.	Dem.	Crestview
	4	Smathers, George A.	Dem.	Miami
	5	*Hendricks, Joe	Dem.	De Land
	6	*Rogers, Dwight L.	Dem.	Fort Lauderdale
Ga.	1	Preston, Prince H., Jr.	Dem.	Statesboro
	2	*Cox, Edward E.	Dem.	Camilla
	3	*Pace, Stephen	Dem.	Americus
	4	*Camp, A. Sidney	Dem.	Newnan
	5	Davis, James C.	Dem.	Decatur
	6	*Vinson, Carl	Dem.	Milledgeville
	7	Lanham, Henderson	Dem.	Rome
	8	Wheeler, W. M.	Dem.	Alma
	9	*Wood, John S.	Dem.	Canton
	10	*Brown, Paul	Dem.	Elberton
Ida.	1	Goff, Abe McGregor	Rep.	Moscow
	2	Sanborn, John	Rep.	Hagerman
Ill.	1	*Dawson, William L.	Dem.	Chicago
	2	Vail, Richard B.	Rep.	Chicago
	3	Busbey, Fred E.	Rep.	Chicago
	4	*Gorski, Martin	Dem.	Chicago
	5	*Sabath, Adolph J.	Dem.	Chicago
	6	*O'Brien, Thomas J.	Dem.	Chicago
	7	Owens, Thomas L.	Rep.	Chicago
	8	*Gordon, Thomas S.	Dem.	Chicago
	9	Twyman, Robert J.	Rep.	Chicago
	10	*Church, Ralph E.	Rep.	Evanston
	11	*Reed, Chauncey W.	Rep.	West Chicago
	12	*Mason, Noah M.	Rep.	Oglesby
	13	*Allen, Leo E.	Rep.	Galena
	14	*Johnson, Anton J.	Rep.	Macomb
	15	*Chiperfield, Robert B.	Rep.	Canton
	16	*Dirksen, Everett M.	Rep.	Pekin
	17	*Arends, Leslie C.	Rep.	Melvin
	18	Jenison, Edward H.	Rep.	Paris
	19	*McMillen, Rolla C.	Rep.	Decatur
	20	*Simpson, Sid	Rep.	Carrollton
	21	Vacancy[2]		
	22	*Price, Melvin	Dem.	East St. Louis
	23	*Vursell, Charles W.	Rep.	Salem
	24	*Clippinger, Roy	Rep.	Carmi
	25	*Bishop, C. W.	Rep.	Carterville
		Stratton, William G.	Rep.	Morris
Ind.	1	*Madden, Ray J.	Dem.	Gary
	2	*Halleck, Charles A.	Rep.	Rensselaer
	3	*Grant, Robert A.	Rep.	South Bend
	4	*Gillie, George W.	Rep.	Fort Wayne
	5	*Harness, Forest A.	Rep.	Kokomo
	6	*Johnson, Noble J.	Rep.	Terre Haute
	7	*Landis, Gerald W.	Rep.	Linton
	8	Mitchell, E. A.	Rep.	Evansville
	9	*Wilson, Earl	Rep.	Huron
	10	Harvey, Ralph[3]	Rep.	New Castle
	11	*Ludlow, Louis	Dem.	Indianapolis
Iowa	1	*Martin, Thomas E.	Rep.	Iowa City
	2	*Talle, Henry O.	Rep.	Decorah
	3	*Gwynne, John W.	Rep.	Waterloo
	4	*LeCompte, Karl M.	Rep.	Corydon
	5	*Cunningham, Paul	Rep.	Des Moines
	6	*Dolliver, James I.	Rep.	Fort Dodge
	7	*Jensen, Ben F.	Rep.	Exira
	8	*Hoeven, Charles B.	Rep.	Alton
Kan.	1	*Cole, Albert M.	Rep.	Holton
	2	*Scrivner, Errett P.	Rep.	Kansas City
	3	Meyer, Herbert A.	Rep.	Independence
	4	*Rees, Edward H.	Rep.	Emporia
	5	*Hope, Clifford R.	Rep.	Garden City
	6	Smith, Wint	Rep.	Mankato
Ky.	1	*Gregory, Noble J.	Dem.	Mayfield
	2	Vacancy[4]		
	3	Morton, Thruston Ballard	Rep.	Glenview
	4	*Chelf, Frank L.	Dem.	Lebanon
	5	*Spence, Brent	Dem.	Fort Thomas
	6	*Chapman, Virgil	Dem.	Paris
	7	Meade, W. Howes	Rep.	Paintsville
	8	*Bates, Joe B.	Dem.	Greenup
	9	*Robsion, John M.	Rep.	Barbourville
La.	1	*Hébert, F. Edward	Dem.	New Orleans
	2	Boggs, Hale	Dem.	New Orleans
La.	3	*Domengeaux, James	Dem.	Lafayette
	4	*Brooks, Overton	Dem.	Shreveport
	5	Passman, Otto E.	Dem.	Monroe
	6	*Morrison, James H.	Dem.	Hammond
	7	*Larcade, Henry D., Jr.	Dem.	Opelousas
	8	*Allen, A. Leonard	Dem.	Winnfield
Me.	1	*Hale, Robert	Rep.	Portland
	2	*Smith, Margaret Chase	Rep.	Skowhegan
	3	*Fellows, Frank	Rep.	Bangor
Md.	1	Miller, Edward T.	Rep.	Easton
	2	Meade, Hugh A.	Dem.	Baltimore
	3	Garmatz, Edward A.[5]	Dem.	Baltimore
	4	*Fallon, George H.	Dem.	Baltimore
	5	*Sasscer, Lansdale G.	Dem.	Upper Marlboro
	6	*Beall, J. Glenn	Rep.	Frostburg
Mass.	1	*Heselton, John W.	Rep.	Deerfield
	2	*Clason, Charles R.	Rep.	Springfield
	3	*Philbin, Philip J.	Dem.	Clinton
	4	Donohue, Harold D.	Dem.	Worcester
	5	*Rogers, Edith Nourse	Rep.	Lowell
	6	*Bates, George J.	Rep.	Salem
	7	*Lane, Thomas J.	Dem.	Lawrence
	8	*Goodwin, Angier L.	Rep.	Melrose
	9	Nicholson, Donald W.[6]	Rep.	Wareham
	10	*Herter, Christian A.	Rep.	Boston
	11	Kennedy, John F.	Dem.	Boston
	12	*McCormack, John W.	Dem.	Dorchester
	13	*Wigglesworth, Richard B.	Rep.	Milton
	14	*Martin, Joseph W., Jr.	Rep.	North Attleboro
Mich.	1	*Sadowski, George G.	Dem.	Detroit
	2	*Michener, Earl C.	Rep.	Adrian
	3	*Shafer, Paul W.	Rep.	Battle Creek
	4	*Hoffman, Clare E.	Rep.	Allegan
	5	*Jonkman, Bartel J.	Rep.	Grand Rapids
	6	*Blackney, William W.	Rep.	Flint
	7	*Wolcott, Jesse P.	Rep.	Port Huron
	8	*Crawford, Fred L.	Rep.	Saginaw
	9	*Engel, Albert J.	Rep.	Muskegon
	10	*Woodruff, Roy O.	Rep.	Bay City
	11	Potter, Charles E.[7]	Rep.	Cheboygan
	12	Bennett, John B.	Rep.	Ontonagon
	13	Coffin, Howard A.	Rep.	Detroit
	14	Youngblood, Harold F.	Rep.	Detroit
	15	*Dingell, John D.	Dem.	Detroit
	16	*Lesinski, John	Dem.	Dearborn
	17	*Dondero, George A.	Rep.	Royal Oak
Minn.	1	*Andresen, August H.	Rep.	Red Wing
	2	*O'Hara, Joseph P.	Rep.	Glencoe
	3	MacKinnon, George	Rep.	Minneapolis
	4	Devitt, Edward J.	Rep.	St. Paul
	5	*Judd, Walter H.	Rep.	Minneapolis
	6	*Knutson, Harold	Rep.	Manhattan Beach
	7	*Andersen, H. Carl	Rep.	Tyler
	8	Blatnik, John A.	Dem.	Chisholm
	9	*Hagen, Harold C.	Rep.	Crookston
Miss.	1	*Rankin, John E.	Dem.	Tupelo
	2	*Whitten, Jamie L.	Dem.	Charleston
	3	*Whittington, William M.	Dem.	Greenwood
	4	*Abernethy, Thomas G.	Dem.	Okolona
	5	*Winstead, Arthur	Dem.	Philadelphia
	6	*Comer, William M.	Dem.	Pascagoula
	7	Williams, John Bell	Dem.	Raymond
Mo.	1	*Arnold, Wat	Rep.	Kirksville
	2	*Schwabe, Max	Rep.	Columbia
	3	*Cole, William C.	Rep.	St. Joseph
	4	*Bell, C. Jasper	Dem.	Blue Springs
	5	Reeves, Albert L., Jr.	Rep.	Kansas City
	6	*Bennett, Marion T.	Rep.	Springfield
	7	*Short, Dewey	Rep.	Galena
	8	Banta, Parke M.	Rep.	Arcadia
	9	*Cannon, Clarence	Dem.	Elsberry
	10	*Zimmerman, Orville	Dem.	Kennett
	11	Bakewell, Claude I.	Rep.	St. Louis
	12	*Ploeser, Walter C.	Rep.	Chesterfield (R.F.D.)
	13	Karsten, Frank M.	Dem.	St. Louis
Mont.	1	*Mansfield, Mike	Dem.	Missoula
	2	*D'Ewart, Wesley A.	Rep.	Wilsall
Neb.	1	*Curtis, Carl T.	Rep.	Minden
	2	*Buffett, Howard H.	Rep.	Omaha
	3	*Stefan, Karl	Rep.	Norfolk
	4	*Miller, A. L.	Rep.	Kimball
Nev.		Russell, Charles H.	Rep.	Ely
N.H.	1	*Merrow, Chester E.	Rep.	Center Ossipee

[2]Vacancy caused by the resignation of Evan Howell, Oct. 5, 1947.

[3]Elected Nov. 4, 1947, to fill the vacancy caused by the death of Raymond S. Springer, Aug. 28, 1947.

[4]Vacancy caused by the resignation of Earle C. Clements, Jan. 6, 1948.

[5]Elected July 15, 1947, to fill the vacancy caused by the resignation of Thomas D'Alesandro, Jr., May 16, 1947.

[6]Elected Nov. 18, 1947, to fill the vacancy caused by the death of Charles L. Gifford, Aug. 23, 1947.

[7]Elected Aug. 26, 1947, to fill the vacancy caused by the death of Fred Bradley, May 24, 1947.

State	Dist.	Name	Party	Residence
N.H.	2	Cotton, Norris	Rep.	Lebanon
N.J.	1	*Wolverton, Charles A.	Rep.	Merchantville
	2	*Hand, T. Millet	Rep.	Cape May City
	3	*Auchincloss, James C.	Rep.	Rumson
	4	*Mathews, Frank A., Jr.	Rep.	Riverton
	5	*Eaton, Charles A.	Rep.	Watchung
	6	*Case, Clifford P.	Rep.	Rahway
	7	*Thomas, J. Parnell	Rep.	Allendale
	8	*Canfield, Gordon	Rep.	Paterson
	9	*Towe, Harry L.	Rep.	Rutherford
	10	*Hartley, Fred A., Jr.	Rep.	Kearny
	11	*Sundstrom, Frank L.	Rep.	East Orange
	12	*Kean, Robert W.	Rep.	Livingston
	13	*Norton, Mary T.	Dem.	Jersey City
	14	*Hart, Edward J.	Dem.	Jersey City
N.M.		*Fernandez, Antonio M.	Dem.	Santa Fe
		Lusk, Georgia L.	Dem.	Santa Fe
N.Y.	1	Macy, W. Kingsland	Rep.	Islip
	2	*Hall, Leonard W.	Rep.	Oyster Bay
	3	*Latham, Henry J.	Rep.	Queens Village
	4	McMahon, Gregory	Rep.	Ozone Park
	5	Ross, Robert Tripp	Rep.	Jackson Heights
	6	Nodar, Robert, Jr.	Rep.	Maspeth
	7	*Delaney, John J.	Dem.	Brooklyn
	8	*Pfeifer, Joseph L.	Dem.	Brooklyn
	9	*Keogh, Eugene J.	Dem.	Brooklyn
	10	*Somers, Andrew L.	Dem.	Brooklyn
	11	*Heffernan, James J.	Dem.	Brooklyn
	12	*Rooney, John J.	Dem.	Brooklyn
	13	*O'Toole, Donald L.	Dem.	Brooklyn
	14	Multer, Abraham J.[8]	Dem.	Brooklyn
	15	*Celler, Emanuel	Dem.	Brooklyn
	16	*Buck, Ellsworth B.	Rep.	Staten Island
	17	Coudert, Frederic R., Jr.	Rep.	New York city
	18	*Marcantonio, Vito	Am. Labor	New York city
	19	Klein, Arthur G.	Dem.	New York city
	20	*Bloom, Sol	Dem.	New York city
	21	Javits, Jacob K.	Rep.	New York city
	22	*Powell, Adam C., Jr.	Dem.	New York city
	23	*Lynch, Walter A.	Dem.	New York city
	24	Vacancy[9]		
	25	*Buckley, Charles A.	Dem.	New York city
	26	Potts, David M.	Rep.	New York city
	27	*Gwinn, Ralph W.	Rep.	Bronxville
	28	*Gamble, Ralph A.	Rep.	Larchmont
	29	St. George, Katharine	Rep.	Tuxedo Park
	30	*LeFevre, Jay	Rep.	New Paltz
	31	*Kearney, Bernard W.	Rep.	Gloversville
	32	*Byrne, William T.	Dem.	Loudonville
	33	*Taylor, Dean P.	Rep.	Troy
	34	*Kilburn, Clarence E.	Rep.	Malone
	35	*Fuller, Hadwen C.	Rep.	Parish
	36	Riehlman, R. Walter	Rep.	Tully
	37	*Hall, Edwin Arthur	Rep.	Binghamton
	38	*Taber, John	Rep.	Auburn
	39	*Cole, W. Sterling	Rep.	Bath
	40	Keating, Kenneth B.	Rep.	Rochester
	41	*Wadsworth, James W.	Rep.	Geneseo
	42	*Andrews, Walter G.	Rep.	Buffalo
	43	*Elsaesser, Edward J.	Rep.	Buffalo
	44	*Butler, John C.	Rep.	Buffalo
	45	*Reed, Daniel A.	Rep.	Dunkirk
N.C.	1	*Bonner, Herbert C.	Dem.	Washington
	2	*Kerr, John H.	Dem.	Warrenton
	3	*Barden, Graham A.	Dem.	New Bern
	4	*Cooley, Harold D.	Dem.	Nashville
	5	*Folger, John H.	Dem.	Mount Airy
	6	*Durham, Carl T.	Dem.	Chapel Hill
	7	*Clark, J. Bayard	Dem.	Fayetteville
	8	Deane, Charles B.	Dem.	Rockingham
	9	*Doughton, Robert L.	Dem.	Laurel Springs
	10	Jones, Hamilton C.	Dem.	Charlotte
	11	*Bulwinkle, Alfred L.	Dem.	Gastonia
	12	Redden, Monroe M.	Dem.	Hendersonville
N.D.		*Lemke, William	Rep.	Fargo
		*Robertson, Charles R.	Rep.	Bismarck
Ohio	1	*Elston, Charles H.	Rep.	Cincinnati
	2	*Hess, William E.	Rep.	Cincinnati
	3	Burke, Raymond H.	Rep.	Hamilton
	4	McCulloch, William M.[10]	Rep.	Piqua
	5	*Clevenger, Cliff	Rep.	Bryan
	6	*McCowen, Edward O.	Rep.	Wheelersburg
	7	*Brown, Clarence J.	Rep.	Blanchester
	8	*Smith, Frederick C.	Rep.	Marion
	9	*Ramey, Homer A.	Rep.	Toledo
	10	*Jenkins, Thomas A.	Rep.	Ironton
	11	*Brehm, Walter E.	Rep.	Logan
	12	*Vorys, John M.	Rep.	Columbus
	13	*Weichel, Alvin F.	Rep.	Sandusky
	14	*Huber, Walter B.	Dem.	Akron
	15	*Griffiths, P. W.	Rep.	Marietta
	16	Carson, Henderson H.	Rep.	Canton
	17	*McGregor, J. Harry	Rep.	West Lafayette
	18	*Lewis, Earl R.	Rep.	St. Clairsville
	19	*Kirwan, Michael J.	Dem.	Youngstown
	20	*Feighan, Michael A.	Dem.	Cleveland
	21	*Crosser, Robert	Dem.	Cleveland
	22	*Bolton, Frances P.	Rep.	Lyndhurst
		*Bender, George H.	Rep.	Cleveland Heights
Okla.	1	*Schwabe, George B.	Rep.	Tulsa
	2	*Stigler, William G.	Dem.	Stigler
	3	Albert, Carl	Dem.	McAlester
	4	Johnson, Glen D.	Dem.	Okemah
	5	*Monroney, A. S. Mike	Dem.	Oklahoma City
	6	Morris, Toby	Dem.	Lawton
	7	Peden, Preston E.	Dem.	Altus
	8	*Rizley, Ross	Rep.	Guymon
Ore.	1	Norblad, Walter	Rep.	Astoria
	2	*Stockman, Lowell	Rep.	Pendleton
	3	*Angell, Homer D.	Rep.	Portland
	4	*Ellsworth, Harris	Rep.	Roseburg
Penn.	1	Gallagher, James	Rep.	Philadelphia
	2	McGarvey, Robert N.	Rep.	Philadelphia
	3	Scott, Hardie	Rep.	Philadelphia
	4	Maloney, Franklin J.	Rep.	Philadelphia
	5	Sarbacher, George W., Jr.	Rep.	Philadelphia
	6	Scott, Hugh D., Jr.	Rep.	Philadelphia
	7	Chadwick, E. Wallace	Rep.	Moylan
	8	Lichtenwalter, Franklin H.[11]	Rep.	Allentown
	9	Dague, Paul B.	Rep.	Downingtown
	10	*Scoblick, James P.	Rep.	Archbald
	11	Jenkins, Mitchell	Rep.	Trucksville
	12	*Fenton, Ivor D.	Rep.	Mahanoy City
	13	Muhlenberg, Frederick A.	Rep.	Wernersville
	14	*Gillette, Wilson D.	Rep.	Towanda
	15	*Rich, Robert F.	Rep.	Woolrich
	16	*McConnell, Samuel K., Jr.	Rep.	Penn Wynne
	17	*Simpson, Richard M.	Rep.	Huntingdon
	18	*Kunkel, John C.	Rep.	Harrisburg
	19	*Gavin, Leon H.	Rep.	Oil City
	20	*Walter, Francis E.	Dem.	Easton
	21	*Gross, Chester H.	Rep.	Manchester (R.F.D.)
	22	Van Zandt, James E.	Rep.	Altoona
	23	Crow, William J.	Rep.	Uniontown
	24	*Morgan, Thomas E.	Dem.	Fredericktown
	25	*Graham, Louis E.	Rep.	Beaver
	26	*Tibbott, Harve	Rep.	Ebensburg
	27	*Kelley, Augustine B.	Dem.	Greensburg
	28	Kearns, Carroll D.	Rep.	Farrell
	29	McDowell, John	Rep.	Wilkinsburg
	30	*Corbett, Robert J.	Rep.	Bellevue
	31	*Fulton, James G.	Rep.	Dormont (Pittsburgh)
	32	*Eberharter, Herman P.	Dem.	Pittsburgh
	33	*Buchanan, Frank	Dem.	McKeesport
R.I.	1	*Forand, Aime J.	Dem.	Cumberland
	2	*Fogarty, John E.	Dem.	Harmony
S.C.	1	*Rivers, L. Mendel	Dem.	Charleston
	2	*Riley, John J.	Dem.	Sumter
	3	Dorn, W. J. Bryan	Dem.	Greenwood
	4	*Bryson, Joseph R.	Dem.	Greenville
	5	*Richards, James P.	Dem.	Lancaster
	6	*McMillan, John L.	Dem.	Florence
S.D.	1	*Mundt, Karl E.	Rep.	Madison
	2	*Case, Francis	Rep.	Custer
Tenn.	1	Phillips, Dayton E.	Rep.	Elizabethton
	2	*Jennings, John E., Jr.	Rep.	Knoxville
	3	*Kefauver, Estes	Dem.	Chattanooga
	4	*Gore, Albert	Dem.	Carthage
	5	Evins, Joe L.	Dem.	Smithville
	6	*Priest, J. Percy	Dem.	Nashville
	7	*Courtney, Wirt	Dem.	Franklin
	8	*Murray, Tom	Dem.	Jackson
	9	*Cooper, Jere	Dem.	Dyersburg
	10	*Davis, Clifford	Dem.	Memphis
Texas	1	*Patman, Wright	Dem.	Texarkana
	2	*Combs, J. M.	Dem.	Beaumont
	3	*Beckworth, Lindley	Dem.	Gladewater (R.F.D.)

[8]Elected Nov. 4, 1947, to fill the vacancy caused by the resignation of Leo F. Rayfiel, Sept. 13, 1947.

[9]Vacancy caused by the resignation of Benjamin J. Rabin, Dec. 31, 1947.

[10]Elected Nov. 4, 1947, to fill the vacancy caused by the resignation of Robert F. Jones, Sept. 2, 1947.

[11]Elected Sept. 9, 1947, to fill the vacancy caused by the death of Charles L. Gerlach, May 5, 1947.

State	Dist.	Name	Party	Residence
Texas	4	*Rayburn, Sam	Dem.	Bonham
	5	Wilson, J. Frank	Dem.	Dallas
	6	*Teague, Olin E.	Dem.	College Station
	7	*Pickett, Tom	Dem.	Palestine
	8	*Thomas, Albert	Dem.	Houston
	9	Thompson, Clark W.[12]	Dem.	Galveston
	10	*Johnson, Lyndon B.	Dem.	Johnson City
	11	*Poage, William R.	Dem.	Waco
	12	Lucas, Wingate H.	Dem.	Grapevine
	13	*Gossett, Ed	Dem.	Wichita Falls
	14	*Lyle, John E.	Dem.	Corpus Christi
	15	*West, Milton H.	Dem.	Brownsville
	16	Regan, Ken[13]	Dem.	Midland
	17	Burleson, Omar	Dem.	Ansom
	18	*Worley, Eugene	Dem.	Shamrock
	19	*Mahon, George H.	Dem.	Colorado City
	20	*Kilday, Paul J.	Dem.	San Antonio
	21	*Fisher, O. C.	Dem.	San Angelo
Utah	1	*Granger, Walter K.	Dem.	Cedar City
	2	Dawson, William A.	Rep.	Layton
Vt.		*Plumley, Charles A.	Rep.	Northfield
Va.	1	*Bland, Schuyler Otis	Dem.	Newport News
	2	Hardy, Porter, Jr.	Dem.	Norfolk
	3	*Gary, J. Vaughan	Dem.	Richmond
	4	Vacancy[14]		
	5	*Stanley, Thomas B.	Dem.	Stanleytown
	6	*Almond, J. Lindsay, Jr.	Dem.	Roanoke
	7	*Harrison, Burr P.	Dem.	Winchester
	8	*Smith, Howard W.	Dem.	Alexandria
	9	*Flannagan, John W., Jr.	Dem.	Bristol
Wash.	1	Jones, Homer R.	Rep.	Bremerton
	2	*Jackson, Henry M.	Dem.	Everett
	3	Mack, Russell V.[15]	Rep.	Hoquiam
	4	*Holmes, Hal	Rep.	Ellensburg
	5	*Horan, Walter F.	Rep.	Wenatchee
	6	Tollefson, Thor C.	Rep.	Tacoma
W.Va.	1	Love, Francis J.	Rep.	Wheeling
	2	Snyder, Melvin C.	Rep.	Kingwood
	3	Rohrbough, Edward G.	Rep.	Glenville
	4	*Ellis, Hubert S.	Rep.	Huntington
	5	*Kee, John	Dem.	Bluefield
	6	*Hedrick, E. H.	Dem.	Beckley
Wis.	1	*Smith, Lawrence H.	Rep.	Racine
	2	Davis, Glenn R.[16]	Rep.	Waukesha
	3	*Stevenson, William H.	Rep.	La Crosse
	4	Brophy, John C.	Rep.	Milwaukee
	5	Kersten, Charles J.	Rep.	Milwaukee
	6	*Keefe, Frank B.	Rep.	Oshkosh
	7	*Murray, Reid F.	Rep.	Ogdensburg
	8	*Byrnes, John W.	Rep.	Green Bay
	9	*Hull, Merlin	Rep.	Black River Falls
	10	*O'Konski, Alvin E.	Rep.	Mercer
Wyo.		*Barrett, Frank A.	Rep.	Lusk

[12]Elected Aug. 23, 1947, to fill the vacancy caused by the death of Joseph J. Mansfield, July 12, 1947.
[13]Elected Aug. 23, 1947, to fill the vacancy caused by the resignation of R. Ewing Thomason, July 31, 1947.
[14]Vacancy caused by the death of Patrick H. Drewry, Dec. 21, 1947.
[15]Elected June 6, 1947, to fill the vacancy caused by the death of Fred Norman, April 18, 1947.
[16]Elected April 22, 1947, to fill the vacancy caused by the death of Robert K. Henry, Nov. 20, 1946.

Congress of Industrial Organizations.

During 1947 every union affiliated with the Congress of Industrial Organizations (C.I.O.), with but one exception, reported an increase in membership. Added gains to the total membership of 6,238,000 were achieved through the formation of the Telephone Workers Organizing committee. A number of the formerly independent unions affiliated with the committee. The one union that did not report a gain in membership was the Industrial Union of Marine and Shipbuilding Workers, which was confronted with a decrease in ship construction.

During the year, the C.I.O. continued its basic drive to organize the unorganized workers, notably in the south. Wholly apart from the efforts of the national C.I.O. organizing drive, the major C.I.O. unions threw increased forces of organizers into the southern states in co-operation with the national organization. The ninth constitutional convention held in Boston, Mass., in Oct. 1947 pledged increased financial and moral support to the drive.

Another issue brought strongly to the fore during the year was that of the guaranteed annual wage, as the basis for full employment and full consumption.

An outstanding event in the history of the organization was the appearance on the Boston convention speaking program of Secretary of State George C. Marshall. It was the first time in history that any U.S. secretary of state had addressed a major labour organization. Secretary Marshall in his address gave added emphasis to the necessity of aiding nations stricken by the war to reconstruct their economies and become self-supporting. Following the secretary's address, the C.I.O. unanimously adopted a foreign policy resolution that contained in essence the principles stated by Secretary Marshall. The resolution was given unanimous support by the convention delegates.

During the year the C.I.O. continued to expand its relationships with the labour movements of other countries through steady participation in affairs of the World Federation of Trade Unions. A full delegation of C.I.O. representatives was sent to the W.F.T.U. general council meeting held in Prague, Czechoslovakia, in June. The Boston convention authorized the national officers to continue full participation in the W.F.T.U. During the year added recognition of organized labour was obtained from the Economic and Social council of the United Nations.

LONGSHOREMEN of the A.F. of L. made idle in New York city as they struck in sympathy with C.I.O. maritime unions during the latter's 4-day national work stoppage based on the "no contract, no work" policy in June 1947



National C.I.O. headquarters were at 718 Jackson place, N.W., Washington 6, D.C. National officers were Philip Murray, president; James B. Carey, secretary-treasurer.

(*See* also AMERICAN FEDERATION OF LABOR; LABOUR UNIONS; STRIKES AND LOCK-OUTS; UNITED STATES.)

(P. MY.)

Connally, Tom (Thomas Terry) (1877–), U.S. statesman, was born Aug. 19, in McLennan county, Texas. Connally was graduated from Baylor university (1896) and from the University of Texas (1898) with an LL.B. degree. He served with the army in the Spanish-American War and World War I. Elected to the senate in 1928, after having served in the house of representatives, Connally later was only lukewarm in support of President Franklin D. Roosevelt's domestic measures, although he gave wholehearted backing to the administration's foreign policy. He was one of the U.S. delegates to the United Nations conference in San Francisco in 1945 and a member of U.S. delegations to the U.N. general assembly through 1946.

Connally was re-elected to the senate in Nov. 1946, but the Republican sweep of both houses of congress deprived him of much of his former influence. One of the stanchest backers of President Harry S. Truman's foreign policy, he helped push through many important issues in the senate; he joined forces with Sen. Arthur H. Vandenberg of Michigan to secure senate ratification of the Italian, Hungarian, Rumanian and Bulgarian peace pacts on June 5, 1947. The following month, he was omitted from the U.S. delegation to the U.N. at his own request.

Connecticut. Next to the smallest of the New England states and third smallest of all the states, Connecticut is variously known as the "Nutmeg state," "Constitution state" or the "Land of Steady Habits." It is one of the 13 original states. Its area is 5,009 sq.mi. including 110 sq.mi. of water. The population, according to the 1940 census, was 1,709,242, but semiofficial estimates for July 1, 1947, increased these figures to 2,042,000, a gain of 19.4%. Semiofficial population figures for large cities are: Hartford (capital) 184,000; New Haven, 160,605; Bridgeport, 147,478; Waterbury, 99,314; New Britain, 69,035; and Stamford, 64,096.

History.—The regular biennial session of the general assembly was held from Jan. 8, 1947, to June 3, 1947, inclusive. The Republican party had substantial majorities in both the senate and the house. Much important legislation was enacted. After the state supreme court had passed upon its constitutionality, a veterans' bonus act was passed, granting veterans of World War II a cash bonus of $10 for each month in service with a maximum of $300. A ten-year bond issue of $50,000,000 was authorized to defray the cost. An act imposing a temporary general sales and use tax of 3%, effective July 1, 1947, and ending June 30, 1951, was passed. State aid to towns for the purpose of meeting costs of education was increased from $2,700,000 to $20,500,000, and the allocation thereof was prescribed. The gasoline tax was increased from 3 cents per gallon to 4 cents; the cigarette tax was increased from 2 cents per package of 20 cigarettes to 3 cents with one-third of this tax to be allocated to the Soldiers', Sailors' and Marines' fund. The corporation business tax was increased from 2% to 3%, but the old-age assistance tax of $3 was abolished.

The banking laws were codified and, for the purposes of the negotiable instruments law, Saturday was made a legal holiday, so that banks could close on that day. A Fair Employment Practices act was enacted giving the Interracial commission authority to investigate alleged discriminations in hiring or promotions because of race, colour, creed, national origin or ancestry of an individual. The maximum of unemployment compensation benefit was increased from $22 per week to $24, and the maximum number of weeks from 20 to 22; the dependency allowance was increased from $2 to $3 weekly with a maximum of $12. The maximum monthly old-age assistance award was made $45 instead of $40.

Altogether the general assembly authorized expenditures of nearly $300,000,000 (including bond issues) for the biennium.

The elective state officers for 1948 were: governor, James L. McConaughy (Rep.); lieutenant governor, James C. Shannon (Rep.); secretary of state, Mrs. Frances B. Redick (Rep.); treasurer, Joseph A. Adorno (Rep.); comptroller, Fred R. Zeller (Rep.); attorney general, William C. Hadden (Rep.).

Education.—Total enrolment in public day schools for the year 1945–46 was 261,185 divided as follows in 894 public schools: kindergarten and elementary schools, boys 92,456, girls 85,201; junior high schools, boys 8,623, girls 8,385; high schools, boys 30,906, girls 35,614. The net current expenses of all these schools was $36,324,127, apportioned: kindergarten and elementary $21,102,799; junior high $3,123,548 and high $12,097,780.

Social Insurance and Assistance, Public Welfare and Related Programs.—The state public welfare department reported that the total number of people receiving some type of public assistance in June 1947 was 47,894 as compared with 44,729 in June 1946, a gain of 6.2%, while the cost of such assistance in June 1947 was $1,849,437 as against $1,511,677, an increase of 22.3%. Types and numbers of persons receiving relief in June were: general local relief 11,035, old-age assistance 14,991, in state institutions 6,500, dependent children 9,997, county wards 3,265, state wards, 1,901, blind 205.

Communications.—For the first ten months of 1946 the commissioner of motor vehicles reported a total of 542,194 motor vehicles registered and 618,683 operators' licences issued including 72,216 free licences to ex-service men. Although no figures for highway construction were available, more than 20 contracts for new construction had been let including the last link in the Wilbur Cross highway on which work was being concentrated.

There were 12 broadcasting stations in the state, an increase of one over 1945. There were 107 newspapers and periodicals being published. The state was served by 3 railway companies and 1 street railway company, 48 bus companies and 111 taxicab companies. There were 501,583 telephone outlets compared with 468,177 in 1945.

Banking and Finance.—The report of the treasurer for the fiscal year ending June 30, 1947, reveals the following: cash balance July 1, 1946, $23,644,510.39; total receipts year ended June 30, 1947, $176,248,923.06; total $199,893,433.45; disbursements $180,298,571.40; cash balance June 30, 1947, $19,594,862.05. The Postwar Purposes fund at that date was $12,282,417.71. The state bonded debt was $28,183,000, against which there was a bond retirement fund of $13,736,164.94.

The bank commissioner reported that as of Sept. 30, 1947, the 72 mutual savings banks of the state had total assets of $1,418,201,915; 62 state banks and trust companies had total assets of $784,069,953; 32 building and loan associations had total assets of $50,074,706; 50 national banks as of June 30, 1947, had total assets of $743,769,000.

Agriculture.—The bureau of agricultural economics reported that the total farm income for 1946 was $126,475,000 as compared with $122,966,000 for 1945. The former figure was made up of $49,514,000 farm crops and $76,961,000 from livestock and livestock products.

Leading Agricultural Products of Connecticut, 1945 and 1946

Product	1945	1946
Apples	$2,651,000	$3,900,000
Truck Crops	5,558,000	4,377,000
Potatoes	5,346,000	5,601,000
Tobacco	22,725,000	25,668,000
Dairy products, including cattle and calves	33,751,000	37,323,000
Poultry, including eggs	37,064,000	37,554,000

Manufacturing.—The state commissioner of labour reported that as of Oct. 1947, there were 664,600 workers (including 286,300 women) employed in private nonagricultural industries and that unemployment had dropped to the lowest level after World War II. There were only 20,200 unemployed, including 4,400 World War II veterans and 8,100 women. A shortage of steel was hampering the expansion of manufacturing industries, but there were only seven labour disputes in progress involving a total of 850 workers.

(J. BR.)

Conscientious Objectors: *see* PACIFISM.

Conscription: *see* SELECTIVE SERVICE.

Conservation, Soil: *see* SOIL EROSION AND SOIL CONSERVATION.

Conservative Party, Great Britain: *see* POLITICAL PARTIES, BRITISH.

Consumer Credit. The important economic factor of consumer credit in the U.S. was partially controlled by the government for the major part of 1947, but was completely freed as of Nov. 1. Starting in January, the total consumer credit outstanding was $10,024,000,000. The

federal reserve system estimated that at the end of 1947 the total consumer credit outstanding exceeded $13,300,000,000, an increase of approximately $3,000,000,000 in 12 months.

Continuing their postwar program started in 1946 to secure new credit customers, many retail firms increased the tempo of their solicitation of charge-account business. Those offering 30-day consumer credit charge accounts as well as instalment credit sellers competed for this business.

Early in the year, leading retailers throughout the nation contemplated adhering closely to consumer credit terms laid down in Regulation W, the wartime measure controlling extension and use of such credit. However, pointed legal opinions from the U.S. department of justice, confirmed by outstanding attorneys throughout the country, emphasized the danger of concerted action of retailers to establish local community credit control policies.

More retail firms, even mail-order houses, expanded their service in the consumer credit field. Banks and finance companies not only increased their solicitation of personal loans but of consumer loans, financing directly with the consumer. They expanded credit service to retailers, offering to finance all such sales, absorbing investigation and contractual arrangement expense. While small and medium-sized retailers accepted their fairly new plan of financing, it marked a new departure generally in transferring the credit relationship between the customer and firm to an independent financing agent.

Generally, individual retail firms announced plans for retaining a majority of consumer credit terms effective under Regulation W. Almost immediately after control was terminated on Nov. 1, however, some retailers announced that they had lowered down-payment requirements from 33⅓% to 10% and had extended the over-all payment period from 15 to 24 months. This action was viewed with alarm by more conservative credit granters.

Railroads and travel services began a broad solicitation of use of their facilities on a credit basis. The major air lines also expanded their offers of business and social trips on a credit basis. Practically every form of luxury was being promoted on "easy terms." Banks continued to occupy a key position in the consumer credit field in lending money directly to consumers or finance companies and to business for financing consumer accounts receivable. Some of the larger cash chain retail firms established credit departments during 1947.

Reports from the credit bureaus of the country indicated that a larger percentage of families were becoming overburdened with too many obligations. Although not yet alarming, this trend was of particular importance in view of the high income tax rate, the abnormally high cost of living and the fact that credit reports to retailers indicated that more persons were having difficulty meeting payments. An analysis of the credit records of many consumers indicated that the obligations of families were quite diversified. They included all types of retailing, medical, personal loan and banking debts. The significance of the overburdened condition of these families was given considerably more thought by retailers, credit executives and credit bureau managers as the year closed. While government considered the advisability of re-establishing credit controls to help limit inflation and curtail overextension of consumer credit, business was about equally divided on the subject.

Various trade associations expressed the belief that consumer credit in 1947 did not materially influence inflation. A poll of members of the American Bankers association indicated that instalment lenders were holding a conservative line at the end of 1947 by requiring down payments of 33⅓% on new and used cars.

The Institute of Life Insurance indicated that at the end of 1947 the average U.S. wage earner owed approximately $750. The federal reserve board stated that 12,500,000 families spent more than they earned in 1947. The increase in production of semidurable and durable goods materially enlarged credit demand, a fact noted in all types of retailing. The rather sharp drop in collection turnover evidenced during the last half of 1947 by representative firms in cities in all population brackets caused some concern generally throughout all of North America. This trend toward slow payment of charge accounts indicated that some families were becoming overburdened with debt. More people were finding their savings exhausted, making necessary the use of consumer credit to help finance general living and current operating expenses. (H. A. We.)

Great Britain.—During World War II, the general increase of purchasing power, combined with the curtailed supply of consumer goods, especially durable goods, resulted in a much reduced demand for consumer credit facilities of all types. This tendency persisted during the immediate postwar period, despite an expanded supply of goods, largely because of the availability of wartime savings and ex-service gratuities. By 1947 there were signs of a revived demand for consumer credit facilities, but still much below the prewar volume.

Schemes of price control for practically all consumer goods, imposed during the war years and continued during the postwar period, were accompanied by restrictions on the charges additional to maximum cash prices which might be made for credit facilities of all kinds. These restrictions were codified during 1947 in the Hire-Purchase and Credit Sale Agreements (Maximum Prices and Charges) order. Certain goods were exempted from this control: bicycles and motorcycles; radios, phonographs and musical instruments; sewing machines, water softeners, refrigerators and other domestic appliances; deaf aids; hand tool kits; bakery machinery, cash registers and office machinery, hair-waving and drying machines. No restrictions were imposed on charges for the supply of the foregoing goods on credit terms, but such charges were prohibited in relation to all other price-controlled goods except those for long-term and short-term credit respectively which were specified in the order.

Charges for long-term credit, including hire-purchase, were permitted for furniture, carpets, linoleum, mattresses and perambulators on terms similar to those operating during the latter part of the war. The initial payment had to be not less than one-eighth of the maximum cash prices for the goods, and the balance was payable by at least nine instalments spread over not less than nine months nor more than two years. If these and certain supplementary conditions were fulfilled, but not otherwise, the balance referred to might be increased by 12½% for payment within 12 months, 15% for payment within 15 months, or 20% for payment within 2 years.

Additions to maximum cash prices in respect of short-term credit facilities were prohibited under wartime price control until the 1947 order. The latter provided that, if an initial payment was made amounting to at least one-eighth of the maximum cash prices and the balance was payable by instalments spread over from four to eight months, but not otherwise, 3¾% might be added to this balance. The foregoing applied where credit was provided by the supplier of the goods. The 1947 order itself did not make similar provision for "check" trading under which the credit was provided and instalments collected by enterprises not themselves supplying the goods.

Another significant change in this field, introduced during World War II, was the imposition of measures which in effect eliminated the right of repossessing goods supplied on hire-purchase agreements unless authorized by a court order.

(D. Bar.)

Canada.—Removal of wartime credit controls on Jan. 13, 1947, was greeted by business with mixed reactions. By October Canadian retailers noted that instalment buying business had jumped 43% in the first six months of 1947, while monthly repossessions were greater than during 1945 and 1946. The end of war veterans' rehabilitation credits, lower "family group" income because women had returned to homes from industrial jobs, and increasing supplies of consumer goods were factors in stimulating the demand for consumer credit. While 1947 down payments on appliances ran as low as 10% (during the control period one-third down payment was required), the minimum down payment on a new automobile was 30%.

With the lifting of federal controls, British Columbia and Saskatchewan passed enabling legislation to regulate consumer credit, but by the end of 1947 it had not been implemented. Quebec, however, passed specific legislation providing minimum payment of 15% down and specifying 6 months to pay when the sale was less than $50 and up to 24 months if $800, ceiling for the legislation. It became effective Aug. 15. (C. Cy.)

Contract Bridge.

The popularity of contract bridge continued to increase in 1947, although the principal analysts and teachers of the game expected the upward trend to pause for a levelling-off period. The original contract bridge fad, which began in 1929, reached a peak in 1932, then gradually declined year by year until 1940. Then in 1941 the game suddenly became more popular than ever before. Each succeeding year saw another increase in the sales of bridge instruction books and playing cards, and in attendance at bridge tournaments. A poll taken by the American Institute of Public Opinion late in 1947 showed bridge to be the favourite card game of people of the U.S.,—especially those with high school education or better.

The principal tournament winners of 1947 in the championship contests of the American Contract Bridge league were: Charles J. Solomon of Philadelphia, Pa., masters' individual champion; Allen Harvey of Louisville, Ky., and Frank Weisbach of New York city, masters' pair champions; Waldemar von Zedtwitz, Lee Hazen, B. Jay Becker and Mrs. Helen Sobel of New York city and Charles H. Goren of Philadelphia, masters' team-of-four champions. (A "team of four" often has five members, so that each may have an occasional rest period.) Goren won the trophy awarded annually by William E. McKenney to the player with the best tournament record of the year.

At the end of 1947 McKenney retired as executive secretary of the American Contract Bridge league, and was elected honorary secretary by the members. He had been active in the league for 20 years, in which time its membership had grown from a few hundred to nearly 20,000.

There was no international competition with Europe, but early in the year a team composed of Mrs. Sobel and Goren, Becker and Sidney Silodor of Philadelphia, visited Brazil and played nine matches against teams in Rio de Janeiro and São Paulo. The U.S. team won all the matches. A proposed match between U.S. and British teams for the Charles M. Schwab international trophy was not played.

In bridge rules, and in methods of bidding and play, there was little development during the year. The lawmaking committees met regularly, with a view to replacing the 1943 U.S. laws and the 1935 international code used by British and European players with a 1948 international code to be issued late in the year. The Culbertson system of bidding had not been changed after 1941.

New trends included the variant (short contract) in which one plays four deals and then changes partners, instead of scoring by rubbers. On the first deal, neither side is vulnerable; on the second and third deals, dealer's side only is vulnerable; on the last deal, both sides are vulnerable. A deal passed out is redealt by the same dealer. For making game, in one or more deals, a side receives a bonus of 300 if not vulnerable and 500 if vulnerable. A side making a part score on the fourth deal receives a bonus of 100. Other scoring is as in regular bridge. Oswald Jacoby was one of several authorities who expressed the opinion that this form of scoring would eventually replace rubber scoring. It was possible that elimination of the rubber, which dated from 1683 or before, would be the next principal development in the history of a game that had progressed from 16th-century *triomphe* (trump) through whist, bridge whist and auction bridge. (E. Cul.; A. H. Md.)

Great Britain and Europe.—The increasing popularity of the game during 1947 was evident from the fact that more than 900 teams competed in a new contest organized by the *London Sunday Times,* while 300 teams competed weekly in Glasgow, Scotland, in regional league events.

In January an English team consisting of Ewart Kempson (captain), Graham Mathieson, Kenneth Konstam, L. Dodds and Edward Rayne paid a goodwill visit to Egypt and defeated the all-Egypt team.

In May the British Bridge league sent a team to Iceland consisting of Harrison Gray (captain), S. J. Simon, Kempson, J. O. Hastie and Jack Marx. The Icelandic players, with only local experience, deservedly won the first match but lost the remaining six matches.

In July an English team consisting of G. G. J. Walshe (captain), Konstam, Rayne, Mrs. Fleming and Mrs. Marcus won the international contest at Deauville, France.

(E. Kn.)

Co-operative Movement.

Taxation of U.S. co-operatives became a lively issue in 1947, with hearings before the house small business and ways and means committees to determine whether the groups had in fact escaped their fair share of federal income taxes. In a number of state legislatures—Kansas, Wisconsin, Maryland, North Carolina, Ohio, Missouri, North Dakota—bills were introduced adversely affecting co-operatives. Some were based on the assumption that co-operatives were escaping tax obligations, but others had nothing to do with taxes.

Farm marketing and purchasing co-operatives were the principal target of the attacks, especially the Farmers Union Grain Terminal association, Consumers Co-operative Association of Kansas City with a network of oil wells, refineries and pipe lines, and the Ohio Farm Bureau Co-operative association, with fertilizer plants and three insurance companies.

Rural electrical co-ops suffered through attacks on the appropriations of the Rural Electric administration, and there were attempts to liquidate the 13 national banks for co-operatives.

Co-operative leaders called to testify on the subject conceded that federal statute permitted farm co-operatives to qualify for exemption from federal income tax by meeting certain requirements, conceded that about 50% of farm co-operatives qualified under the statute and paid no federal income tax but argued that the restrictions were so stringent that qualifying co-ops would be truly nonprofit.

With respect to trading surpluses, they explained the traditional co-operative business procedure: co-ops commonly charge the same retail price as competitors, return surplus money to members at the end of the year in the form of rebates or patronage refunds. The money returned to members on their dealings is not profit to the co-operative, co-op leaders argued,

but savings on the members' purchases. Surplus accumulated on business with nonmembers was recognized as profit to the co-operative and uniformly taxed as income.

The other significant development in 1947 was the increased interest of labour unions in consumer co-operation. The rising cost of living set union members and officers to looking for methods of holding prices down. In July the American Federation of Labor announced its conclusion that competition was not effective in lowering prices; manufacturers, it asserted, were cutting back production rather than lowering prices, thus controverting the theory on which abandonment of price controls had been based. The federation urged its members to join co-ops and help organize new ones.

Meanwhile, the United Automobile Workers (C.I.O.) was encouraging the organizations of co-operatives in various Michigan cities—Detroit, Pontiac, Lansing, Flint. Several co-op organizers were hired in Michigan, and in each city other community groups were invited to take part. Shares were sold, co-op-labelled merchandise was sampled and the slow process of organization was well under way by Labor day.

In September, however, new increases in food prices made union members impatient for immediate action. Spontaneously, in a number of union locals, plans were announced for direct distribution of groceries through union purchasing from wholesalers and nonprofit distribution to members. During September and October, projects of this kind were announced by a wide variety of U.S. unions.

Co-op leaders were aware that this sort of union program in itself offered little of permanent value but might be converted into a genuine co-operative program, giving the urban co-operatives strength they had long lacked in the United States. Consultations between union and co-op officers resulted in plans for converting the union food-distribution efforts into co-op stores; co-op shares were sold along with food, and community-wide membership campaigns were intensified.

Membership of farm marketing co-ops was estimated at 3,500,000, rural electrical co-ops at 2,000,000, credit unions 3,000,000, consumer co-ops (the majority farm purchasing co-ops organized on consumer principles) 1,500,000. (*See* also TAXATION.) (R. Gs.)

Copper. The production of copper in the major producing countries for the years 1941–46, and the estimated world total, is shown in Table I.

After reaching a peak in 1942 and 1943, world production sagged 7% in 1944, 12% in 1945, and 15% in 1946, to an estimated 2,050,000 short tons, the smallest output reported since 1936. Although Northern Rhodesia showed a drop of only 6%, all of the other major producers had declines in the vicinity of 20%.

United States.—The more important features of the copper industry in the United States are presented below in Table II, while the mine output by states is shown in Table III.

Continued demand after the close of World War II kept copper consumption at only a little below the war rate, while production dropped steadily, and in 1946 was 44% below the 1943 peak. Much of the 1946 decline resulted from difficulties connected with labour and reconversion, many of which were national in extent, rather than inherent to the copper industry itself.

The production rate improved materially in 1947, with a mine total of 712,054 short tons through Oct., against 608,737 tons in the full year 1946.

Canada.—Primary copper output declined from 237,457 short tons in 1945 to 183,968 tons in 1946, but revived to 225,294 tons in 1947.

Chile.—Demand from the United States pushed the copper output from 398,000 short tons in 1946 to 305,700 tons in the first eight months of 1947.

Northern Rhodesia.—Production was 204,500 short tons in 1946 and 138,800 tons in the first eight months of 1947. (*See* also MINERAL AND METAL PRODUCTION AND PRICES; STRATEGIC MINERAL SUPPLIES.) (G. A. Ro.)

Copra: *see* COCONUTS.

Copyright. Interest in the field of copyright during 1947 centred on three aspects: international copyright problems, new legislation affecting copyright and the reaching of an all-time high in registrations.

Highlighting the field of international copyright was the transmittal to the senate on July 17, 1947, by the president of the United States, of the Inter-American Convention on the Rights of the Author in Literary, Scientific and Artistic Works, with a

Table I.—*World Production of Copper, 1941-46*

(Thousands of short tons)

	1941	1942	1943	1944	1945	1946
Belgian Congo	178.8	182.9	173.0	182.4	176.6	158.6
Canada	321.7	301.8	287.6	273.5	237.4	183.9
Chile	513.1	539.2	561.5	549.2	518.2	492.1
Mexico	53.7	56.7	54.9	45.4	8.0	67.4
Peru	40.6	38.9	36.8	35.6	5.2	27.1
No. Rhodesia	270.7	280.7	281.0	247.2	217.4	204.5
U.S.S.R.	?	176	143	143	176	?
United States	958.1	1,080.1	1,090.8	972.5	772.9	608.7
Total	2,860	2,980	2,980	2,760	2,420	2,050

Table II.—*Data of Copper Industry in the U.S., 1941–46*

(Thousands of short tons)

	1941	1942	1943	1944	1945	1946
Mine output	958.1	1,080.1	1,090.8	972.5	772.9	608.7
Smelter output	966.1	1,088.0	1,092.9	1,003.4	782.7	599.7
Refinery output	1,395.3	1,414.6	1,379.3	1,221.2	1,108.6	878.7
Domestic ore	975.4	1,064.8	1,082.1	973.9	775.7	578.4
Foreign ore	419.9	349.8	297.2	247.3	332.9	300.2
Secondary recovery	726.4	927.8	1,086.0	950.9	1,006.5	803.5
From old scrap	412.7	427.1	427.5	456.7	497.1	406.5
From new scrap	313.7	500.6	658.5	494.2	509.4	397.1
Imports	735.5	764.4	716.7	785.4	853.2	393.3
Refined	347.0	401.4	402.8	492.4	531.4	154.4
Exports	158.9	210.5	294.5	237.5	132.6	97.5
Available for use*	1,996.1	2,032.6	1,915.1	1,932.8	2,004.5	1,342.1

*Available for use includes total refinery output, secondary from old scrap, and refined imports less exports; secondary from new scrap is only a turnover of metal in process and does not add to the supply available for use, and other imports have been covered in refined output from foreign ores.

Table III.—*Mine Production of Copper in U.S., 1941–46*

(Thousands of short tons)

	1941	1942	1943	1944	1945	1946
Arizona	326.3	393.4	403.2	358.3	287.2	289.2
California	3.9	1.1	8.8	12.7	6.5	4.2
Colorado	6.7	1.1	1.0	1.0	1.5	1.8
Idaho	3.6	3.4	2.3	1.7	1.5	1.0
Michigan	46.4	45.7	46.8	42.4	30.4	21.7
Missouri	1.4	1.3	1.3	3.3	3.4	1.9
Montana	128.0	141.2	134.5	118.2	88.5	58.5
Nevada	78.9	83.7	71.1	61.2	52.6	48.6
New Mexico	73.5	80.1	76.2	69.7	56.6	50.2
Utah	266.8	306.7	324.0	282.6	226.4	114.3
Washington	8.7	8.0	7.3	6.2	5.8	4.5
Others	13.7	14.4	14.4	15.2	12.5	12.8
Total	958.1	1,080.1	1,090.8	972.5	772.9	608.7

favourable recommendation for ratification.

Presidential proclamations were issued extending indefinitely the time for securing ad interim copyright and renewal of copyright by nationals and citizens of France and New Zealand. The proclamation for France was dated March 27, 1947, and for New Zealand, April 24, 1947.

A number of peace treaties containing clauses on copyright, and keeping in force or reviving copyright arrangements in effect with several foreign countries prior to World War II, were under consideration. The United Nations Educational, Scientific, and Cultural Organization had included copyright as one of the subjects coming within the scope of its activities.

On July 30, 1947, Title 17 of the U.S. code, "Copyright," became public law 281. This act codifies the existing law without substantive change. New legislation on copyright was introduced in congress covering textile fabrics design (H.R. 2860), acoustic recordings (H.R. 1270), coin operated machines (H.R. 1269 and H.R. 2570), and increasing fees in connection with copyright registration (H.R. 4052), but final action was not taken during 1947.

Copyright registrations during fiscal 1947 reached an all time high of 230,215, a 14% increase over fiscal 1946, the previous year of highest registrations. Domestic books, pamphlets, musical compositions, periodicals and newspapers, and commercial prints and labels accounted for 82% of the increase. It was believed that both domestic and foreign registrations had not yet reached their normal peacetime volume due to continued paper shortages and disturbed conditions abroad. The desire to maintain copyright protection after the original 28-year registration period expires had increased to the point where more than 13,000 renewal registrations were made during fiscal 1947.

(A. Fi.)

Cori, Carl Ferdinand (1896–), U.S. biochemist, was born on Dec. 5 in Prague (then in Austria-Hungary), son of a zoology professor. In 1914, he entered the German university at Prague where he met Gerty Theresa Radnitz. They studied chemistry in the same class and were married a few months after they were graduated together in 1920 with M.D. degrees.

Emigrating to the U.S. in 1922 (they became naturalized citizens in 1928), the Coris gave up medicine to work in biochemical research. Carl Cori was associated with the New York State Institute for the Study of Malignant Diseases in Buffalo, N.Y., from 1922–31 when they left for St. Louis, Mo., where Carl Cori joined the Washington University School of Medicine as professor of pharmacology and biochemistry.

At Washington university, the Coris collaborated in a study of the conversion of carbohydrates and starch in the human body into blood and tissue substances, winning numerous awards from national scientific societies.

On Oct. 23, 1947, the Nobel committee in Stockholm announced that the Nobel prize in medicine was awarded jointly to the Coris and to Bernardo A. Houssay, Argentine scientist. The citation to the Coris said their award was "for the discovery of the process in the catalytic metabolism of the glycogen" of animal starch.

Cori, Gerty Theresa (1896–), U.S. biochemist, was born on Aug. 15 in Prague (then in Austria-Hungary). She studied at the German university in Prague, where she met Carl Cori, and shortly after graduating in 1920 with an M.D. degree, she married him.

Mrs. Cori was an assistant in the Children's hospital in Vienna from 1920–22 when she emigrated with her husband to the U.S. From 1922–25, she was an assistant pathologist and from 1925–31 an assistant biochemist at the New York State Institute for the Study of Malignant Diseases in Buffalo.

In 1931, the Coris were given simultaneous appointments at the Washington University School of Medicine in St. Louis, Mo., with Mrs. Cori serving as fellow and research associate in pharmacology and biochemistry; she became full research professor in biochemistry in 1947.

Carl and Gerty Cori jointly shared the Nobel prize for medicine in 1947 with Bernardo A. Houssay of Argentina. The Coris were the third husband-and-wife team to share a Nobel science award; the others were Pierre and Marie Curie (1903) and Frédéric and Irène Joliot-Curie (1935).

Corn (Maize). The corn crop of the United States declined in 1947 in acreage, yield and total production. The total crop was estimated at 2,400,952,000 bu., compared with 3,249,950,000 bu. in 1946 and an average of 2,639,100,000 bu. for 1936–45. Unfavourable weather delayed planting, although acreage was within 2% of the amount farmers had declared they intended to plant—83,981,000 ac. compared with 88,489,000 ac. harvested in 1946 and 90,083,000 ac. average during 1936–45. Midsummer dry weather damaged the quality of the crop, but dry weather in September matured the late corn so that the frost damage was not as large as expected. The amount of "soft," or immature corn was estimated at only a small amount in Ohio.

Average yield, 28.6 bu. per acre, was near the ten-year average of 29.4 bu. but below the 36.7 bu. average of 1946. In the corn belt the yield per acre dropped sharply below the records of 1946. The best yields were harvested in the southeastern states. Hybrid seed was used on about 71% of the total area and 93% in the corn belt.

U.S. Corn Production by States
1947, 1946 and 10-year average 1936–45
(In thousands of bushels)

State	1947	1946	10-yr. Average	State	1947	1946	10-yr. Average
Illinois	343,493	505,761	380,023	New York	20,215	26,637	23,748
Iowa	331,360	634,638	481,458	Maryland	16,416	17,328	16,669
Indiana	191,135	233,682	186,996	Colorado	13,984	14,343	13,098
Minnesota	191,041	239,888	185,498	Louisiana	13,920	15,000	22,091
Nebraska	143,130	231,362	153,843	West Virginia	12,546	10,302	11,896
Ohio	138,826	178,409	157,149	Florida	8,638	6,910	7,512
Wisconsin	105,840	111,980	91,368	New Jersey	7,740	8,505	7,291
Missouri	98,441	163,355	118,154	Delaware	4,550	4,536	3,894
Kentucky	76,265	81,979	66,809	Montana	2,988	2,520	2,643
South Dakota	75,430	120,300	64,525	Connecticut	2,304	2,200	1,966
North Carolina	65,209	58,320	49,302	California	1,984	2,144	2,419
Tennessee	63,481	65,670	63,227	Vermont	1,920	2,320	2,608
Pennsylvania	57,460	59,340	53,974	New Mexico	1,904	2,256	2,551
Texas	48,592	55,012	71,963	Massachusetts	1,702	1,748	1,705
Georgia	48,075	44,145	44,229	Wyoming	1,235	1,122	1,664
Michigan	44,165	50,512	55,526	Idaho	1,125	1,092	1,837
Virginia	42,940	40,284	34,900	Oregon	1,107	1,136	1,789
Alabama	42,842	42,005	44,255	Utah	950	588	702
Kansas	40,443	63,231	54,852	Washington	795	884	1,099
Mississippi	37,191	36,465	45,046	New Hampshire	528	533	578
South Carolina	28,080	27,493	24,290	Maine	400	407	537
North Dakota	24,374	26,080	21,260	Rhode Island	352	312	330
Oklahoma	22,896	25,882	27,644	Arizona	352	352	375
Arkansas	22,525	30,912	33,723	Nevada	64	70	86

The price of corn in Jan. 1947 was $1.21 to producers, only about ten cents per bushel above a year earlier. It began to advance in March, however, and by September had reached a record $2.40. It then held at about $2.37 through December.

The world's corn crop was estimated at 4,755,000,000 bu., about the same as before World War II but 12% less than the record production of 1946. The decline was chiefly in the United States. Danubian crops were better than in 1946 but were below the prewar average. The crop in Europe as a whole was 68% above the small 1946 crop. (*See* also Vegetables.)

(J. C. Ms.)

Cornell University. An institution of higher learning, nonsectarian and coeducational, at Ithaca, N.Y., founded in 1865 and incorporated as a land-grant college under the Morrill act of 1862. The university comprises the endowed schools and colleges of arts and sciences, engineering,

architecture, law, medicine and nursing, and the state-supported schools and colleges of agriculture, home economics, veterinary medicine and industrial and labour relations. There are also schools of education, nutrition and business and public administration. Degrees for advanced study other than professional are awarded through a graduate school. The divisions of medicine and nursing are in New York city and are operated in conjunction with the New York hospital. Two experiment stations, at Geneva and Farmingdale, N.Y., are operated in connection with the college of agriculture. The university also operates the Cornell Aeronautical laboratory in Buffalo.

A new administration building and Savage hall for the school of nutrition were completed during 1947. Construction was begun on a building for the Laboratory of Nuclear Studies, to house a synchrotron provided by the navy department and other facilities for research and advanced instruction. The Francis Norwood Bard professorship of metallurgical engineering, with an endowment of $250,000, was established, and a new curriculum in metallurgical engineering inaugurated in the school of chemical and metallurgical engineering. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (E. E. D.)

Corporation Income Tax: *see* TAXATION.
Corundum: *see* ABRASIVES.
Cosmetics: *see* SOAP, PERFUMERY AND COSMETICS.
Cosmic Rays: *see* PHYSICS.

Costa Rica. A Central American republic, located between Nicaragua and Panamá. Area, approximately 19,238 sq.mi.; pop. (off. est. Dec. 31, 1946), 771,503, classified as about 80% white, 16% mixed, 3% Negro, less than 1% Indian. The major portion of the population lives on the central plateau. The capital is San José (pop. 1946, 83,242); other principal cities are Alajuela (11,177), Cartago (13,888), Heredia (11,382), Liberia (4,346), Limón (10,656), and Puntarenas (9,466). Language: Spanish. President in 1947: Teodoro Picado Michalski.

History.—Events during 1947 centred on the campaign for the presidential election scheduled for Feb. 1948. Party lines were drawn when the four opposition parties selected Otilio Ulate, San José publisher, in February as their candidate, and the National Republican party in March nominated the former president Rafael Angel García Calderón.

The campaign was fraught with street-fighting, accusation exchanges, and a 15-day general strike engineered by the opposition. The strike, allegedly in protest against official infringement on political rights, tied up transportation and commercial operations, led to clashes which killed 5 and injured 59 persons and caused food shortages resulting in some sacking of markets in San José. The opposition partisans blamed the government for the dollar shortage, high prices of imported goods and failure to maintain neutrality during the presidential campaign. President Picado, given a vote of confidence by his cabinet in July, promised the election would be free and honest, but declared the strike an illegal attempt to overthrow the government. Several radio stations were ordered to cease operations, but the press remained officially free.

The strike ended Aug. 5, when the government promised indemnities to casualties, declared a general amnesty, granted suffrage rights to public employees and enacted some emergency relief measures, including a three-months' moratorium on rent payments. On Aug. 26, congress changed the electoral law to allow separate balloting for president, congressmen and mayors. In October, President Picado urged natives of other Central American countries resident in Costa Rica to exercise their legal voting privilege in the February election. Sporadic political clashes continued throughout the year.

On the economic scene inflationary tendencies continued. The general index of wholesale prices (100 in 1936 and 222 in Dec. 1945) reached 239 by the end of June 1947.

Costa Rica refused to accord recognition to the new government in Nicaragua, but moved toward closer collaboration with the Central American union movement by joining with Guatemala in April to suppress passport requirements affecting citizens of the two countries.

Education.—At the close of 1946 there were 868 elementary schools with 3,808 teachers and 77,300 pupils. Intermediate public education was offered in all the provinces, enrolment totalling 4,101. There were 9,277 in private schools. The National university had 907 students and 180 professors in 1945. As of Jan. 1, 1947, there were 73 motion picture theatres with a total seating capacity of 40,549. Government appropriations for education in 1947 were increased by more than 3,000,000 colones, largely to cover increased rates in teaching salaries.

Finance.—The monetary unit is the colón, valued officially on Aug. 29, 1947, at 17.64 cents U.S. The 1946 budget (expenditures: 78,726,614 colones; revenues: 62,922,712) was carried over through July 1947, and funds provided for the last five months amounted to approximately 40,000,000 colones. As of Sept. 30, the National bank held $2,019,000 U.S. in gold and $2,036,000 in foreign exchange, while commercial banks held $2,458,000 in foreign exchange. Currency in circulation remained steady during the year, around 75,000,000 colones.

Trade and Communications.—Exports in 1946 amounted to $14,337,272 U.S. ($11,611,709 in 1945) while imports were valued at $33,041,135 ($26,948,735 in 1945), the U.S. supplying 77% and receiving 74% of the trade. Chief exports were coffee (45.5%), bananas (30.6%) and cacao (5.5%). Preliminary production forecast for coffee during the 1947–48 crop year was 450,000 bags of 60 kg. each (355,000 bags in 1946–47). Banana exports during the first 6 months of 1947 (3,204,943 stems) were up 28% over the first half of 1946, and the exportable production of cacao for 1947 was estimated at 9,000,000 lb. (8,800,000 lb. in 1946).

Railways totalled about 450 mi. and improved highways 771 mi. in 1941. In 1946 the air lines transported 103,573 passengers and 8,200,000 lb. of cargo. As of Dec. 31, 1946, there were 2,800 automobiles, 600 buses and 1,300 trucks registered in the country. Air service continued to expand during 1947, but rail service bogged down under increased demands, causing temporary congestion in the harbours.

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Cost of Living: *see* BUSINESS REVIEW; PRICE ADMINISTRATION, OFFICE OF; PRICES.

Cotton. **Cotton Manufacture.**—"Cottonless Cotton Mill" was the headline of the year in 1947 in the cotton-textile industry. It introduced a description of a cotton mill in the southern part of the United States which does not process any cotton at all, but instead uses various synthetic fibres, as well as such natural fibres as wool, ramie and animal hairs. It is not a new thought to students of the industry, but it is new to a large part of the public and to many cotton manufacturers themselves.

Meanwhile, the cotton-textile industry—no matter what it processed—continued in 1947 to operate at a record high level of production and yet to fall far short of the world demands made upon it.

Cotton manufacture had experienced its longest period of sustained activity in 1937–47. The result of this situation was noted at the major meeting of the industry in the fall of 1947. It was stated that the industry would enter the year 1948 with unprecedented financial strength; also that earnings were being plowed back into corporate investment for purposes of re-equipment, modernization of methods and research. The necessity for such action grew out of the paucity of new machinery for a period of six years, including the war and immediate post-war periods.

Despite the threats to cotton from synthetic fibres, the demand for clothing all over the world was so great that the cotton-manufacturing industry in the United States operated in 1947 at least 5% above the level of 1946 and would have been on an even higher level if it had been physically possible. Look-

ing toward the future, the industry was financing and maintaining a Cotton Mills Industry-Wide Committee on Public Relations which was presenting the case of cotton, an age-old fibre of great usefulness, to the general public by means of all available and appropriate media. (*See* also LINEN AND FLAX; RAYON AND OTHER SYNTHETIC FIBRES; TEXTILE INDUSTRY; WOOL.)

(D. G. Wo.)

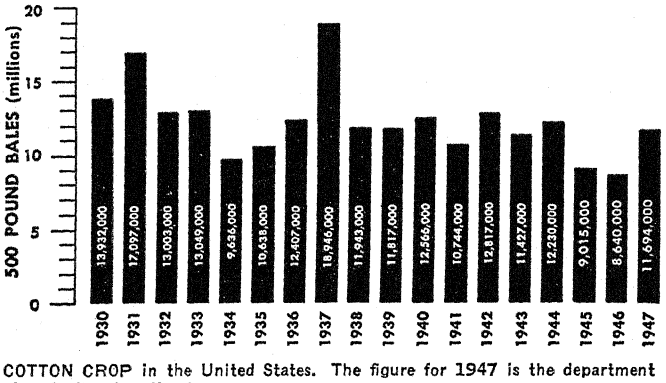
United States Production.—The threat of cotton surpluses in the near future had disappeared with the successive small crops and the increase of domestic consumption and exports. The crop of 1947 was one-third larger than the 1946 product, which was the smallest since 1895 except for the one year, 1921. The 1947 crop was estimated on Dec. 1 at 11,694,000 bales of 500 lb. each by the United States department of agriculture, which was 33% above the small 1946 crop of 8,640,000 bales, but below the 12,390,000 bales average 1936–45. The 1947 crop was harvested from 21,387,000 ac. compared with 18,190,000 ac. harvested in 1946, which was one of the two smallest acreages since 1885. The 1947 goal was put at 23,000,000 ac. which was about one-half the area grown in 1929.

The average yield in 1947 was estimated at 265.4 lb. per acre compared with 235.3 lb. in 1946 and an average of 250.6 lb. 1936–45. The high record yield was 298.9 lb., produced in 1944. This high yield period is attributed to the turning of less productive cotton land to other uses. Every cotton-growing state had a larger production than in 1946 except South Carolina, Arkansas and Tennessee. Texas held first place but Mississippi regained second place after losing it to Arkansas in 1946. The crop of American Egyptian cotton dropped to only 1,000 bales compared with 2,500 bales in 1946 and 32,100 bales average 1936–45.

The supply of fertilizer was larger in 1947 and more was used. About one-half of the cotton acreage was fertilized in 1946 at the rate of 337 lb. per acre. This was below the acreage fertilized during the previous ten years, but the rate of use was higher.

The larger acreage being devoted to feed crops, which were high priced, was cited as the chief factor in holding cotton acreage to low levels. While the introduction of new machinery such as flame-throwing weed eradicators and cotton-picking machines was continuing, these were adaptable only on the better level cotton lands of the southwest. The cotton-farm labour supply was reported to be about the same as in 1946.

The price of cotton to growers advanced early in 1947 from about 30 cents per pound in January to a peak of 35.88 cents in July and then declined slowly to 34.06 cents in December. The season's average for the 1946–47 crop was 32.64 cents per pound to growers. At this price the 1947 cotton became more than a $2,000,000,000 crop for the first time in 30 years. The previous record was made in 1919 when the crop was valued at more than $2,000,000,000 and the average farm price was 35.34 cents per pound. Receipts for 1947 were nearly 30% above 1946 and about three times the 1935–39 prewar average. While prices declined in late 1947, parity advanced to the record of more than 29 cents per pound in September.



COTTON CROP in the United States. The figure for 1947 is the department of agriculture's estimate

U.S. Cotton Production by States
1947, 1946 and 10-year Average 1936–45

(In thousands of 500 lb. bales)

State	1947	1946	10-yr. Average	State	1947	1946	10-yr. Average
Texas	3,360	1,669	3,021	Tennessee	515	520	528
Mississippi	1,555	1,047	1,787	North Carolina	440	440	597
Arkansas	1,260	1,281	1,394	Oklahoma	325	262	568
Alabama	935	822	1,003	Missouri	320	307	365
California	760	458	442	Arizona	220	158	185
Georgia	660	557	917	New Mexico	160	142	115
South Carolina	640	697	765	Virginia	18	17	26
Louisiana	505	247	639	Florida	10	6	20
				All Others	11	10	18

Stocks of cotton began to decline in 1939 and continued to shrink steadily through 1947. Although the crop of 1947 was one-third larger than that of 1946, the shrinkage in carry-over brought the total supply down to about 15% below 1946. Carry-over on Aug. 1, 1947, was 5,293,000 bales or about three months' supply, compared with 9,869,000 bales a year earlier and an average of more than 10,000,000 bales for the previous five years. The carry-over stocks had not been down to this low total since 1928. About one-half of the carry-over of U.S. cotton was in foreign countries and comprised about one-third of the world's total supply.

Exports of cotton reached a total of 3,502,000 bales on Aug. 1, 1946, almost the same as a year earlier but about twice the amount exported during the war years. In 1947 exports declined and the total to be shipped was expected to be less than during the previous crop year unless the programs to aid Europe should stimulate foreign demand. Shipments to Japan and Germany under credits extended by the Export-Import bank were begun late in 1947 and were expected to amount to nearly 1,000,000 bales. The export subsidy was reduced from four cents per pound to one-half cent on Aug. 1, 1947. This put U.S. cotton in a less favourable position to compete with foreign cottons.

World Cotton Production.—Total world production of cotton was estimated at 26,100,000 bales in the cotton year 1947–48 or 21% above the small crop of 21,500,000 bales produced in 1946 which was largely caused by the small United States crop. Nearly all the increase in 1947 was caused by the larger crops of the United States and the Soviet Union. Some small increases in production were reported for China, India and Argentina while the crops of Mexico, Brazil and Egypt were about the same as in 1946–47.

Cotton prices in most foreign countries were about the same in 1947 as a year earlier and were more stable. The world's supply of cotton had declined from 1944 while consumption had increased even more rapidly, which resulted in a decline in the total carry-over to about 18,000,000 bales in 1946, compared with 26,487,000 bales in 1944. World mill consumption was about 26,000,000 bales in 1946–47.

Conditions were not yet favourable to any great expansion of cotton production in foreign countries because of the great need for food grains and other crops. Disturbed conditions were retarding cotton growing in China, Egypt and India, which together are the largest producers. Brazil had expanded production to about the prewar average of 1935–39, which was about 2,000,000 bales. No other country was an important producer except the Soviet Union, which reported only average prewar production. The great developments announced by the soviets a few years before, to be attained under irrigation in the area near the Caspian sea, had not materialized so far as reported.

Cottonseed.—The preliminary estimate of cottonseed production, which is made before ginning has been completed, put

the 1947 output at 4,744,000 tons compared with 3,513,000 tons in 1946 and 5,143,000 tons average 1936–45. Texas produced 1,373,000 tons of the total followed by Mississippi and Arkansas. Prices of cottonseed rose in 1946 to more than $90 per ton in December and continued high through 1947 to $94.80 per ton in December. The short supply in 1946 combined with the strong demand for oils supported the high price. (J. C. Ms.)

Cottonseed Oil: *see* VEGETABLE OILS AND ANIMAL FATS.

Council of Foreign Ministers: *see* FOREIGN MINISTERS' CONFERENCES.

Countries of the World, Areas and Populations of the: *see* AREAS AND POPULATIONS OF THE COUNTRIES OF THE WORLD.

Courts, Civil: *see* LAW.

Cranberries: *see* FRUIT.

Credit, Consumer: *see* CONSUMER CREDIT.

Cricket. At the beginning of 1947 Australia won the "rubber" against England by 3 victories to 2 drawn games. England's bowling was the weakest ever to represent the country in Australia, and the side, under Walter Hammond's captaincy, never coalesced into a fighting machine. Don Bradman was still a great batsman and an astute captain and was well supported by a comparatively young Australian side, with S. Barnes and A. Morris the leading batsmen and a remarkable variety of bowlers, of whom R. Lindwall and K. R. Miller were really fast.

In the English summer of 1947 the South African tour won universal popularity. Their captain, Alan Melville, and B. Mitchell and A. D. Nourse had to carry too heavy a burden in batting, and the bowling proved inadequate. The first test match was drawn; the second, memorable for Denis Compton and W. J. Edrich reaching a record of 370 runs for the third wicket, was won by England, as were the third and fourth; but in the last match, which was drawn, South Africa enjoyed a consolation that approached a triumph: set to make 451 runs in the last innings, they had reached 423 for 7 wickets when stumps were drawn, Mitchell having batted for 13 hours for 120 and 189 not out. Alan Melville not only led the South African side ably but achieved a test match record by following up his century in the last innings against the English touring side of 1938 with centuries in his first three test match innings in 1947. England was hardly a convincing side, for, apart from D. Wright, its bowling lacked penetration, its fielding was uneven and the batting relied too much on Compton and Edrich. These two players both had a wonderful season: both exceeded the previous record aggregate (2,518 runs by T. W. Hayward in 1902), and Compton beat Jack Hobbs's record of centuries (16) in a season: splendid fielders and more than useful bowlers, they were in themselves half a side; inasmuch as their county, Middlesex, could reinforce them with variety in attack, great batting strength and an astute captain in R. W. V. Robins, it was not surprising to see them champions for the first time after P. F. Warner's captaincy in 1921. But Gloucestershire pressed them hard and in T. W. Goddard had the most successful bowler of the year.

The Gentlemen *v.* Players match, though drawn, was memorable for an innings of 162 by the New Zealand and Oxford university cricketer, M. P. Donnelly, which was acknowledged to be historic. Although Oxford was leading by 256 on the first innings, the match between Oxford and Cambridge universities was drawn. Eton and Harrow also played a drawn match.

At the close of the year an All-India team had begun, for the first time, a tour in Australia. In November Don Bradman scored his 100th century in first-class cricket. He was the first Australian cricketer to achieve this. (H. S. A.)

Crime. United States.—Postwar crime continued to climb in the rural areas during 1947 but showed a very slight decline in the cities. Latest available data for the first half of 1947, compared with the similar period in 1946, are shown in Table I.

Table I.—*Crime in 1946 and 1947 in 2,085 U.S. Cities (Total population, 65,537,365)*

Offense classification	January to June 1946	1947	Per Cent Change in 1947
Murder and nonnegligent manslaughter	2,005	1,876	− 6.4
Manslaughter by negligence	1,496	1,334	−10.8
Rape	3,850	3,984	+ 3.5
Robbery	19,824	20,124	+ 1.5
Aggravated assault	20,950	21,514	+ 2.7
Burglary (breaking or entering)	115,906	118,361	+ 2.1
Larceny (theft)	268,761	271,829	+ 1.1
Auto theft	80,043	62,220	−22.3
Totals	512,835	501,242	

While the marked decline in the number of auto thefts was the only outstandingly favourable feature in this comparison, the drop in murders and manslaughters was also substantial. And whereas the sharp general upturn noted for the first half of 1946 over 1945 had led to fears in some quarters that the postwar crime level was destined ultimately for record-breaking levels, latest figures uniformly showed either a pronounced slowdown in the rate of increase or a complete reversal. Most heartening, of course, was the record of auto thefts which had risen by 19.6% in 1945–46, only to turn down so sharply in 1947 as to wipe out the earlier postwar gain. Nevertheless, the long-term trend was certainly upward for rape and aggravated assault (use of weapons). As to these crimes, the record for entire years 1939–46, inclusive, had shown net increases of almost 50%. Crimes against property rose only between 5% and 20% after 1939, and while as to these the postwar bulge would bear watching, it was still much too early to conclude that the new levels would be mantained for very long.

As noted above, rural crime trends were definitely higher, but in other respects were comparable with urban data—particularly in the sharp declines recorded in 1947 with respect to auto theft, murder and manslaughter. But the standards of crime reporting by sheriffs and constables were so strikingly inferior to those generally observed by city police that the rural crime data could not be viewed as more than very rough indices to the true situation.

As in prior years, the number of crimes per 100,000 population was generally highest in the larger cities, although 1947 showed cities in the 50,000–100,000 population bracket with the highest average rate for aggravated assault.

Viewed regionally, the south Atlantic and east central divisions showed 1947 declines in robberies, while other parts of the country registered a rise. Burglaries declined in the middle Atlantic and east north central divisions although the national trend for these also was upward. Most other regions showed similar improvement, but it was rather strikingly evident that the most favourable trends were in the southern states, with the mountain and Pacific states continuing to show fairly consistent increases in their crime rates. These regions led the rest of the country in crime rates—the southern states in crimes against the person (murder, manslaughter and aggravated assault) and the Pacific states in crimes against property (robbery, burglary, auto theft and other larcenies).

Distribution of highest crime rates among the individual states showed several marked departures from these broad regional patterns. Thus while the highest urban rates for murder were recorded in Georgia (13.22), for aggravated assault in North Carolina (245.1) and for robbery in California (95.5)—thus conforming to regional distribution—Florida led the country in burglary (517.2), Arizona in auto theft (235.2) and Nevada in other larceny (1487.6).

Table II.—*Number of Crimes Per 100,000 Inhabitants in U.S. Cities, 1946–47*

	January-June 1946	July-December 1946	January-June 1947
Murder and nonnegligent manslaughter	3.13	3.36	2.92
Manslaughter by negligence	2.26	2.44	2.04
Rape	5.84	6.28	6.12
Robbery	30.00	32.80	30.70
Aggravated assault	31.90	35.60	34.40
Burglary	197.60	202.00	203.20
Larceny (theft)	458.90	509.30	473.10
Auto theft	121.90	128.00	94.50

Semiannual rates for U.S. cities in general during the postwar period are shown in Table II.

Among 1947 robberies, those effected on the highway represented about five-eighths of the total, with another one-fifth directed against commercial houses. Residences, oil stations, chain stores and banks were next in order.

Nighttime burglaries represented more than four-fifths of the total of all breaks, with business premises heavily favoured over residences during these hours. Considerably more than half of all larcenies fell into the $5 to $50 category with thefts from autos (not including auto accessories) the most favoured object of such crimes. With auto accessories in second place among larcenies, and auto thefts standing in an entirely separate major category, it was apparent that crime and the motor car continued to be closely related in many ways.

Crimes involving theft averaged $168 per case, with auto thefts nationally leading in values ($733 average) and with robberies ($187) and burglaries ($131) next in line.

The decline in property recoveries which was noted in 1946 was continued into 1947 so far as stolen cars were concerned, but there was a gratifying upturn in other property recoveries in 1947, although still only 24% of the total value involved.

With the close of 1947 the *Uniform Crime Reports* completed 18 years of uninterrupted publication on a steadily expanding scale. All 412 U.S. cities of more than 25,000 population were contributing reports to the system. In addition, 633 cities from 10,000–25,000 and 2,123 other cities, villages and rural townships also were participating. These with various county, state and territorial agencies reached a grand total of 5,499. (*See* also FEDERAL BUREAU OF INVESTIGATION; JUVENILE DELINQUENCY; KIDNAPPING; LAW; POLICE; SECRET SERVICE, U.S.)

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Great Britain.—It was clear from the few official references that the upward trend in crime after 1938 had come to an end, although a wave of crimes of violence continued to give the authorities grave concern. The reasons for it were said to be the inability to trace older criminals during the war and the rise of a new generation, scarcity of goods encouraging black market transactions and the tendency to keep money and valuable possessions at home. The decline in crime, however, was most noticeable in London, where one in every ten public telephone calls to the police led to an arrest; shopbreaking crimes dropped by more than half, and fewer cars were stolen. Children roaming the London streets in gangs of three or four committed one in eight of the crimes tracked down by the police, and service deserters were responsible for 9% of them. More police supervision of lotteries and sweepstakes in London was ordered in view of increased illegalities. Police detection methods included considerable new developments in mobile radio by which a county police headquarters could keep in two-way speech contact with patrol cars all over its area. In Leeds the chief constable proposed street patrols of householders to help the police to detect winter crime.

Official figures of national crime for 1938–45 were presented to the house of commons and showed that nonindictable offenses had decreased from 709,019 in 1938 to 297,438 in 1945; that crimes against the person had risen from 1,583 a year to 2,459; sexual offenses from 2,321 to 3,228; breaking and entering from 10,814 to 21,260; and larceny from 56,092 cases to 75,975. (*See* also PRISONS.) (P. BN.)

Cripps, Sir (Richard) Stafford (1889–), British statesman and lawyer, was born on April 24, the youngest son of the 1st Baron Parmoor. Educated at Winchester and University college, London, he was admitted to the bar in 1913. He was knighted and appointed solicitor general in the Labour government in 1930, and in 1931 was elected Labour member for East Bristol. On Jan. 25, 1939, Sir Stafford was expelled from the Labour party for attempting to create a popular front.

In June 1940 Winston Churchill appointed him ambassador to Moscow, where he completed the Anglo-Soviet pact. He returned to London in Feb. 1942 to become lord privy seal, and in March left for India to work out terms for independence. In November he was appointed minister of aircraft production, and on Feb. 28, 1945, he was readmitted to the Labour party. In the Labour government he was president of the board of trade, July 1945 to Sept. 1947, minister for economic affairs Sept. 29 to Nov. 13, when upon the sudden resignation of Hugh Dalton (*q.v.*) he became chancellor of the exchequer, but retained general responsibility for economic affairs.

In winding up for the government in the two-day debate on the state of the nation in August, Sir Stafford appealed for a great effort by all the people, saying that only higher production could bring relief to the country. In the house of commons on Oct. 23, he spoke once again on the economic situation and announced cuts in capital expenditure in the import of food, and the need for even greater output, especially for export. On Nov. 17 he made his first speech in the house of commons as chancellor in replying to the debate on Hugh Dalton's interim budget, when he stated he was in full agreement with his predecessor's proposals.

Croatia: *see* YUGOSLAVIA.
Crude Oil: *see* PETROLEUM.
Cruisers: *see* NAVIES OF THE WORLD.
Crushed Stone: *see* STONE.

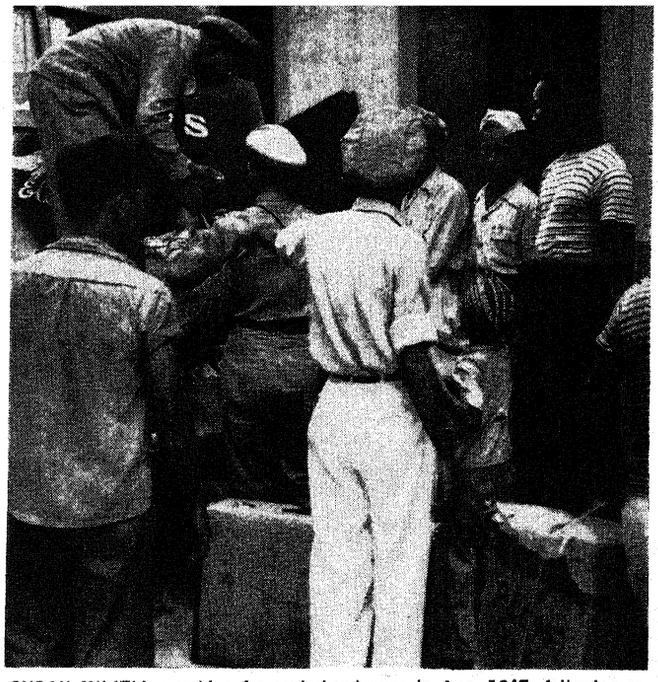
Cryolite. The United States imported 11,424 short tons of cryolite in 1946, as compared with 17,952 tons in 1945. Exports decreased from 1,901 tons in 1945 to 1,299 tons in 1946. Greenland is the only source of supply and exports are material that had previously been imported. The chief use of cryolite is as a constituent of the bath for the electrolytic production of aluminum, with small amounts going into ceramics, abrasives and insecticides. (G. A. Ro.)

Cuba. A West Indian republic, including the island of the same name, the Isle of Pines, and other minor islands and keys. The area of the main island is 44,217 sq.mi. (Isle of Pines, 1,180 sq.mi.); pop. (1943 census), 4,778,583 (1946 est. 5,052,000); the density is 108.07 per sq.mi. Racial distribution is officially estimated at 75% white (of which about one-third is mulatto), 24% Negro and 1% Mongoloid (mostly Chinese). Almost 200,000 Spaniards reside in Cuba. The capital and chief port is Havana (officially, La Habana) with a pop. (1943 census) of 659,883. Other important cities (with 1943 census pop. unless otherwise indicated) are Santiago de Cuba (1946 est., 152,000); Marianao (a Havana suburb, 120,163); Camagüey (1946 est., 87,009); Matanzas (54,844); Cienfuegos (52,910);

Guantánamo (42,423); Cárdenas (37,059); Holguín (35,865); Manzanillo (36,295); Ciego de Ávila (23,802); Santa Clara (53,981); Pinar del Rio (1946 est., 63,461); Regla (23,037); Güines (22,669); Guanabacoa (30,287) and Placetas (19,693). Roman Catholicism is the predominant religion. President in 1947: Dr. Ramón Grau San Martín.

History.—The year 1947 was a turbulent one in Cuban affairs. A two-hour work stoppage on Jan. 21 by 10,000 Havana workers, protesting the high cost of living and food shortages, partially paralyzed the capital city. Rafael González Mónoz became the new foreign minister Feb. 1, replacing Alberto Inocente Álvarez. A second protest strike occurred Feb. 10 when Havana dock workers, as a gesture against Franco Spain, refused for 24 hours to unload a Spanish ship in Havana harbour. Workers in Baracoa (Oriente province) went out on a 24-hour general strike on Feb. 19 because of the government's failure to build a promised highway in that area. The Havana produce exchange, an alleged black market centre, was bombed March 29. On April 2, Havana police detained Carlos Duque Estrada, alleged revolutionist, for large dynamite thefts. On the same day Liberal Representative Manuel Cuevas Rivero was killed at Manzanillo, reputedly by a political foe. Felix Palau, an Auténtico party leader, was killed in Oriente province April 5 in a clash with communists. In an attempt to preserve order, Interior Minister Alfredo Pequeno thereupon suspended a meeting of the Cuban Confederation of Workers. The interior ministry three days later, after a series of clashes between the government and communist labour factions, some of which resulted in deaths, banned all political meetings which might cause disorder. Senate President Miguel Suárez Fernández resigned his office on April 15 because of dissension in the Auténtico party. His resignation was rejected by the senate in a stormy session on April 21, during the course of which the capitol was sprayed with machine gun bullets from a speeding car. The cabinet resigned on April 30 because of Pres. Grau's controversy with congress over economic conditions; Grau named a new Auténtico cabinet headed by Raul López del Castillo as premier.

The Havana mayor, Manuel Fernández, committed suicide May 5, allegedly because of difficulties in getting a new waterworks system for the city. Cuba on July 10 signed a cultural relations treaty with Mexico, at which time Pres. Grau was awarded a Mexican decoration. The government on July 29 sided with opponents of the communist officers of the Confederation of Workers, ousting the officers from their posts and from the labour headquarters. On Aug. 1, Sen. Eduardo Chibás, formerly the most vocal supporter of Pres. Grau, became head of a new opposition group, the Party of the Cuban People. The Cuban navy on Aug. 6 seized four U.S.-made war planes which had landed illegally in Cuba but refused to comment on their possible connection with a rumoured invasion of the Dominican Republic. The army on Sept. 15 crushed a police revolt in Havana; six were killed; four days later the government announced the arrest of 40 persons for alleged complicity in the police plot. On Sept. 21 the government reported the smashing of an opposition plot and seizure of 13 truckloads of munitions and arms near Havana. The government announced on Sept. 29 that an attempt to invade the Dominican Republic by forces opposed to Pres. Rafael Trujillo of that government had been foiled by Cuban seizure of its Cuban based military, naval and aviation elements. One of the leaders in the movement was allegedly the Cuban education minister, José Manuel Alemán, who resigned his post on Oct. 1, after the senate had passed a no-confidence vote, but who was promptly reappointed by Grau as a minister without portfolio. The Cuban supreme court on the same day ordered the release of the rank and file of the approximately 1,100 insurgents seized in the projected expedition. On Oct. 2 the army released 376 of the revolutionists and the supreme court ordered the freeing of 545 more. The court on Oct. 5 released 26 of the alleged leaders of the group on bail and freed the remaining members. Havana university and high school students on Oct. 13 called a two-day strike to protest the killing of a student during a demonstration against Minister Alemán. On Oct. 16, a former lieutenant accused Pres. Grau of being an organizer in the plot against the Dominican government. Authorities on Oct. 17 arrested more than 700 for participation in a four-hour communist-led strike protesting communist expulsion from labour federation posts. Havana police on Oct. 27 fired on bus employees demonstrating outside the communist newspaper *Hoy* against the arrest of communist labour leaders. (*See* also DOMINICAN REPUBLIC.)



CUBAN MILITIA searching for contraband arms in Aug. 1947, following reports of a planned invasion of the Dominican Republic from Cuba, by armed revolutionists. An expeditionary force was found and arrested in Cuba and their sizeable cache of arms seized, late in September

Finance.—The monetary unit is the peso, officially pegged at par with the U.S. dollar. Bank deposits May 31, 1947, were 599,600,000 pesos; loans and discounts on the same date were 245,300,000 pesos. The estimated holdings of gold and foreign exchange on June 30, including U.S. currency in Cuba but excluding balances held abroad by individuals, were $868,900,000. Wages and salaries paid during the first six months of 1947 by private industries totalled $280,939,100 as against $204,099,400 in the same period in 1946. Gold bullion holdings at the end of June were $270,000,000. The total peso issue as of the same date was 428,000,000; per capita circulation on May 31 was 88.39 pesos. National income from the record sugar crop during 1947, it was estimated, would reach $700,000,000, a figure greater than in any year except 1920; the 1936–41 average was $125,000,000. A cabinet decree March 13 froze monthly rentals of less than $25 as a partial answer to protests against inflation. The government during the year gradually relaxed wartime price controls.

Trade and Communications.—Exports for the first four months of 1947 were valued at $205,771,101, of which the United States took $164,257,421 or 79.8%; the comparable figure in 1946 was $132,299,158, of which $96,339,722 or 72.8% went to the U.S. Imports for the first four months of 1947 were $149,258,140, of which the U.S. supplied $126,063,747 or 84.4%; the corresponding figures for 1946 were $108,689,472, of which $76,305,431 or 70.2% were from the U.S. Sugar exports in the first six months of 1947 were about 2,600,000 long tons, including 2,298,421 tons of raw and 297,995 tons of refined sugar; of the refined sugar, all exports went to the U.S.; of the raw sugar, the U.S. took 1,676,711 tons, the United Kingdom 552,437 tons and Canada 52,621 tons. Molasses exports in the first six months of 1947 totalled almost 93,000,000 gal., representing 80,000,000 gal. of 1947 production and 13,000,000 gal. from the 1946 carry-over; of the total amount, the U.S. took 46,478,000 gal., the United Kingdom 37,730,000 gal. and Canada 5,145,000 gal. The estimated export of bananas in 1947 was 5,000,000 stems; the actual export in the first three months was 768,000 stems. Grapefruit shipments in 1947 totalled 4,900,000 lb. (or 56,495 crates), as against 46,000 crates in 1946 and a prewar average of 100,000 crates. Avocado exports in the first nine months of 1947 were 3,697,000 lb.; the 1939–41 average for the first nine months was 11,262,000 lb. Butter imports during the first seven months of 1947 were more than 1,000,000 lb. Imports of lumber during the same period totalled 26,493,498 board

ft., of which yellow pine represented 92%; lumber imports during that period showed a 47% increase over the corresponding period in 1946. It was anticipated that heavy imports of potatoes would be necessary in the second half of 1947.

Exports of fresh pineapple during the first six months of 1947 were 88,000,000 lb. (same period in 1946: 111,000,000 lb.); canned pineapple exports in the same months of 1947 were 430,000 cases (same period in 1946: 500,000 cases). The pineapple trade showed a definite tendency to decline from the wartime boom conditions. Tobacco exports in 1946 were valued at $55,900,000, the highest figure in 16 years. Tobacco sales in 1947 tended to decline, chiefly because of the lack of foreign exchange in countries which normally bought the largest amounts of Cuban tobacco; much of that sold in 1947 was carry-over from 1946. Banana exports in 1946 totalled 4,076,000 stems, valued at $3,400,000. Candy exports during the same year were 34,565 metric tons, valued at more than $10,000,000 (1945: 23,458 metric tons, valued at $7,046,000); of the 1946 exports about 60% went to the U.S. Imports of wheat flour in 1946 were 264,000,000 lb., valued at $11,500,000; this was the second largest import item during the year. Corn imports in 1946 were 387,150 kg., of which 76% were from the U.S., 15% from the Dominican Republic and the remainder from Honduras. Imports of corn meal during the same year were 176,998 kg. (1945: 140,505 kg.), all of which came from the U.S.

Pres. Grau on May 8, 1947, lifted all duties on beef imports after 56 meatless days in Havana caused by lack of cattle shipments to market resulting from low prices. The sugar trade caused difficulties in 1947, although an agreement on Dec. 13, 1946, ended the long controversy between the government and producers caused by the government's seizure of the price differential on 250,000 long tons of sugar sold above the U.S. price and also by government sequestration of an increase in price offered by the Commodity Credit corporation. U.S. congressional legislation in the late spring of 1947, which Cuba interpreted as adversely affecting U.S. sugar policy toward the island, resulted in a Cuban decree on Aug. 22 setting a quota for U.S. industrial and agricultural imports into Cuba, as a means of retaliation. The government during the year reserved 300,000 Spanish long tons of the 1947 sugar crop for sale to other countries than the U.S. on a government-to-government basis.

On March 11 Cuba signed a civil airlines agreement with Peru. The Compañía Cubana de Aviación was given an Inter-American Safety council award in 1947 for its world record of flying 12 consecutive years without fatalities. Cuban aviation interests organized during the year, with government support, the Asociación de Transportadores Aéreos de Cuba, a group comparable to the Air Transport association of the U.S. A government commission left for the U.S. in July to buy freight vessels of 5,000 tons or less to expand the Cuban merchant marine.

Agriculture.—The 1947 sugar crop set a record of 6,448,320 short tons of raw sugar and 299,400,000 gal. of blackstrap molasses; total cane production during the season was 52,575,060 short tons. Of the huge sugar crop, about 4,300,000 short tons were scheduled to be shipped by Sept. 30 under a contract with the Commodity Credit corporation, and 1,400,000 tons were to be shipped in the last quarter of the year. The U.S. department of agriculture agreed on Oct. 15 to pay 4.9625 cents per lb. for the portion of the 1947 Cuban sugar crop sold in the U.S. Sugar cane acreage in 1947 was 2,850,000 but this figure was expected to drop at least 10% by the 1949 season. It was anticipated, however, that 1948 production would run from 5,800,000 to 6,000,000 short tons. It was reported in Cuba during the latter part of 1947 that 1948 sugar production quotas might be restricted if prospects for additional European sales did not improve. The industry faced the possibility of glutted markets inasmuch as the 1947 crop was about 9% higher than the record crops of 1925 and 1929. Tobacco production in 1945–46 was 84,700,000 lb., the largest in 20 years; production in 1946–47 declined to about 65,000,000 lb., and the continuance of marketing difficulties led to the report that the ministry of agriculture might restrict the 1947–48 crop to about 50% of the average for the preceding two years.

The estimate of cacoa production in 1946–47 was 6,000,000 lb., an increase of 20% from the 1944–46 average. The coffee crop in 1946–47 was estimated at 545,000 bags of 60 kg. (1945–46: 381,524 bags). Potato production in 1946–47 was 151,000,000 lb. (1945–46: 160,000,000 lb.). Production of henequen fibre in 1946 was 30,500,000 lb. (1945: 29,100,000 lb.). Production of processed fruits and vegetables in 1946 reached a record 111,000,000 lb. The 1946 corn crop was estimated at 375,000,000 lb. of shelled corn; this figure was almost exactly equal to the average estimated consumption of 376,000,000 lb. The government on Jan. 17, 1947, requisitioned 50% of all beef cattle as raisers refused to sell in any considerable quantities at the official price of eight cents per lb. on the hoof. On May 23 the government created an office of animal quarantine, aimed at protection against the hoof-and-mouth disease. Experiments with kenaf fibre, as a rival of jute, were conducted during 1947. Milk production was estimated in 1947 at 1,100,000,000 lb. (1946: 1,000,000,000 lb.); the number of dairy cattle decreased, however.

Manufacturing.—The nine leading chocolate manufacturers processed 3,650,000 lb. of cacao beans in the first half of 1947. The 1947 fruit and vegetable pack was between 30,000 and 35,000 short tons (1946: 50,000 tons), the decrease being attributed to a lower export demand for high-sugar-content products such as grated coconut and preserves. Beer production in the first six months of 1947 was 38,700,000 l. (same period in 1946: 40,500,000 l.); the decline was accounted for because of a shortage of allocated malt and production was expected to increase in the second half of 1947. Production of sea salt in 1946 was 125,183,240 lb. The building industry in 1947 lagged behind 1946 figures; Havana province building permits in the first seven months of 1947 were $11,434,629 (same period in 1946: $21,224,767). Nine kilometres of aqueduct were under construction for Havana at a cost of $3,217,984. A $6,000,000 flour mill was being planned for Havana. (*See* also WEST INDIES.)

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(R. H. FN.)

Curaçao. A Netherlands colony of six West Indian islands off the Venezuelan coast near the mouth of Lake Maracaibo. The same name is given to one of the six islands. Total area 403 sq.mi.; total population (1944 est.) 127,866. Three of the islands, about 40 mi. north of Venezuela, include Curaçao (210 sq.mi.; est. pop., 78,587), Bonaire (95 sq.mi.; est. pop., 5,798) and Aruba (69 sq.mi.; est. pop., 39,318). The other three small islands which are in the Leeward group, about 500 mi. northeast, include the southern part of St. Martin (17 sq.mi.; est. pop., 1,877; the remainder of St. Martin belongs to France), St. Eustatius (7 sq.mi.; est. pop., 1,092) and Saba (5 sq.mi.; est. pop., 1,194). The only important town is the colonial capital, Willemstad (est. pop., 36,000), on Curaçao. The chief racial elements, aside from native Curaçaoans, are English, Dutch and Venezuelans; the natives are largely Negro, from 65% to 95% on the different islands. Dutch is the official language but many of the inhabitants speak a patois known as Papiamento, composed of Spanish, Dutch, English, Portuguese, Carib and native African words. Governor in 1947: Dr. Pieter A. Kasteel.

History.—The colony continued to be greatly interested in 1947 in the prospect of achieving greater autonomy, based on Queen Wilhelmina's speech to the empire on Dec. 6, 1942. Six members of the first and second chambers of the Netherlands arrived at Willemstad on Jan. 25 to repay the visit made by a committee of the Curaçao legislative council to the Netherlands in mid-1946 and to discuss further plans for administrative decentralization. The community council of Aruba cabled Queen Wilhelmina on its own behalf on Sept. 9 petitioning for a larger degree of home rule. A government-sponsored Netherlands Antilles central tourist board was established at Willemstad on April 1; subordinate tourist committees were organized on each of the three Leeward Islands.

Education and Religion.—About 18,000 pupils are enrolled in the 52 schools in the colony. About 90% of the permanent population is Roman Catholic. The church operates 36 of the 52 schools. Catholics of Curaçao are organized as a political party which at times has controlled two-thirds of the legislative seats. Protestant denominations on Curaçao and Aruba joined in a united Protestant community with 5,930 members.

Finance.—The monetary unit is the guilder or florin of 100 Curaçao cents. Curaçao currency was detached from Netherlands currency in 1943 and a new coinage went into circulation in that year. The financial situation in the fall of 1947 was serious because of dollar shortages resulting from the freezing of dollar exchange by the Bank of England. The Curaçao exchange office hence adopted a series of temporary relief measures in September to conserve dollar exchange. Governor Kasteel went to the Netherlands in mid-October to discuss the financial crisis and it was announced on Oct. 20 that the Netherlands government would immediately place $2,600,000 at the disposal of Curaçao; the home government agreed to allot the colony $1,500,000 monthly for the remainder of the year instead of the $1,300,000 it had received monthly until Aug. 1947. A delegation including Governor Kasteel, Finance Minister Pieter Lieftinck and Finance Administrator Dr. H. J. M. Hoogeveen subsequently went to London for conferences with treasury and Bank of England officials. The Curaçao chamber of commerce strongly urged disengagement of the colony from the Anglo-Dutch monetary agreement.

Trade and Communications.—Imports for the first quarter of 1947 included: foodstuffs and beverages $3,547,868 (46% from the U.S.); dry goods $2,076,282 (71%); machinery and apparatus $909,852 (37%); crude oil $14,763,409 (21.8%); miscellaneous $5,550,504 (41%). Total United States trade with Curaçao in the first nine months of 1947 was $53,375,000 as against $24,536,000 for the same period in 1946. Export of refined petroleum products from Aruba in 1946 was 111,385,453 bbl. (1945: 105,815,228 bbl.). Of total 1946 petroleum product shipments, North America took 57,537,736 bbl., Europe 34,904,954 bbl., South America 12,881,724 bbl.; U.S. military consumption was 5,512,345 bbl.

Royal Dutch Airlines (K.L.M.) continued to expand its services in 1947, including opening of the first direct flights from Curaçao to San José, Costa Rica, on March 25. Air express to and from Curaçao increased 400% in 1947 and passenger traffic through the colony 12%. The 1948 budget alloted 1,000,000 guilders (about $526,000) for harbour improvements at Curaçao; the corresponding amount in the 1947 budget was 100,000 guilders. Telephone service with the United Kingdom was opened April 8.

Manufacturing.—Crude oil runs to stills in 1946 were 122,877,759 bbl. (1945: 109,302,234 bbl.).

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(R. H. FN.)

Curling. Utica, N.Y., dominated curling in the United States by sweeping all three finals in Grand National matches involving the Allen, Mitchell and Country club competitions. Utica No. 1, skippered by Roy E. Read, defeated Schenectady, N.Y., 22 to 9, for the Allen medal. Utica No. 2, led by R. Ward Murray, defeated Lake Mahopac, 20 to 10 for the Mitchell medal, while Utica No. 1, skippered by Kenneth S. Hurd, downed Ardsley No. 1, 20–16, in the Country club match. Schenectady, directed by R. D. Thomson, dethroned the New York Caledonians as winners of the Gordon medal, 20 to 11. Ardsley No. 2 regained the Douglas medal after a two-year lapse by defeating Ardsley No. 1, 14 to 10. The Douglas winners were skippered by W. Barton Eddison, author of the same accomplishment in 1944. Utica No. 2 won the Stockton cup, and the Toronto Granite rink captured the McCrae bonspiel. (M. P. W.)

Currency: *see* COINAGE; EXCHANGE CONTROL AND EXCHANGE RATES. *See* also under various countries.

Cycling. The big world event in cycling for 1947 was the running of the six-day international bike race. Bill Anderson of Cleveland, O., and Stan Bransgrove, Melbourne, Austr., teamed to win the classic which was held at the Coliseum in Chicago, Ill. They travelled 1,996 mi. and 9 laps and gained 916 sprint points. Alf Letourneur of Los Angeles, Calif., and Bill Jacoby of Chicago did the same distance but gained only 526 sprint points. Only six of the ten starting teams finished, and the race ran for 107 hr.

Ted Smith, Buffalo, N.Y., national amateur champion in 1945, won a 25-mi. point race to take his second senior men's national championship for amateurs, winning by a single point. He covered the distance in 1 hr., 6 min., 29.8 sec. Jack Heid was second, representing Westwood, N.J.

Other titles and their 1947 winners were: world's professional, Joseph Scherens, Belgium; middle-distance speed, Raoul Lesueur, France; amateur speed, Reginald Harris, Great Britain; men's national amateur, junior, Joe Cirone, Fontana, Calif.; women's, Doris Travani, Detroit, Mich.

It was reported by the American Youth Hostel headquarters that membership had increased 60% over 1946; the sale of bicycles during the year exceeded that of the year 1900, when cycling enjoyed halcyon days. (T. J. D.)

BICYCLES belonging to spectators at the International Cycle meet held at Herne Hill in London, England, during the spring of 1947



Cyclotron: *see* ATOMIC ENERGY; PHYSICS.
C.Y.O.: *see* CATHOLIC ORGANIZATIONS FOR YOUTH.

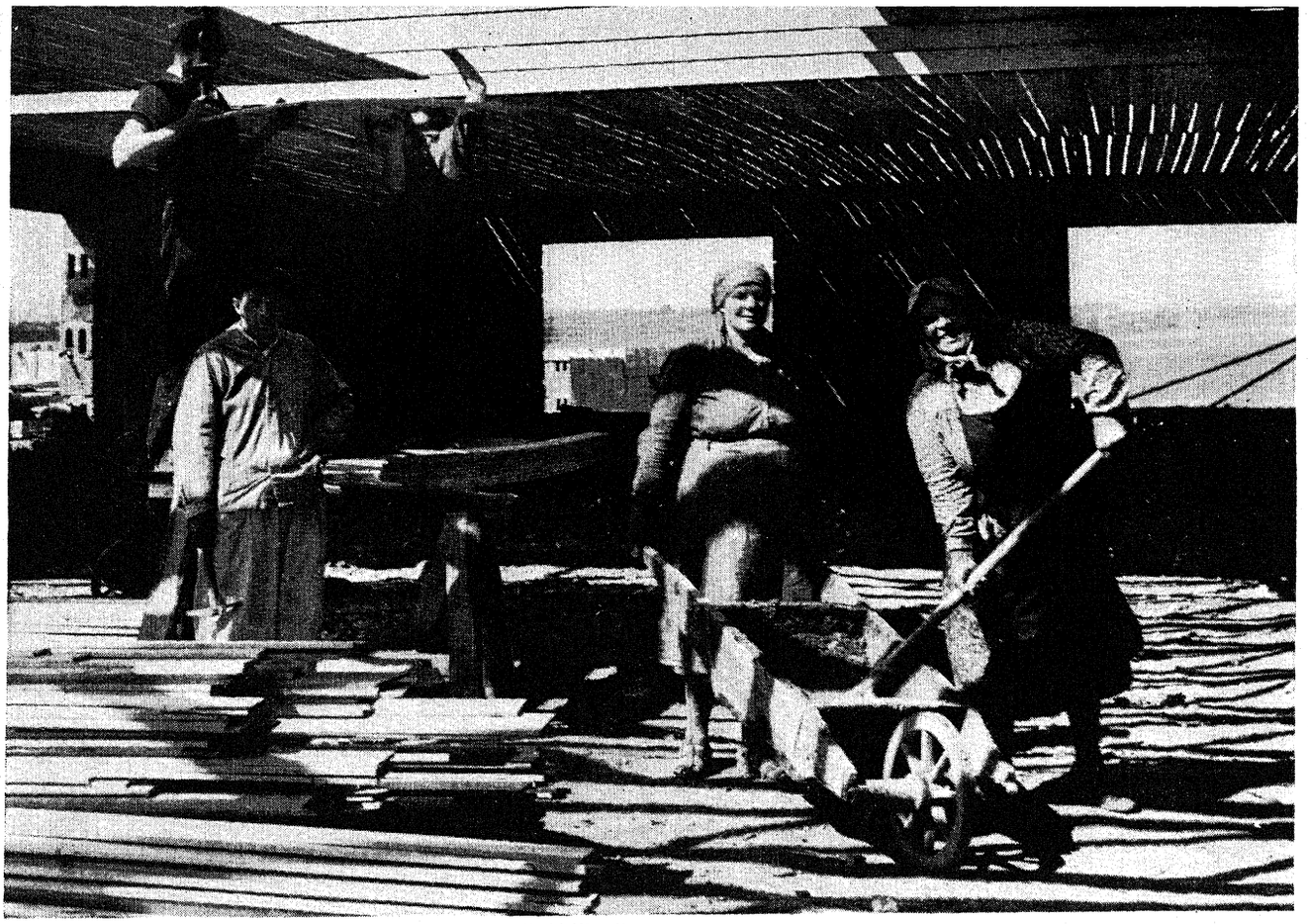
Cyprus. British colony and island in the eastern Mediterranean lying south of Asia Minor and west of Syria. Area: 3,572 sq.mi.; pop. (1945 est.), 434,616. Chief towns: Nicosia (cap., 1931 pop. 25,507); Larnaca (11,715); Limasol (15,066); Famagusta (8,771). Languages: Greek and Turkish, the Greek-speaking element comprising about 80% of the total population. English is also widely understood. Religions: Christian (Autocephalous Orthodox Church of Cyprus) and Moslem. Executive authority is vested in a governor (appointed by the British crown) assisted by an executive council mainly official in composition. Governor: Lord Winster (appointed 1946).

History.—It was announced by the British government in Oct. 1946 that a consultative assembly was to be called together in Cyprus to consider the framing of constitutional reforms, including the re-establishment of a legislative council. Steps to bring such an assembly into being were duly taken in 1947. In Oct. the governor published a statement to the effect that he had asked the chairman to convoke a meeting of the assembly at the earliest convenient date, despite the fact that the majority of those invited to serve had declined the invitation (the exceptions, *i.e.*, those willing to serve, included the Turkish representatives as well as the mayors of the four principal towns). The old agitation for "Enosis," or union with Greece, was active throughout the year among the Greek-speaking population of the colony. Apart from questions of "higher politics," substantial progress was made in Cyprus during the year both in the development of economic projects and in the expansion of local government in the districts. Of the various large development schemes sanctioned in 1947 under the Colonial Development and Welfare act, one was a grant of £20,800 for the provision of improved access to St. Hilarion castle and Bellapais abbey.

Finance and Trade.—The gold sovereign is legal tender in Cyprus, but for normal purposes the local unit of currency is the piastre. It is linked to sterling (£1 = 180 piastres). Revenue (1946) £4,358,000; expenditure £3,938,000. Imports (1946) £8,138,000; exports £4,202,000. The most important natural resources of Cyprus are agricultural. Carobs (used mainly in the manufacture of cattle food) furnish the leading agricultural export. The island is also rich in minerals, of which cupriferous pyrites represent the largest and most valuable deposit. Apart from carobs and metalliferous ores, exports of the colony's produce include fruit, vegetables (mainly potatoes), asbestos and wool. (J. E. SH.)

Czechoslovakia. An independent republic of central Europe. Area: 49,353 sq.mi.; pop. (est. Oct. 1947): 12,242,000. Chief towns (pop. est. May 1947): Prague (cap., 921,800); Brno (266,000) Moravská Ostrava (172,000); Bratislava (126,000); Plzeň (166,000). Language: Czech and Slovak; religion: mainly Roman Catholic. President: Dr. Eduard Beneš; prime minister: Klement Gottwald.

History.—In 1947 Czechoslovakia continued under a coalition government formed by four parties: Communist, strongest single party, to which Prime Minister Gottwald belonged; Social Democrat; National Socialist, a liberal centre-of-the-road party to which President Beneš belonged, and People's party, representing largely the Catholic element. By the end of the



LIDICE, Czechoslovakia, which was destroyed by nazis during World War II, is shown being rebuilt in 1947. Both women shown were survivors of German concentration camps

year the constituent assembly had not yet finished elaboration of the new constitution.

The incessant struggle between the communists on the one side and the three other parties on the other side continued throughout 1947. The communists endeavoured to bring Czechoslovakia more and more into line with the ideology and foreign policies of soviet Russia, while the other parties—though entirely faithful to the alliance with the U.S.S.R.—wished to retain the limited democratic liberties which still survived in 1947. Trade between Czechoslovakia and the democratic nations was so strong at the beginning of 1947 that the communists, alarmed, demanded a reorientation of the nation's foreign commerce.

While the German minority problem had been solved by expulsion of the more than 3,000,000 citizens of German descent, the Magyar minority problem in Slovakia remained unsolved because of the resistance of communist authorities in Hungary. Only a part of the Magyar minority in Slovakia could be transferred to Bohemia and Moravia and dispersed under the compulsory labour decree or exchanged for the Slovak minority in Hungary.

The principal nationality problem, relations between Czechs and Slovaks, had not yet found its solution by the end of 1947. The hanging of Mgr. Joseph Tiso, president of the independent Slovak republic from 1938 to 1945, on April 18 did not facilitate the reconciliation of the two Slav peoples. The elections in Slovakia had given a large majority to the Slovak Democratic party and had revealed much less communist strength than in the Czech parts of the republic. The national court in Prague, sitting in judgment over the members of the Czecho-Slovak cabinet of March 1939, sentenced former Premier Rudolf Beran and former Minister of Defense Gen. Jan Sýrový to 20 years of forced labour. The other defendants, Dr. Jiři Havelka, Dr. Otakar Fischer and Dr. Joseph Černy, were acquitted. The revolutionary system of people's courts was abolished in May, and the country returned to the democratic system of judicial trial and procedure.

The communists were resolved to undermine the majority held by the Democratic party in Slovakia by means similar to those employed in Hungary against the Small Landholders. Communist-controlled organizations of partisans and workers demanded removal from the party of all "subversive elements." In Sept. 1947 a large number of influential Slovaks were arrested under the suspicion of separatist tendencies and of connections with Slovaks abroad. Other arrests followed, and by the end of October the communists had succeeded in forcing a crisis in the Slovak regional administration, where four communists faced eight democrats. They demanded appointment of representatives of nonparliamentary communist-controlled bodies to the regional administration. The democratic parties resisted these demands with some success and the struggle ended with a compromise which gave the communists a stronger position in the administration. Meanwhile, Jan Ursiny, the Slovak deputy prime minister in Prague, had resigned.

In possession of the key Czech ministries of the interior and of information, the communists tried to influence cultural activities and education, although students were in the large majority anticommunist. They tried to suppress all criticism of the U.S.S.R. while freely indulging in bitter attacks upon the United States and democracy.

The democratic parties resisted, not without success, these attempts. On Nov. 5 the Nationalist Socialist party published a protest against attempts to replace the concepts of an independent state of free citizens. On Nov. 11 President Beneš demanded a synthesis "between the necessary social co-ordination and the vitally indispensable need of disciplined individual free dom." On Nov. 29 many members of parliament protested communist domination of the nationalized Czechoslovak film industry.

After accepting unanimously the invitation to the Paris conference on the Marshall plan, the government was forced by Russian pressure to reverse its decision. Reorientation of Czech trade from the west to the east, as demanded by the communists, was inaugurated by trade pacts with Poland and with the U.S.S.R. The treaty with Poland called for an exchange of Czechoslovak-manufactured products for Polish raw materials, amounting to 15,000,000,000 crowns over five years. At the beginning of December a five-year trade treaty was signed with the U.S.S.R., under which the latter promised to deliver 400,000 tons of wheat and rye by the end of April 1948. The goal of revision of the nation's trade balance was to shift 40% of its trade to other Slav nations, including 17% to the U.S.S.R., and a total of 50% to the eastern bloc, including Rumania and Hungary.

Education.—1945–46: primary schools 11,244, scholars 980,038; higher grade 1,952, scholars 400,963: secondary, classical and technical schools 268, scholars 98,091; industrial, commercial and vocational schools 1,383, scholars 298,977; teachers' training schools 62, scholars 6,603; colleges 12, students 27,336; universities (1946) Prague, students 19,798; Brno 7,181; Olomouc 1,057; Bratislava 9,380.

Finance.—Revenue (est. 1947) Kc.48,400,700,000; expenditure (est. 1947) Kc.73,304,933,000; bank notes in circulation (June 1947) Kc.44,393,000,000; public debt (June 1947) Kc.118,272,000,000; assets of national bank (gold and foreign exchange, Feb. 1947) Kc.5,769,000,000. Currency: the unit is the koruna ceskoslovenská (Kc.); = 2.066 U.S. cents.

Trade and Communication.—Foreign trade (1946): imports Kc.10,239,130,000; exports Kc.14,344,960,000. Railways open to traffic (1946) 8,154 mi.; locomotives 2,626; goods trucks 53,000; passenger coaches 8,853; roads (main) 22,770 mi., (secondary) 16,758 mi.; airways, miles flown 2,129,400, passengers carried 91,924. Inland waterways, freight transported 1,443,600 short tons.

Industrial Production.—Production (July 1946–June 1947) in short tons: bituminous coal 16,941,600; brown coal 22,885,369; iron ore 14,744,700; pig iron 13,644,000; ingots and castings 22,330,900; vehicles, etc. (numbers produced), railway engines 207, trucks 18,629, tractors 3,065, cars 6,967, bicycles 151,736, machine tools (Jan.–June 1947) 3,575, sewing machines 35,346. Textiles (Jan.–June 1947) in short tons: staple fibre 7,565; rayon 1,314; cotton yarn 31,277. Total employed in industry (Dec. 1946) 1,086,500. Unemployed (April 1947) 27,000.

Agricultural Production.—Harvest (1946), in short tons: wheat 1,350,104; rye 1,429,726; barley 840,759; oats 908,705; mixed corn 14,854; maize 194,029. Preliminary estimates for 1947: wheat and rye 2,716,400; other grain crops 2,141,180. Other production (1946) beef 132,200; pork 158,400; lard 32,400; butter 54,000; eggs (number) 747,722,000. Livestock population (1946): horses 648,552; cattle 4,142,867; pigs 2,362,151; sheep 570,319; goats 1,310,700.

BIBLIOGRAPHY.—George Gibian, "The Czechoslovak Two Year Plan," *Journal of Central European Affairs* (Jan. 1947); Maurice Hindus, *The Bright Passage* (1947). *See* also *The Central European Observer*, a fortnightly (London). (H. Ko.; X.)

Dahomey: *see* FRENCH OVERSEAS TERRITORIES.

Dairy Industry, Bureau of: *see* AGRICULTURAL RESEARCH ADMINISTRATION.

Dairying. Production of the dairy industry in the United States as measured by number of cows declined slightly in 1947 from the wartime peak attained in 1945 and was also somewhat below the output of 1946. The number of milk cows on farms Jan. 1, 1947, was estimated at 26,100,000 head, about 2% less than a year earlier; the number of replacement heifers was also about 3% less. Average production per milk cow was estimated at about 5,000 lb. U.S. consumption of fluid milk declined to 400 lb. per person in 1947 from the peak of 433 lb. in 1945, but was still above the pre-World War II average of 345 lb.

Production of butter, cheese and evaporated milk each increased in 1947. Exports of dairy products declined from the peak of 1944, when the equivalent of about 5% of the total U.S. milk supply was shipped to other countries. In 1945 and 1946 this proportion declined to about 4%. In 1946 exports took about 1% of butter, 17% of cheese, 30% evaporated milk, 31% condensed milk, 77% dried whole milk and 25% nonfat dry milk. Previous to 1947 about one-fourth of these shipments went to Great Britain, but in the first half of 1947 nearly one-half the exports went to Britain.

British buying dropped sharply toward the end of the year, however.

The price of dairy products to farmers began to decline early in 1947. Milk averaged $4.96 per cwt. in January then declined to $3.78 per cwt. in July followed by an advance to $4.35 in September and $5.02 in December. Butterfat prices followed the same trend. At the same time the prices of feed advanced. (*See* also BUTTER; CHEESE; MILK.) (J. C. Ms.)

Dalton, (Edward) Hugh John Neale (1887–), British politician, was born on Aug. 26 at Neath, Glamorganshire, Wales, the son of the Reverend John Neale Dalton, canon of St. George's, Westminster, and was educated at Eton and King's college, Cambridge. He served on both the French and Italian fronts during World War I, and after the Armistice began practising law. After contesting four by-elections he was elected Labour member for the Peckham division in Oct. 1924. From 1929–31 and from 1935 onward he sat for the Bishop Auckland division. In Churchill's coalition government he was minister of economic warfare from 1940–42, and from 1942–45 president of the board of trade. When the Labour party was returned to power in July 1945, Dalton was appointed chancellor of the exchequer.

On Nov. 12, 1947, Hugh Dalton presented a supplementary budget, his fourth after taking office, which was designed to curtail spending, in which he announced taxes on totalizator bets on dog tracks and on football pool stakes, increases in purchase tax and profits tax, and in duty on beer, wines and spirits. The following day he apologized to the house of commons for "a grave indiscretion" in revealing details of his budget proposals to a newspaper correspondent. The newspaper published the information before he had made the announcement in the house. A few hours later it was announced that in view of this incident the chancellor had offered his resignation, which the prime minister felt it his duty to accept. Although Dalton had many critics, his sudden departure was regarded as a lamentable personal tragedy.

Dams. Food requirements and fuel shortages caused increased activity during 1947 in the construction of dams in connection with irrigation and hydroelectric power developments in various parts of the world.

The world's highest earthfill dam, Anderson Ranch dam in the United States, was practically complete in Sept. 1947. With a capacity of 500,000 ac.ft., it had already stored 130,000 ac.ft.

Foundation excavations at the Davis dam, under construction on the Colorado river 65 mi. below Hoover dam, disclosed a severely jointed rock foundation with numerous faults, necessitating design changes and relocation of the 225,000-kw. powerhouse, intake structure, and spillway. The design of the main embankment of the dam was not affected.

Awarding of the contract late in 1947 for the first stage of the Garrison dam on the Missouri river, launched the construction of the world's second largest dam, major element of the Missouri valley joint program of the U.S. army engineers and the U.S. bureau of reclamation. This stage of the work involved excavation of 6,000,000 cu.yd. of material from the foundations of the powerhouse and intake, and the placing of about 7,000,000 cu.yd. of embankment in the main dam.

The third stage of the Ross dam on the Skagit river was under construction during 1947 to raise the height of the dam to 545 ft., and increase its storage capacity to 1,400,000 ac.ft.

Dams for several combined flood control and hydroelectric projects were undertaken during 1947 by the U.S. army engineers, including Buggs Island dam on the Roanoke river in Vir-

Chief Dams Completed or Under Construction During 1947

Name of Dam	River	Place	Type	Maximum Height, Ft.	Crest Length, Ft.	Volume (Cu. yd.)	Purpose*	Built by	Progress†
L'Aigle	Dordogne	Cantal, France	Concrete gravity arch	296	963	—	P	—	C
Anderson Ranch	Boise, S. Fork	Idaho, U.S.	Earthfill‡	456	1,350	9,600,000	I,F,P	U.S. bureau of reclamation	U
Bluestone	New	West Virginia, U.S.	Concrete gravity	180	2,060	950,000	F,P	U.S. army engineers	U
Claerwen	Elan	South Wales, England	Concrete curved gravity	182	1,066	—	W	City of Birmingham, water committee	U
Davis	Colorado	Arizona, U.S.	Earth and rockfill	138	1,600	4,230,000	P	U.S. bureau of reclamation	U
Eupen	Vesdre	Belgium	Concrete curved gravity	214	1,475	520,000	W	Belgian ministry of public works	U
Garrison	Missouri	North Dakota, U.S.	Earthfill	210	12,000	75,000,000	I,F,N,P	U.S. army engineers	U
Génissiat	Rhône	Ain-Haute-Savoie, France	Concrete gravity	340	650	720,000	N,P	Compagnie Nationale du Rhône	U
John Martin	Arkansas	Colorado, U.S.	Earthfill and concrete gravity	130	14,000	5,915,000 (earth) 220,000 (concrete)	F	U.S. army engineers	U
Kaprun	Salzach	Salzburg, Austria	Concrete arch	393	1,024	—	P	—	U
Loch Sloy	Loch Sloy	Scotland	Concrete buttress	165	1,160	—	P	North of Scotland Hydroelectric board	U
Merriman	Rondout	New York, U.S.	Earthfill	200	2,500	6,600,000	W	N.Y. board of water supply	U
Ross	Skagit	Washington, U.S.	Concrete arch	545	—	—	P	Seattle dept. of lighting	U
Stewartville	Madawaska	Ontario, Canada	Concrete gravity	200	850	—	P	Hydroelectric Power Commission of Ontario	U
Stirling	Harvey	Western Australia	Earthfill	158	930	727,000	I	Western Australia public works department	C

*F—flood control, I—irrigation, N—navigation, P—power, W—water supply. †C—completed in 1947, U—under construction. ‡Highest earthfill dam in world.

ginia, Bull Shoals dam on the White river in Arkansas and Clark Hill dam on the Savannah river between Georgia and South Carolina.

In Colombia, the Anchicaya dam, a concrete arch dam 150 ft. high and 520 ft. long, was under construction during 1947 by the Central Hydroelectrica del Rio Anchicaya to produce 88,000 kw.

Stirling dam, Australia's largest and highest earth dam, was completed during 1947. Construction for irrigation purposes progressed during 1947 in Victoria, at Rocklands dam on the Glenelg river, at Cairn Curran dam on the Loddon river and in New South Wales, at five irrigation dams including Glenbaum dam on the Hunter river and Ballyrogan dam on the Lachlan river.

The Mingechaur dam, an earthfill dam 250 ft. high and 5,000 ft. long, on the Kura river in Transcaucasia, was reported to be under construction in 1947.

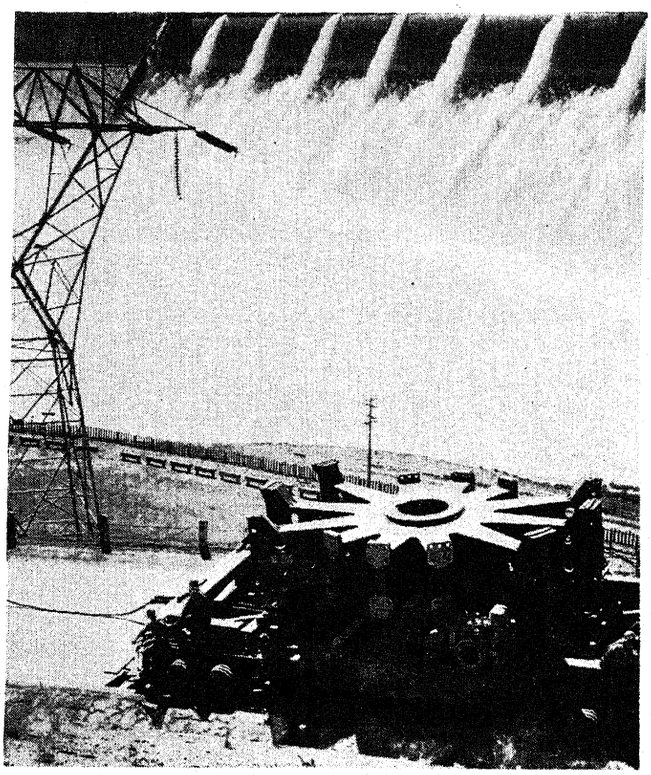
Europe's highest dam, a concrete structure 460 ft. high, was under construction in 1947 on the Non river in Northern Italy to provide hydroelectric power. On the Sarine river in Switzerland, construction of the 261-ft.-high Rossens dam was speeded during 1947 to make available 60,000 kw. of hydroelectric power.

In France, on the upper Rhône river, the Génissiat dam, second largest concrete dam in Europe, was being rapidly completed in 1947, to provide 400,000 kw. of hydroelectric power. Concrete placing proceeded at the rate of 1,200 cu.yd. per day, attaining a maximum during one 24-hr. period of 3,500 cu.yd. L'Aigle dam, completed in 1947, and second of four dams to be erected on the Dordogne river, was expected to provide about 200,000 kw. of hydroelectric power, generating 400,000,000 kw.hr. annually.

At Solleftea, Sweden, a concrete dam and 55,000-kw. hydroelectric plant on the Angerman river was completed during 1947.

The table herewith lists 15 important dams of the world completed or under construction during 1947. (*See* also AQUEDUCTS; IRRIGATION; TENNESSEE VALLEY AUTHORITY.)

(B. O. M.)



SIXTY-TON "SPIDER," part of the first generating unit to be put into service after the close of World War II, is shown being hauled into place by trailer at the Grand Coulee dam, Wash., in June 1947

Dance. Although the dance still maintained the interest and enthusiasm of the general public in 1947, it distinctly felt the tightening up of public spending. This meant fewer new works, smaller travelling companies and reduced numbers of performances.

United States.—Ballet society continued to present new works, develop young artists and build an audience to support a contemporary lyric theatre.

Pastorella presented at the Hunter College playhouse, New York city, in January was based on the Mexican play *Los Pastores* and was choreographed by Lew Christensen to music by Paul Bowles. On the same program Iris Mabry presented two original solo dances, and Ratna Mohini, a Javanese dancer, made her U.S. debut.

In March at the Central High School of Needle Trades, New York city, three ballets were presented. A dramatic ballet *The Minotaur,* choreographed by John Taras, was set to music by Elliott Carter. On the same program *Zodiac,* to contemporary popular music by Rudi Revil, dealt with the movement and rhythm of the cheap dance hall as seen through the eyes of the astrologer. Todd Bolender was choreographer and dancer. *Highland Fling,* a romantic ballet in three scenes by Bill Dollar with music by Stanley Bate, combined the national folk dances with the classical ballet.

In May two more ballets were premiered. *The Seasons,* a ballet in one act with choreography by Merce Cunningham, used the idiom of the modern concert dance. John Cage's *The Seasons* was the musical background. *Black Face* on the same program was set to the music of Carter Harman and choreographed by Lew Christensen.

The Ballet Russe de Monte Carlo scored in its New York

seasons, its Mexican sojourns and its coast-to-coast tour. Alexandra Danilova, Fred Franklin, Natalie Krassovska, Leon Danielian, Mary Ellen Moylan and Ruthanna Boris danced leading roles.

Three new ballets were presented. Ruthanna Boris' *Cirque de Deux* to music by Charles Gounod was a charming novelty and made an instantaneous hit. A witty satire on the pas de deux, it drew on the circus for its setting and apparatus. Antonio Cobos choreographed *Madroños*, a ballet in the Spanish idiom, that turned out to be colourful, lively and pleasant, but without any special theme or depth. It was set to music by Moszkowski and Yradier. *Lola Montez* with choreography by Edward Caton, music by Fred Witt, was less successful. It was concerned with the romantic interlude of the famous dancer which took place when she was driven to the United States to escape a student uprising in Austria. *Virginia Sampler*, to music by Leo Smit and choreography by Valerie Bettis, was an experiment in blending modern dance technique with the traditional ballet. The theme was the struggle between tradition and progress which took place in the romantic Virginia Sampler of early Virginia.

Besides a country-wide tour, Ballet Theatre had its usual spring and fall seasons in New York city. To inaugurate its 1947–48 season it presented a new and highly successful classical ballet by George Balanchine to Peter Tchaikovsky's *Theme and Variations*. Decor was by Woodman Thompson.

A revival of *Princess Aurora* included the rose adagio, and both the pas de deux of the prince and the princess and that of the prince and the lilac fairy. Principal dancers for the season were Igor Youskevitch, Nora Kaye, Hugh Laing, Alicia Alonso and John Kriza.

Following the New York season the Original Ballet Russe opened at Covent Garden, London, in July, featuring Tatiana Riabouchinska and David Lichine. John Taras, Nicholas Orloff, Vladimir Dokoudovsky, Roman Jasinsky, Genevieve Moulin and Vania Psota danced leading roles.

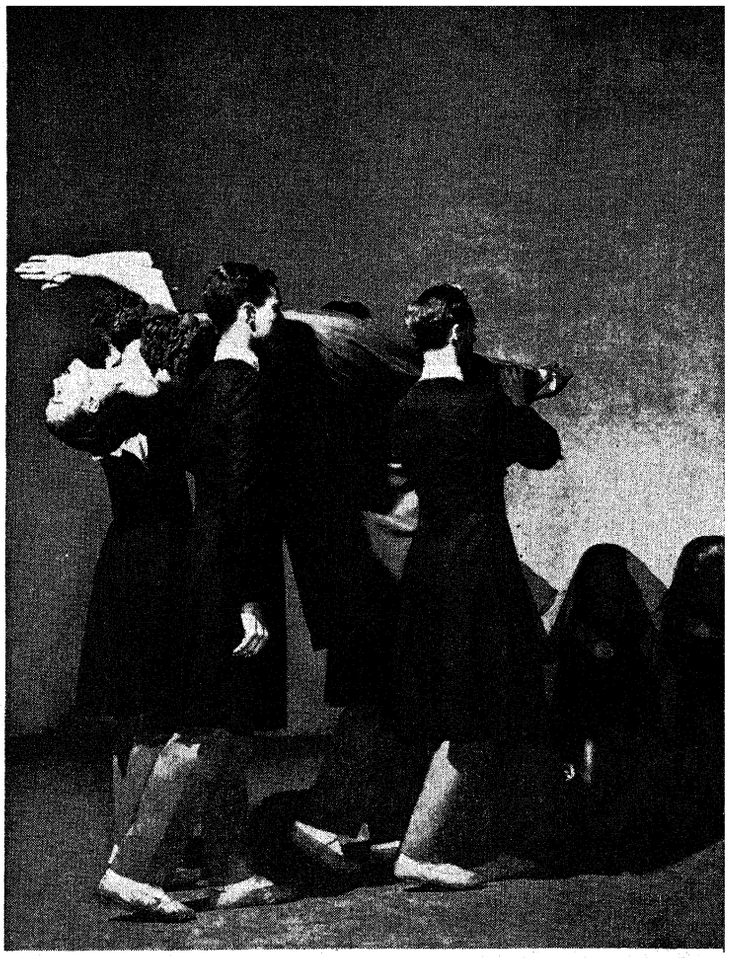
Two new ballets, both by Boris Kniaseff, were presented. *Silver Birch*, to music by Tchaikovsky, was a lyrical story of a birch tree with whom the earth was in love. The other ballet *Piccoli* was a witty burlesque on marital infidelity, and was hilariously received.

In October the company opened a season at the Palais de Chaillot, Paris. After this the company recessed. Some of the U.S. dancers returned to their own country, but a nucleus remained with Col. W. de Basil.

In June the San Francisco ballet at Sigmund Stern's Grove presented *Coppelia* in three complete acts. In August at Stern's Grove it introduced *Dr. Pantalone*, music by Domenico Scarlatti, together with divertissements from *Nutcracker Suite* and a ballet set to Ludwig von Beethoven's *Sonata Pathétique*.

In November the San Francisco Civic Ballet association made its first appearance at the War Memorial opera house, San Francisco, with Alicia Markova and Anton Dolin as guest artists. *Mephisto* was presented to the San Francisco audience at a world premiere with choreography by Adolph Bolm. The following night the company gave another performance at the War Memorial opera house and presented *Parranda* set to Morton Gould's new *Symphonette*. Choreography for this ballet was by William Christensen. Other ballets given were *Lady of the Camellias, Pas de Deux* from the *Black Swan, Henry VIII, Fantasia* and *Giselle*.

Several small ballet companies made their appearance. Ruth Page and Bentley Stone formed a small touring ballet. Nana Gollnar and Paul Petroff organized a Ballet Intime for tour. Miriam Winslow, U.S. dancer, formed a company of six men and eight girls in South America which toured Argentina with the following repertoire: *Barn Dance, Valses Nobles et Sentimentales*, a new ballet based on Nathaniel Hawthorne's *Scarlet Letter* and a group of solos. Simon Semenoff and company on the west coast presented a streamlined edition of *Coppelia* and several of Semenoff's own ballets. Markova and Dolin went on tour with their own small ballet company. Maria Slavenska and George Zoritch went on tour with Ballet Variante.



MARTHA GRAHAM and company in "Letter to the World," performed at the Ziegfeld theatre, New York city, in Feb. 1947

Harald Kreutzberg gave a series of recitals in New York city and was enthusiastically received by his audiences. Trudi Schoop and company returned to New York after an absence of eight years. Jose Limon and company gave a series of recitals. Martha Graham gave a successful Broadway season and presented her own *Errand into the Maze* and Erick Hawkin's *Stephen Acrobat*. Peter Hamilton organized a small company of his own and appeared at the Studio theatre, New York city.

Paul Draper made a political speech the theme of his newest tap dance and created a furor with its humour. Ted Shawn took a leave of absence from Jacob's Pillow, Lee, Mass., and travelled and lectured as far away as Australia. Arthur Mahoney produced a jazz ballet *Crosstown, Parnassus* to George Frederick Handel's music and *La Noche Clara*.

Edwin Strawbridge and company continued to dance for 500,000 children a year in his coast-to-coast tour. His dance plays in 1947 were *Simple Simon* and *An Arabian Night*. Ivy Kitchell and Miriam Marmein continued their country-wide tours.

La Meri, besides conducting a lively program of teaching in the School of Ethnologic Dance, and dancing and producing in the Dance theatre, found time to organize a Young Artists series which presented 12 young artists. Dance theatre also lent its facilities to as many well-known dancers. In October La Meri launched the Exotic Ballet company with a season of ballets and dance-dramas.



ALICIA ALONSO and Igor Youskevitch in the grand *Pas de Deux* from "The Nutcracker" during the 1947 season of repertoire performances by the Ballet theatre

Ruth St. Denis resumed her activities in the Church of the Divine Dance in California. Catherine Littlefield choreographed Sonja Heine's ice show with numbers set to classical music.

Civic ballets showed increase in number and activities. Appleton, Wis., launched a civic ballet. The Young People's Theatre of New Jersey held to its intention of two or more large programs each year and the Atlantic Civic ballet gave 14 performances in Georgia.

Broadway continued to feature dance in its productions and signed dance artists for the choreography as well as the dancing. Such stars as Harold Lang, James Starbuck, Dorothy Etheridge, Nicolas Magallanes, Barton Mumaw and Pearl Primus danced the leading roles.

Great Britain.—In England Sadler's Wells ballet had a brilliant five-month season from January to June, sojourns to the provinces and a two-month continental tour which included appearances in Moscow. For the fall season Léonide Massine restaged his *Mam'zelle Angot* and presented it for the first time in Europe with Margot Fonteyn, Michael Somes, Alexander Grant and Moira Shearer. Frederick Ashton's new ballet *Valses Nobles et Sentimentales* was presented to the music of Maurice Ravel's waltzes, with decor and costumes by Sophie Fedorovitch.

During the spring season in London, Ballet Rambert presented *Plaisance,* a classical suite by Walter Gore, to Gioachino Rossini's music. *The Sailor's Return* with choreography and decor by Andrée Howard, music by Arthur Oldham, was enthusiastically received.

Ballet Rambert left England for Australia via Canada and stopped off in the United States long enough to be entertained by the San Francisco ballet.

International ballet presented Nana Gollnar and Paul Petroff as guest artists. The company then toured the suburbs for three weeks and finally played the State cinema at Kelburn for a week.

The Metropolitan ballet, newest English company, presented *The Lovers' Gallery* by Frank Staff, music by Lennox Berkeley, decor by George Kirsta. The company was organized by Leon Hepner in January with Victor Gsovsky as maitre de ballet and choreographer of the ballets *Pygmalion* and *Dances of Galanta.* During the fall season John Taras staged a new ballet for the company called *Designs with Strings* to Tchaikovsky's music.

The London dance season was further enriched by the appearances of the Anglo-Polish ballet, the Ballets des Champs Elysées and the Indian dancer, Ram Gopal, with his 30 dancers.

France.—Both the Paris Opéra and Opéra Comique in Paris gave weekly ballet performances, equally popular with the public. At the former, Serge Peretti choreographed *Call of the Mountain* to music by Arthur Honneger. Its theme was life in the Tyrol. At the Opéra Comique J. J. Etcheverry put *The Barber of Seville* into ballet form and called it *The Useless Caution.* He also choreographed Oscar Wilde's *Nightingale and the Rose,* to P. Auclert's music and *Khamma,* a ballet by Claude Debussy.

The Opéra Comique boasted such dance artists as Marie Louise Didion, Jean Guelis, Torres (the Spanish dancer), Michael Royne and Lucienne Berggren. The Paris Opéra had, beside Lysette Darsonval, Tamara Toumanova and Alexandre Kalioujny.

In its summer season the Paris Opéra ballet featured Toumanova, Kalioujny and Maria Tallchief in Balanchine's *Le Baiser de la Fée* to music by Igor Stravinsky. Balanchine's new ballet *Le Palais de Cristal,* to Georges Bizet's symphony, had settings by Lenor Fini.

Grand Ballet de Monte Carlo, organized by the Marquis George de Cuevas, opened at Vichy and enjoyed a successful season. It featured Andre Eglevsky, Rosella Hightower, Ethery Pagava, Youly Algaroff, George Skibine and Yvonne Patterson. The U.S. ballerina, Hightower, was acclaimed by the Paris press. Nijinska and Lifar were choreographers and William Dollar's *Constantia* had its European debut. After various appearances in the provinces the company opened in Paris at the Alhambra theatre, with *Les Sylphides, Brahms Variations, Romeo and Juliet* and *Pictures at an Exhibition.*

Ballets des Champs Elysées had a season in England and France as well as touring the provinces. Among the season's novelties was a reconstruction of the old ballet *Les Sylphides. Le Bal des Blanchisseuses* to music by Vernon Duke with choreography by Roland Petit had many styles of technique but the result was movement and fun. Danielle Darmance, skating star as well as ballerina, and Petit danced the principal roles.

Opera of Monte Carlo ballet under Serge Lifar's direction also had a popular season.

Other Countries.—The Nederlandsche opera in Amsterdam was formed of six men and ten women dancers; Darja Collin was maitresse de ballet as well as choreographer and dancer. De Amsterdamsche Ballet Combinatie continued to add ballets to its repertoire. Choreographer Max Dooyes and Pieter van der Sloot appeared also as soloists. Marie Jeanne van der Veen and Mascha ter Weeme were the ballerinas.

In Stockholm, Sweden, the Danish Royal theatre presented *Sylvia* staged by Niels Bjoern Larsen, and Harold Lander's ballet to Karl Czerny's *Etudes.*

In Italy La Scala had a short ballet season with the opera. Aurel Milloss did most of the choreography. Featured dancers were Luciana Novaro, Milly Wanda Clerici and Ugo dell 'Ara.

The Jooss ballet after an unsuccessful U.S. tour returned for a limited tour in Europe, had a season in Paris and then returned to London to hibernate before appearing in public again.

The Stadtische Opera ballet produced Henri Sauguet's *La Nuit,* Manuel de Falla's *Three-Cornered Hat* and William Wal-

ton's *Façade*. Jens Keith was the choreographer and the leading dancers were Jockel Stahl, Lilo Herbeth, Liselotte Koster and Eddy Albertini.

Mary Wigman choreographed and presented a group of dancers but did not dance herself.

The Czech ballet leader, Sasha Machov, set a record as director of the State ballet by introducing four new ballets in one evening—*Spring Symphony,* a series of classical variations to two short symphonies by J. V. Stamic, *Night on the Bare Mountain* to music by Modest Mussorgsky, *Lachian Dance,* based on Moravian folklore, and *Wedding,* a ballet in three scenes by the composer V. Nelhybel.

At the Grand Opera theatre Vaclav Kaslik trained the singers as dancers and produced operas conceived as ballets, in addition to presenting regular ballet performances. An attempt was made to harmonize various techniques of movement and use light to accentuate the rhythm of movement.

Mexico enjoyed a varied program of ballet for 1947. Irene Hawthorn from the United States with the local Waldeen ballet made the Mexican opera season a real dance event. The new Institute of Fine Arts took over the Waldeen ballet and presented a series of programs in March. The Markova-Dolin Co. at the Palacio de Bellas Artes in Mexico City joined forces with the local ballet headed by Gloria Campobello and George Chaffenberg. (L. MH.)

Ballroom Dancing.—The year 1947 brought a return to the more graceful type of dancing. The waltz and tango showed only a slight increase but the samba became extremely popular throughout the world, and the rumba continued to hold its strong appeal.

Jitterbug dancing, more commonly called "swing," decreased in favour toward the last half of the year. Fox trots of the romantic, ballad type were more popular and with these, dancers used smooth walking and balance steps. Even the youngsters avoided the acrobatic antics of jitterbug. This was especially evident at the big contests held in England, Australia and the United States.

The slightly increased interest in waltz was probably caused by two unusually popular songs—a revived and revised version of "I Wonder Who's Kissing Her Now" and "The Anniversary Song" from the motion picture *The Jolson Story.* The movie *The Great Waltz* was redistributed in November because of public interest in the dance.

Through motion pictures, the radio and recordings, the same music and the same type of dancing spread throughout the world at almost the same time. There were no new ballroom dances in 1947. (A. MU.)

Dartmouth College.

The major developments at Dartmouth in 1947 were a record-breaking enrolment of 3,000 students in the fall semester and the inauguration of the new required course for all seniors in "Great Issues." Dartmouth's total of 2,850 students during 1946–47, as compared with the prewar 2,400, crowded all facilities in the village of Hanover, N.H., but the trustees determined that the capacity could be stretched to permit accepting a full freshman class of nonveteran secondary-school graduates. There were 6,000 applications for 675 places in the new entering class which, together with returning veterans in the upper years of college, increased total undergraduate enrolment to record figures. The three associated schools of medicine, business and engineering were also crowded to capacity. A gradual decrease in enrolment at Dartmouth was to be effected as rapidly as graduations and pressure from returning veterans would permit. About 300 students were married and were provided housing in apartments constructed by the college and by the government. Pres. John Sloan Dickey directed the new course required of all seniors beginning in the fall of 1947. "Great Issues 81–82" presents important issues in the broad fields of the making of peace, the building of a good economic society, and the values by which U.S. culture can live. It emphasizes the use and analysis of public information. The purpose of this course is to bridge the gap between undergraduate education and the responsibilities of adult living. President Dickey, guest lecturers and members of the faculty conducted the course. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (S. C. HA.)

Dates: *see* FRUIT.

Daughters of the American Revolution, National Society of: *see* SOCIETIES AND ASSOCIATIONS.

DDT: *see* ENTOMOLOGY.

Deafness.

No reliable census of the adult deaf had been made in the United States in 1947, but a rough estimate indicated there were 100,000. Approximately 18,000 deaf children were being educated in 64 public residential schools, 118 public day schools and 20 denominational and private schools in the United States. Mothers of deaf children were advised to seek information about early training so that a child's native ability would not be unnecessarily retarded.

The American Hearing society, Washington, D.C., estimated that in 1947 there were 10,000,000–15,000,000 people in the United States who were hard of hearing to some extent in one or both ears. But only 4,000,000 or 5,000,000 adults were believed to have a serious handicap and at least 3,000,000 required hearing aids or the use of lip reading or both. Probably no more than 800,000 used hearing aids. It was also estimated that there were at least 1,000,000 or more hard-of-hearing children in the public schools.

Significant progress was made in the establishment of centres at which the hearing loss might be determined and assistance given in the selection and fitting of a hearing aid. A few of these centres were established in the larger medical schools while others were operated at a few of the local branches of the American Hearing society in about 117 cities.

The otologists were better able to perform the fenestration operation and thus ameliorate the hard of hearing by surgery. The ear specialists had learned to diagnose with more reliability the type of hearing defect for which the fenestration operation was most likely to give successful results. It is relevant to point out that improvement by the operation, no matter how well performed, does not re-establish normal hearing.

In 1947 most of the hard-of-hearing persons were rehabilitated by wearing aids or by lip reading or a combination of the two. Most of the hearing aids sold in 1947 were of the "single unit" type in which all the component parts were enclosed in a single case with the exception of the receiver and its connecting wire. The hearing aids weighed approximately 7 to 10 oz. and cost from $75 to $200. The upkeep for maintaining the batteries was approximately 10 cents per day on an 8-hr. operational basis.

The hearing loss of 30 to 35 decibels in the speech frequency was regarded as a handicapping loss. The hard-of-hearing person was advised to have his ears examined by a physician before purchasing a hearing aid. It was considered essential that a comfortable ear mould be made and fitted before attempting to select a hearing aid.

A list of acceptable hearing aids and requirements for acceptance was obtainable from the Council on Physical Medicine, American Medical association, 535 N. Dearborn St., Chicago 10, Ill. (H. A. C.)

Deaths (of prominent persons in 1947): *see* OBITUARIES.

Death Statistics. Provisional reports indicated that the death rate for the United States in 1947 was practically the same as that for 1946, the best year on record. The rates for January, February and September of 1947 were lower than for the like months of 1946, but for each subsequent month through August, the later year had rates at the same, or a higher, level than the earlier year. For the first nine months as a whole, the death rate in 1947 was only 1% higher than in 1946. During the entire year 1946, the total number of deaths in the United States was estimated as 1,402,000—a rate of 10.0 per 1,000 population. For Canada also, there was only a small indicated change in the death rate from 1946 to 1947; reports from cities of 10,000 or more showed an increase of 2.6% for the first eight months of 1947 over the like period of 1946. In Canada there were, altogether, 113,519 deaths during the whole of 1946, the rate being 9.2 per 1,000. Fragmentary reports from England and Wales pointed to a rise in the death rate from 1946 to 1947; a comparison based upon the first ten months of both years for London and the great towns showed a 7.4% rise in the number of deaths. In all of England and Wales, there were 492,088 deaths during 1946—a rate of 11.5 per 1,000 population.

The provisional death rates per 100,000 population during 1946 in the United States for the more important causes of death were: diseases of the heart 306.6; cancer 129.6; cerebral haemorrhage 90.5; total accidents 71.2, of which motor vehicle accidents accounted for 24.1; nephritis 58.0; pneumonia and influenza 46.1; tuberculosis 37.2; premature birth 29.1 and diabetes 24.7. The provisional maternal mortality rate for 1946 was 1.6 per 1,000 live births, as compared with a rate of 2.1 for 1945.

Indications from the records of millions of industrial policyholders of the Metropolitan Life Insurance company pointed to reductions, from 1946 to 1947, in death rates from pneumonia and influenza, tuberculosis, acute poliomyelitis, diabetes, appendicitis, nephritis, measles, suicide and accidents. On the other hand, the rates increased for cancer, diseases of the heart and cerebral haemorrhage. Rates according to age, for ages one year and more were as follows (on a provisional basis): ages 1 to 14 years, 1.1 per 1,000; ages 15 to 24, 1.7; ages 25 to 44, 3.2; ages 45 to 64, 13.7; and ages 65 and more, 65.5.

A study by Louis I. Dublin and Mortimer Spiegelman of the longevity and mortality of U.S. physicians, based upon records for the period 1938–42, showed that their expectation of life was practically identical with that of the general population, when compared age for age (*Journal of the American Medical Association,* Aug. 9, 1947). Thus, for male physicians at the age of 25, the expectation of life was 43.54 years, only a little greater than the comparable figure of 43.31 years for white males in the general population of the United States. For female physicians at age 25, the expectation of life was 47.10 years, compared with 46.86 years for white females generally. When the rates of male physicians were compared, age for age, with those for white males in the general population, important differences were found. Thus, at ages 25 to 34 years, the death rate for male physicians, 173 per 100,000, was 39% below the rate for white males at the same ages. At ages 35 to 44 years, the rate for the physicians was the lower by 19% and at ages 45 to 54 by only 2%. This diminishing advantage turned to an actual disadvantage at ages 55 to 64 years, where physicians had the higher rate by 11%, and again at 65 to 74 years where their death rate was the higher by 5%. At ages 75 and more, male physicians and white males in the general population had practically identical death rates. It was surmised that the advantage of the younger physicians reflected the lower mortality of the more favoured social-economic classes from which most of them are drawn; also, those who undertake and last through the requirements of a medical education are usually a select group in regard to health. The strain of a strenuous professional life appears to take its toll with advance in age, as the death rates of physicians at first approach and then exceed those of the general population. The physicians surviving to the highest ages, where their death rates are the same as in the general population, may be those who led a less strenuous career or who have the advantage of a better heredity or environment. From a comparison of mortality according to cause of death among male physicians and white males in the general population in the United States, it was concluded that the physicians have the higher death rates from the degenerative conditions, but lower death rates from most surgical conditions, infectious diseases and accidents.

A survey of occupational differences in mortality among wage-earners was made by Dublin and Robert J. Vane from records of white male industrial policyholders of the Metropolitan Life Insurance company for 1937–39 (*Monthly Labor Review,* June 1947). A relatively high mortality from tuberculosis was observed in occupations having the common characteristic of exposure to silica dust; among such occupations were sandblasters, stonecutters, underground miners (other than coal), pottery workers, iron foundry workers and metal grinders. Pneumonia was relatively high, as a cause of death, in occupations where there was undue exposure to heat, dust or fumes; occupations in this category are welders, iron and steel foundry operatives, underground miners (other than coal), pottery operatives, buffers and polishers of metal and automobile factory operatives. Excess mortality from accidents was recorded for electric light and power linemen, structural iron painters and workmen, steeplejacks, building wreckers, lumbermen and loggers, quarrymen, railway enginemen and trainmen, roofers and slaters, coal miners, fishermen, seamen and other marine workers.

The beneficial effects of insulin upon the longevity of diabetics was made strikingly apparent from a study of the records of diabetic patients at the New England Deaconess hospital in Boston (*Statistical Bulletin of the Metropolitan Life Insurance Company,* Aug. 1947). The contrast was most evident in a comparison of expectation of life in young children. In the pre-insulin era, the expectation of life for a diabetic child of age 10 was only 1.3 years in 1897–1913, and 2.6 years in 1914–22. In the early insulin era, 1922–25, the figure rose sharply to 14.3 years, and continued to mount rapidly, reaching 45.0 years for the period 1939–45. The higher ages also showed great gains in expectation of life. The record of diabetics, however, still remained below that of the general population at the same ages and, with more intensive educational measures among both physicians and patients, further gains were anticipated.

A survey of disasters involving five or more deaths during the decade 1937–46 (*Statistical Bulletin of the Metropolitan Life Insurance Company,* March 1947) revealed that there were 919 such accidents costing 12,987 lives; 14 disasters each took 100 or more lives. The peak year was 1942, when 118 catastrophes resulted in about 1,950 deaths, and the low year was 1939, with 66 and about 600 deaths. It was found that about nine-tenths of the accidents, and more than three-quarters of the deaths resulted from human failures and not from natural causes.

The average length of life (expectation of life at birth) corresponding to mortality conditions among the general population of the United States during 1945, the latest year of record in 1947, was: white males 64.44 years; white females 69.54 years; Negro males 56.06 years; Negro females 59.62 years.

In each case, the figure was the highest yet on record. (*See* also ACCIDENTS; CENSUS DATA, 1947; DISASTERS; INFANT MORTALITY; SUICIDE STATISTICS.)

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Debt, National.

For the second successive year the U.S. government was able to reduce the gross public debt in 1947. From a peak of $279,214,000,000 reached at the end of Feb. 1946, the national debt was reduced to $259,149,000,000 by the end of Dec. 1946 and to $256,900,000,000 by the end of Dec. 1947. In his budget message of Jan. 12, 1948, Pres. Harry S. Truman estimated that by the end of June 1948 the national debt would be further reduced to $250,900,000,000.

Table I.—*National Debt of the United States, 1913–48*

June 30	(Millions of dollars)	June 30	(Millions of dollars)
1913	$1,193	1931	$16,801
1914	1,188	1932	19,487
1915	1,191	1933	22,539
1916	1,225	1934	27,053
1917	2,976	1935	28,701
1918	12,244	1936	33,545
1919	25,482	1937	36,427
1920	24,298	1938	37,167
1921	23,976	1939	40,445
1922	22,964	1940	42,971
1923	22,350	1941	48,961
1924	21,251	1942	72,422
1925	20,516	1943	136,696
1926	19,643	1944	201,003
1927	18,510	1945	258,682
1928	17,604	1946	269,422
1929	16,931	1947	258,286
1930	16,185	1948	250,900

Source: Data from 1913 to 1947 are from U.S. treasury department, daily treasury statement (revised); 1948 estimated.

Thus, in the period after Feb. 1946, the upward trend of the national debt which had been apparent since the onset of the depression of the 1930s was reversed. The debt had risen from $16,185,000,000 in 1930 to $42,971,000,000 in 1940, partly because government revenues fell to a low level during the depression but, more importantly, because of the expenditure policies which were adopted by the government to combat the depression. During the years of rearmament and war, however, the national debt increased by even greater amounts to attain the record level of 1946.

The new trend of debt retirement was begun by the treasury in March 1946. Gross reductions in marketable interest-bearing securities amounted to more than $34,000,000,000 between that date and the end of 1947. The distribution of this reduction among the various types of securities is shown in Table II. The debt reduction program in 1947, as in 1946, was concentrated in the shorter-term obligations of the government.

The funds used to retire the aggregate maturities of $23,197,000,000 during the last ten months of 1946 were obtained chiefly from the general fund cash balance accumulated during the Victory Loan drive. As the cash balance was drawn down to a level commensurate with reduced expenditures following

Table II.—*Decrease in Marketable Interest-Bearing Public Debt, March 1, 1946, to Dec. 31, 1947*

(Millions of dollars)

	1946	1947		
	March 1–Dec. 31	Jan. 1–June 30	July 1–Dec. 31	Jan. 1–Dec. 31
Treasury bills	−1	1,258	639	1,897
Certificates of indebtedness	11,426	4,691	4,076	8,767
Treasury notes	9,461	1,948	−3,233	−1,285
Treasury bonds—bank restricted	3,791	0	1,459	1,459
Treasury bonds—bank eligible	−1,479	0		
Postal savings and other bonds	1	13	1	14
Total marketable interest-bearing public debt	23,197	7,911	2,944	10,855

Source: U.S. treasury department.



"'TIL DEATH DO US PART," by Justus of the *Minneapolis Star Journal.* Reductions in the U.S. public debt totalled more than $11,000,000,000, but the balance was still astronomical at the end of the fiscal year 1947

Table III.—*Source of Funds for Reduction in Marketable Interest-Bearing Public Debt, March 1, 1946, to Dec. 31, 1947*

(Millions of dollars)

	1946	1947		
	March 1–Dec. 31	Jan. 1–June 30	July 1–Dec. 31	Jan. 1–Dec. 31
Decrease in interest-bearing marketable public debt	23,197	7,911	2,944	10,855
Sources of funds:				
Reduction in general fund balance	22,457	193	211	404
Net budgetary surplus	−1,714	773	1,659	2,432
Net receipts in trust accounts, etc.	−681	−107	−484	−591
Increase in nonmarketable public debt	3,132	7,048	1,557	8,605
Savings bonds	1,084	1,544	768	2,312
Special issues	3,688	2,781	1,589	4,370
Other debt	−1,640	2,723	−800	1,923
Net decrease in total public debt	20,065	863	1,387	2,250

Source: U.S. treasury department.

the end of World War II, the source of funds shifted. In 1947 funds for gross debt retirements were obtained chiefly from net budgetary surpluses and a continued growth in other public debt accounts. Nonmarketable savings bonds were increased by $2,312,000,000 and special issues to U.S. government agencies and trust funds by $4,370,000,000. The former consisted of series A to G savings bonds, while the latter was made up primarily of the investments of the various retirement, unemployment and insurance systems operated by the government.

Since the major source of funds for retirement of short-term debt was the expansion of savings bonds and special issues, debt

Table IV.—*Ownership of Government Interest-Bearing Securities*

(Billions of dollars)

End of month	June 1940	June 1945	June 1946	June 1947
Total amount outstanding	47.9	256.8	268.6	255.2
Total held by banks	18.6	106.0	108.2	91.9
Commercial banks	16.1	84.2	84.4	70.0
Federal reserve banks	2.5	21.8	23.8	21.9
Total held by non-bank investors	29.3	150.8	160.4	163.3
Individuals	9.7	58.5	62.9	65.8
Insurance companies	6.5	22.7	25.3	25.0
Mutual savings banks	3.1	9.6	11.5	12.1
Other corporations and associations	2.5	29.8	25.2	21.2
State and local governments	.4	5.3	6.5	6.4
U.S. government agencies and trust funds	7.1	24.9	29.1	32.8

Source: U.S. treasury department, treasury bulletin.

operations in 1947 resulted in a further redistribution of the ownership of the national debt. As shown in Table IV, the total held by non-bank investors increased from $160,400,000,000 in June 1946 to $163,300,000,000 a year later. In contrast, total bank holdings declined from $108,200,000,000 to $91,900,000,000 over the same period.

Significant features of the management of the public debt during 1947 were the firming of open-market interest rates on government short-term securities and a growing necessity on the part of the federal reserve system to purchase long-term bonds in order to maintain their market value at a level which would hold the yield at 2½%. Short-term rates were allowed to rise gradually, as evidenced by an increase in the three-month treasury bill rate from 0.376% in June to 0.944% in the week ending Nov. 29. The yield on 9–12 month certificates of indebtedness advanced from 0.85% in June to 1.01% at the end of November. This firming in open-market rates tended to diminish the pressure on banks to sell short-term government securities in order to obtain the higher returns from longer-term investments.

Heavy demands for mortgage money and business expansion during 1947 led many financial institutions to reduce their government bond portfolios substantially, resulting in conditions under which it was necessary for the federal reserve banks to purchase government bonds in the market in order to maintain the 2½% return. As par levels were being approached, the federal reserve banks, both on their own account and for the account of federal agencies and trust funds, became heavier and heavier purchasers of long-term government bonds. The federal reserve banks lowered their support prices by steps, allowing prices of some issues to fall to, or nearly to, the par level.

Perhaps the most dramatic example of this trend occurred on Dec. 24 when the federal reserve banks announced new buying prices for long-term government bonds at substantially lower premiums than had been offered prior to that date. For example, the 2½% of Sept. 1969–72, eligible for purchase by all types of investors including banks, dropped from 103¼ on Dec. 3 to 101 on Dec. 24. The trend of these bonds earlier in the year had been from 106 9/16 on Aug. 31 to 104¾ on Nov. 12. While the declines in the other issues were of smaller magnitude, the trend was similar throughout the whole range of government long-term securities.

Other developments related to the national debt were indirect effects of the trends noted above. An encouraging indication was the reduced rate of monthly redemptions in U.S. savings bonds, with an accompanying increase in the total outstanding. The monthly rate of redemptions in early 1946 was about 1.25%; in 1947 the rate had fallen to approximately 0.8%.

The average interest rate on the total debt outstanding rose from 2.059% in Jan. 1947 to 2.129 in October, reflecting both the changing composition of the debt and the stiffening rates in the short-term issues mentioned above. The upward trend in interest rates would tend to retard the contraction in annual interest payments of the federal government accompanying a reduction in total national debt. President Truman in his January budget message estimated interest charges in fiscal year 1948 at $5,200,000,000 and in fiscal year 1949 at $5,250,000,000. Interest on the public debt amounted to $4,958,000,000 in 1947, compared to $4,722,000,000 in 1946.

State and Local Government Debt.—Statistics on state and local government debt in the United States are shown in Table V. In 1947 the downward trend characterizing the war period was reversed. During World War II, state and local government revenues increased with the rapidly expanded national income, while at the same time capital expenditures were restricted because of scarcities of labour and materials. The resulting surpluses enabled state and local governments to reduce their total debt from $20,246,000,000 in 1940 to $15,922,000,000 in 1946.

Table V.—*Debt of State and Local Governments, U.S.*

(Millions of dollars)

June 30	Total	State	County	City and township	School district and special district
1929	17,234	2,300	2,270	9,259	3,405
1930	18,459	2,444	2,434	9,929	3,652
1931	19,534	2,666	2,564	10,458	3,846
1932	19,804	2,896	2,565	10,483	3,860
1933	19,985	3,018	2,521	10,577	3,869
1934	19,286	3,201	2,477	9,730	3,878
1935	19,429	3,331	2,433	9,778	3,887
1936	19,662	3,318	2,389	10,058	3,897
1937	19,594	3,276	2,345	10,067	3,906
1938	19,576	3,309	2,282	9,923	4,062
1939	19,996	3,343	2,219	10,215	4,219
1940	20,246	3,526	2,156	10,189	4,375
1941	20,226	3,413	2,046	10,210	4,557
1942	19,690	3,211	1,846	10,079	4,554
1943	18,692	2,909	1,634	9,784	4,365
1944	17,471	2,768	1,694	8,826	4,183
1945	16,589	2,425	1,545	8,589	4,030
1946	15,922	2,358	1,417	8,267	3,880
1947*	16,819	2,972	1,481	8,275	4,091

*Preliminary.
Source: U.S. department of commerce.

The rise in 1947 was principally because of large borrowings by three states—Michigan, Illinois and Massachusetts—in connection with veterans' bonus payments and services. Total debt increased $897,000,000 in 1947; state governments accounted for $614,000,000 of this increase and school districts and special districts for $211,000,000. Expansions in county, city and township indebtedness were nominal.

Other Countries.—The latest data available in 1947 on the national debts of leading countries of the world are shown in Table VI. During World War II, the debts of most countries rose; even the nonbelligerent countries were required to make unusual expenditures. With the reduced importance of national defense in government finance, the trend of debt was more mixed. Debts were declining in countries where postwar infla-

Table VI.—*National Debt of Various Countries*

Country (Unit of currency)* (in millions)	Date	Total debt (000,000)
Africa		
Egypt (pound)	5/31/46	77
Union of South Africa (pound)	6/30/46	599
America, North		
Canada (dollar)	3/31/47	16,799
Mexico (peso)	12/31/46	2,535
United States (dollar)	8/31/47	256,300
America, South		
Argentina (peso)	12/31/46	10,536
Brazil (cruzeiro)	12/31/46	16,617
Chile (peso)	12/31/46	14,586
Colombia (peso)	12/31/46	438
Ecuador (sucre)	12/31/46	656
Peru (sol)	6/30/46	2,083
Asia		
India (rupee)	3/31/47	18,130
Japan (yen)	8/31/47	304,630
Europe		
Belgium (franc)	9/30/46	274,489
Bulgaria (leva)	12/31/45	90,000†
Czechoslovakia (koruna)	12/31/46	108,758
Denmark (krona)	3/31/46	1,476
Finland (markkaa)	10/31/46	104,343
France (franc)	8/31/46	2,041,296†
Germany (reichsmark)	3/31/45	383,100
Greece (drachma)	3/31/40	52,746
Hungary (forint)	12/31/46	1,163
Italy (lira)	12/31/46	1,268,125†
Netherlands (gulden)	10/31/46	17,005†
Norway (krone)	6/30/46	6,893
Poland (zloty)	3/31/39	5,318
Portugal (escudo)	12/31/45	9,886
Rumania (lev)	3/31/46	124,960
Spain (peseta)	12/31/45	63,000
Sweden (krona)	10/31/46	12,961
Switzerland (franc)	12/31/46	11,489
Turkey (pound)	12/31/46	1,847
United Kingdom (pound)	3/31/47	25,612
Yugoslavia (dinar)	3/31/39	24,620
Oceania		
Australia (pound-Aust.)	6/30/46	2,794
New Zealand (pound-N.Z.)	3/31/47	635

*For approximate value of various currencies see *Exchange Control and Exchange Rates.*
†Includes the internal debt only.
Source: *Statistical Yearbook* and monthly statistical bulletins of the League of Nations, official government sources.

tion had been of a more moderate character. On the other hand, in countries where inflation had been more severe governments had found it much more difficult to secure a balance between receipts and expenditures. It should be emphasized, however, that debt changes generally after the end of the war were much smaller than those which occurred during the war years. (*See* also BUDGET, NATIONAL; GREAT BRITAIN.)

(M. GT.)

Debts, Government: *see* DEBT, NATIONAL.

Decorations, Medals and Badges—Military, Naval and Civil.

The U.S. army announced during 1947 that the decoration system was primarily intended as recognition for war service and the liberal standards then established are not applied during peacetime. World War II service was considered terminated March 2, 1946.

The issue of World War II victory medal and American defense service medal was initiated in 1947.

Die samples of the European, African, middle-eastern campaign medal were approved July 17, 1947. Medal obverse shows a landing operation with troops and ships in foreground and a plane flying in war clouds in background. Reverse consists of an American eagle close with head erect standing on a rock between the inscription "1941 1945" and "United States of America."

The design of the Asiatic-Pacific campaign medal was approved May 22, 1947. Obverse depicts a landing operation with two figures among war-torn palms in foreground; a submarine, vessel, and an aircraft carrier and flying planes in background. Reverse, same as European, African, middle-eastern medal.

Die samples of the American campaign medal were approved Nov. 25, 1947. Obverse shows a sinking submarine with a patrol ship and aeroplane in foreground, and buildings in background representing the antisubmarine warfare and that the Americas were the arsenal of the world during that period. Reverse—same as European, African, middle-eastern and Asiatic-Pacific campaign medals.

The design of the army of occupation medal approved Dec. 1946 was rendered and die sample approved March 2, 1947. First issues were made to General of the Army Dwight D. Eisenhower and General of the Army Douglas A. MacArthur on April 2, 1947, while token issues were made to the army on Army day.

Miniature ribbons of decorations and service medals on a scale of one-half size were authorized for civilian wear. Miniatures of aviation badges for civilian wear, 21/32 of an inch in length, were authorized Feb. 28, 1947.

Public law 306 approved by congress Aug. 1, 1947, provided for the secretary of war and secretary of the navy jointly to fix the size, design and composition of a Gold Star lapel button to be furnished widows, parents and next of kin of members of the armed forces who lost their lives in the armed services of the United States in World War II.

Hawaii announced the creation of a ten-year continuous service medal and bars for additional service of five years.

California established on May 26, 1947, the federal service ribbon in the state colours, blue and gold.

National Military Establishment Seal.—On Oct. 8, 1947, the president of the United States approved the seal of the national military establishment as provided in Sec. 202c of the National Security Act of 1947. It is described as an American bald eagle with wings displayed horizontally, grasping three crossed arrows and bearing on its breast a shield paleways of 13 pieces argent and gules, a chief azure. Above the eagle an arc of 13 stars with alternating rays. Below the eagle a wreath of laurel to dexter and olive to sinister. On an encircling band the inscription "National Military Establishment" and "United States of America."

Flag for Secretary of Defense.—On Oct. 8, 1947, the president of the United States approved the flag for the secretary of defense. The flag is of medium blue with four white corner stars and the central design consisting of the eagle shield and arrows of the seal of the national military establishment.

Department of the Army Seal.—By direction of the president the seal previously designated for the department of war, which contains the words "War Office" was announced on Sept. 18, 1947, as the seal for the new department of the army.

Department of the Air Force Seal.—By executive order Nov. 1, 1947, the president of the United States approved the seal of the department of the air force. This seal is heraldically described as a—Shield; *Per fess* nebuly abased azure and argent, in chief a thunderbolt or inflamed proper. Crest: On a wreath argent and azure an American bald eagle wings displayed and partially elevated proper in front of a cloud argent. Encircling the shield and crest an arc of 13 stars and below the shield the inscription "MCMXLVII." On a band encircling the whole the inscriptions "Department of the Air Force" and "United States of America" (A. E. DU.)

Great Britain.—*Naval General Service Medal,* first established in 1915, with clasp for southeast Asia, 1945–46, was to be awarded to naval ranks and ratings who took part in operations in Java and Sumatra between Sept. 3, 1945, and Nov. 30, 1946; in French Indo-China between the same commencing date and Jan. 28, 1946; and for specified service in Palestine after Sept. 27, 1945. The same medal, with distinctive clasp, would be awarded to naval personnel for six months postwar minesweeping service at sea, and, with a clasp "Bomb and mine clearance, 1945–48," to naval officers and men actively engaged for six months in the removal and disposal of bombs and mines inside the United Kingdom.

General Service Medal, Army and Royal Air Force, with the clasp, for southeast Asia, for Palestine or for bomb or mine clearance, would be awarded to army and air force personnel under the same conditions as for the navy.

Long Service and Good Conduct Medal, Army.—Qualifying conditions were slightly amended by royal warrant of May 14, 1947. Officers who were commissioned subsequent to Sept. 3, 1939, and who had completed a minimum of 12 years in the ranks might, upon completion of 18 years' service, qualify for the L.S. and G.C. medal.

Efficiency Medal was now awarded to officers and other ranks of the territorial army who were serving on the active list of the territorial army on Sept. 2, 1939, and who had completed 12 years' qualifying service, whether their service had been wholly in the ranks or partly as an emergency commissioned officer. Women of the auxiliary territorial service were also similarly eligible.

Norway.—*King Haakon VII Liberty Cross* and *Liberty Medal* were established for award to Norwegian and foreign nationals for distinguished services during the war.

Denmark.—*King Christian X's Liberation Medal,* in silver, was established for men and women of Danish or foreign nationality, resident abroad, who rendered conspicuous service for the liberation of Denmark from the Germans.

King Christian X War Medal, 1940–45, in silver, was for men and women of Danish nationality who volunteered to fight for the Allied cause in the Allied forces. Danish naval or military personnel sent abroad for such purpose were not entitled. (H. T. DG.)

De Gasperi, Alcide: *see* GASPERI, ALCIDE DE.
De Gaulle, Charles: *see* GAULLE, CHARLES DE.

Delaware.

Delaware, on the middle Atlantic seaboard, one of the original 13 states of the United States, is called the "First state," having been the first to ratify the federal constitution, Dec. 7, 1787. A popular name used chiefly in business and commerce is the "Diamond state." Area 2,057 sq.mi. (land, 1,978; inland water 79). Population (1940) statewide 266,505, of which 139,432 were urban, 127,073 rural. Native white numbered 215,695; foreign-born 14,913; Negro 35,876. Wilmington, 112,504, is the one city of more than 6,000; Dover, 5,517, is the capital. The bureau of the census, 1947 estimate, was 286,527.

History.—Delaware veterans attending schools and colleges under the G.I. Bill of Rights numbered 2,785 at the end of the year; 1,537 were in on-the-job training and 3,731 were receiving disability pensions. Revised plans and specifications for construction of the $6,000,000, 320-bed U.S. veterans' hospital near Wilmington were completed. Test borings were made and bids for construction of piers received by the state highway department for the $40,000,000 bridge across the Delaware river, a memorial to the Delaware dead in World War II.

The state employees' pension act of 1945 went into effect July 1, 1947. The housing shortage continued acute.

Legislative enactments at the 1947 session, January to April, included: temporary increase of $200 per year for state employees receiving less than $5,000 salary; proposal to amend the constitution increasing the two-year term of four state officers to four years: attorney general, auditor, treasurer and insurance commissioner; requirement of report and certificate of physical examination including blood test from applicants for marriage licences; restrictive regulation of labour unions; provision for declaratory judgments by the courts in all cases of actual controversy except divorce or annulment of marriage.

The chief state officers in 1947 were: governor, Walter W. Bacon; secretary of state, William J. Storey; adjutant general, Paul R. Rinard; attorney general, Albert W. James; chancellor, W. Watson Harrington; chief justice, Charles S. Richards.

Education.—The 1947 legislature continued the state commission engaged in making surveys and studies preliminary to recommending an improved public school system, and created a uniform state supported salary schedule for teachers. The requirement of the Wilmington board of education charter that the city council appropriate the full budget requested annually by the board up to seven mills of the tax dollar, was declared constitutional by the state supreme court. Citizen participation in the movement for better schools increased during the year. In 1947, through rehabilitation service, the state board of vocational education placed 342 disabled persons in earning jobs.

The 165 elementary schools had an enrolment of 25,692, and a teaching staff in June of 870 (increased to 898 in December); the 46 secondary schools had 16,736 pupils and 811 teachers in June (increased to 850 in December).

Social Insurance and Assistance, Public Welfare and Related Programs.—The amount of social insurance paid out for the year 1947 was $2,740,509. Active claims, Dec. 19, numbered 2,468. The cost of outside relief for the year was $332,416 for cases averaging 750 per month. The cost was shared half and half by the state and the county in which the relief was given. In Dec. 1947, 1,293 persons were receiving old age pensions compared with 1,184 the previous December. For the fiscal year ending June 30, 1947, 873 dependent children were cared for in their own or foster homes, and welfare services given to 1,028 additional children; state appropriation, $249,140. Appropriation to Ferris school (correctional for boys) $155,960; to Kruse school (correctional for Negro girls) $49,300. There is no state prison, but small jails in the two rural counties; the New Castle county workhouse accommodates long-term prisoners from all counties. During the year ending June 30, 1947, the workhouse received 2,082 prisoners and discharged 1,980; inmates in June numbered 367.

Communications.—Mileage of highways and rural roads, all under state control, was 3,899.31; income of the state highway department for the fiscal year ending June 30, 1947, was $5,177,729.62; expenditures $4,820,494.60; cash balance June 30, $2,057,435.58; federal aid $1,047,747.55. Total motor vehicle accidents increased: fatal accidents and deaths resulting from accidents (outside the city of Wilmington) decreased 9%. Railroad mileage was approximately 270.

Business for the calendar year at the port of Wilmington made its highest annual record. Tonnage was 573,481 compared with 419,245, in 1946; the number of vessels docking, 650 compared with 477. The value of cargoes was $26,614,870 compared with $13,570,440 in 1946. Tonnage through the Delaware and Chesapeake canal was 5,388,095 (13,491 vessels) compared with 3,653,258 (11,730 vessels), the previous year.

Regular passenger, express, and freight service was opened Nov. 29 at the New Castle county airport by American Airlines and Trans World Airlines. On Dec. 31, the state had in use 91,817 telephones. The city of Wilmington had three radio broadcasting stations.

Banking and Finance.—There were 28 state banks, mutual savings banks, and trust companies with 6 branch banks and 9 branch offices; 13 national banks, 39 building and loan associations and 21 small loan companies. Total assets of state banks and trust companies on June 30, 1947, were $557,688,794.21 compared with $567,963,881.80 in 1946; deposits were $495,286,057.93 compared with $507,740,263.89; assets of the national banks were $42,809,679.43 compared with $42,321,549.05; the 39 building and loan associations had assets of $18,129,329.64 compared with $17,082,094.91 in 1946.

Total state revenue for the year ending June 30, 1947 was $23,385,534.14; nonrevenue income $2,296,682.47; total $25,682,216.61. Expenditures were $25,162,553.68; balance $519,662.93, added to a balance of $17,367,485.86 at the beginning of the year, made a cash surplus of $17,887,148.79 at the end of the fiscal year. The gross debt (serial bonds for permanent improvement) was $4,179,000.

Agriculture.—The estimated total cash income from agricultural production in 1947 was $80,926,000. Income from the broiler industry, estimated at $51,000,000, was below normal because of the shortage and high price of feed; total livestock income, January to October, was $54,570,000; total from crops for the same period, $14,319,000. Weather conditions ruined the Delaware peach crop which dropped from 454,000 bu. in 1946 to 171,000 bu. for 1947.

Manufacturing.—Gross receipts of manufacturers licensed for the year ending June 30, 1947, were $344,049,916. The total of employees under the unemployment compensation law in Sept. 1947 was 92,026 compared with 86,000 for Sept. 1946; total wages for the year Oct. 1946 to Sept. 1947, $231,522,108 compared with $204,000,000 the previous year. On Nov. 15, 1947, 516 plants in the Wilmington area reported an employment total of 60,046 compared with 59,275 in 621 plants in Nov. 1946. Turnover for the month ending Nov. 15, 1947, was 1,288 employed, 1,176 laid off. In 1947, 2,787 new companies were chartered in Delaware compared with 3,392 in 1946.

Table I.—*Leading Agricultural Products of Delaware, 1947 and 1946*

Crop	1947	1946
Corn, bu.	4,340,000	4,270,000
Apples, bu.	396,000	825,000
Hay, tons	102,000	99,000
Wheat, bu.	1,326,000	1,216,000
Tomatoes, tons	54,000	42,000
Strawberries, crates	43,000	66,000
Lima beans, tons shelled	9,730	8,160

Table II.—*Principal Industries of Delaware, 1947 and 1946*

Industry	1947	1946
Chemicals	$33,627,076	$29,663,917
Shipbuilding	16,936,110	18,384,584
Leather	20,278,153	27,637,666
Foundries, machine shops, tools	18,202,885	22,603,062
Fibre	14,878,588	11,802,556
Textiles	51,656,907	43,959,969
Canning and packing	11,354,419	10,703,548

Mineral Production.—The chief products, building stone, granite, sand, brick and clay, for the year ending Nov. 1, 1947, had a total value of $663,113 compared with $363,159 for the previous year.

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Democracy.

During 1947 democracy was under very heavy attacks from communism. The use of the terms "democracy," "people's democracy" or "new democracy" by the communists tended to confound the issues. Nevertheless, throughout the year democratic resistance against communism was growing everywhere, except in those countries where a communist regime had been imposed.

As in its struggle against fascism a decade before, democracy in 1947 seemed to successfully overcome its initial weaknesses in its efforts to secure the survival of free man and of free society.

In a statement to the Council of Foreign Ministers in March on the democratization of Germany, Secretary of State George C. Marshall defined the inalienable rights of individuals under democracy.

They include the right of every individual to develop his mind and his soul in the ways of his own choice, free of fear and coercion—provided only that he does not interfere with the rights of others. To us a society is not democracy if men who respect the rights of their fellow men are not free to express their own beliefs and convictions without fear that they may be snatched away from their home or family. To us a society is not free if law-abiding citizens live in fear of being denied the right to work or deprived of life, liberty and the pursuit of happiness.

A democracy demands that

freely constituted political parties should be insured the right to participate in a free and competitive election system in which each is accorded equal opportunity to present its views, win adherence and obtain just representation. The rights of free and autonomous trade unions to carry on in accord with the wishes of their members should be clearly established.

Democracy demands a free press and radio and rejects the monopolization of information media in the interests of one party.

The people must enjoy an unrestricted access to information, including the press, radio, books, magazines, publications, films, the theatre and music.

In a similar way President Harry S. Truman defined democracy in his message to congress on March 12, determining U.S. foreign policy:

At the present moment in world history nearly every nation must choose between alternative ways of life. The choice is too often not a free one. One way of life is based upon the will of the majority and is distinguished by free institutions, representative government, free elections, guarantees of individual liberty, freedom of speech and religion, and freedom from political oppression. The second way of life is based upon the will of a minority forcibly imposed upon the majority. It relies upon terror and oppression, a controlled press and radio, fixed elections, and the suppression of personal freedoms. I believe that it must be the policy of the United States to support free peoples who are resisting attempted subjugation by armed minorities or by outside pressures.

The Federal Council of the Church of Christ in America adopted a statement prepared by the Commission on a Just and

Durable Peace in which it stressed that

> The critical and supreme political issue of today is that of the free society versus the police state. It is not the economic issue of communism versus capitalism or of state socialism versus free enterprise. As to such matters it is normal that there should be diversity and experimentation in the world.

A free society, or a democracy, is

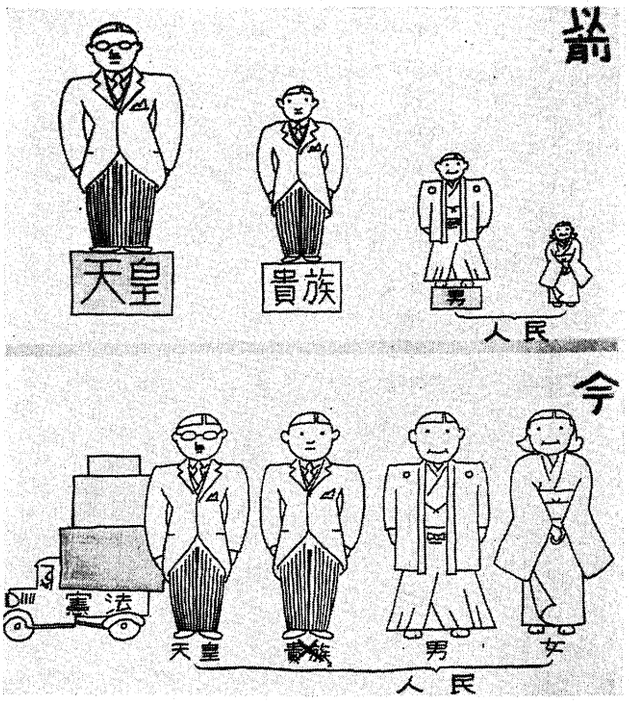
> a society in which human beings, in voluntary cooperation, may choose and change their way of life and in which force is outlawed as a means to suppress or eliminate spiritual, intellectual and political differences between individuals and those exercising the police power.

The United Nations Commission on Human Rights was discussing an international bill of human rights in 1947. An international treaty guaranteeing the free flow of information everywhere was drafted. By the end of 1947 no agreement was yet reached about the fundamental concepts involved between the democratic nations on the one hand and the communist states on the other.

While in the countries under Russian influence democratic opposition was liquidated during 1947 and the democratic leaders who did not succeed in escaping abroad were either executed or imprisoned—only in Czechoslovakia and in Finland democratic parties continued to exist and to maintain a considerable though limited freedom of action—in the European countries outside direct Russian influence communism was either weak or was resisted successfully, as in France and Italy, the only two countries outside the Russian orbit where communism had a mass following. The struggle in Europe was not a struggle between capitalism and socialism but between free democratic society and communist totalitarianism. The social democrats in most countries (including Finland and Czechoslovakia) were for the socialization of the means of production within the framework of a democratic society safeguarding the inalienable rights of the individual and were opposed to communism and all forms of totalitarian society. The Marshall plan for the economic recovery of Europe, not entirely approved in the U.S., promised to strengthen democracy and was violently combated by the communists. Russia and the eastern European nations had been invited to participate in the Marshall plan. Czechoslovakia accepted at first, but Russia decided against participation and forced its point of view upon all the states in the soviet bloc, including Czechoslovakia. Thus, through Russian intransigence, Europe was split into two parts. Sixteen European nations, however, met in Paris and drew up a joint European recovery program with the assistance of the U.S. under the Marshall plan. Democracy in Europe expected new strength from the implementation of the Marshall plan in 1948. (*See* EUROPEAN RECOVERY PROGRAM.)

Elections held in Europe confirmed the general trend toward strengthening democracy. In Oct. 1947 municipal elections in France ended communist control of most of the large French cities. The French government representing the parties of the centre, especially the (Catholic) Republican Popular Movement and the Social Democrats, defeated in Dec. 1947 nation-wide communist strikes which exploited the legitimate economic grievances of the wage earners for political purposes. The Confédération Générale du Travail, the French federation of trade unions which had been under communist control from 1945, split at the end of 1947. Its noncommunist members under the veteran trade union leader Léon Jouhaux formed a rival federation, the Force Ouvrière, the Workers Strength, whose purpose was to free the trade union movement from political subservience to any party.

In the elections to the municipality of Rome, Italy, the communist-led People's Front received 32.1% of the votes. The Christian Democrats gained considerably compared with the elections of Nov. 1946. In the same month municipal elections in Norway showed a weakening of the communist and socialist votes and the strengthening of the agrarian and conservative parties. In Denmark, national elections strengthened the Social Democrats at the expense of the communists; the former gained the nine seats lost by the communists. The Social Democrats emerged as the strongest single party without, however, commanding a majority.



POLITICAL RIGHTS under the Japanese constitution effective May 3, 1947, as presented in a "before-after" poster. Stratification (top) of classes and sexes is abolished and equality (bottom) established as a truck (the constitution) carts all pedestals away

In national elections in Switzerland the communists gained seven seats in a parliament consisting of 194 members, while in the municipal elections in Britain the communists could not carry a single one of their candidates.

Some progress was made, at least outwardly, under U.S. guidance, in the democratization of Japan. In the general election of April 1947 the Socialist party emerged as the strongest single party, though without commanding a majority in the house. The communists received 4 out of the chamber's 466 seats and 870,000 votes out of 25,800,000 cast. For the first time a Socialist and a Christian became Japanese prime minister in the person of Katayama Tetsu. Attempts made in China to broaden the regime and to introduce full democratic liberties had not yet succeeded by the end of 1947 though definite steps in that direction were taken in April. In Latin America, Venezuela offered a bright prospect for democracy when in Dec. 1947 in free elections Rómulo Gallegos, a well-known novelist, was elected president. (*See* also COMMUNISM; EDUCATION; FASCISM; GREAT BRITAIN; UNION OF SOVIET SOCIALIST REPUBLICS; UNITED STATES.)

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Democratic Party. The Democratic party in 1947 enjoyed the paradoxical experience of staging a remarkable political comeback at the very moment

when the Truman administration struggled with national and international problems as grave as any chief executive had faced in times of comparative peace and prosperity.

As the year waned, every public and private poll suggested that President Harry S. Truman had slightly better than an even chance for re-election in 1948. With such questions as acute inflation and postwar difficulties with the Soviet Union still unsolved, it was recognized that his slim margin could be wiped out by untoward events. Nevertheless, there was no other Democrat who approached him in ballot-box stature.

Political observers naturally essayed an examination of the reasons for this transformation. In making this inventory, they listed near the top his utter reversal of Franklin D. Roosevelt's friendly attitude toward Moscow. His defiance of the expanding and aggressive Soviet Union, strongly reinforced by Secretary of State George C. Marshall's actions at 1947 conferences of foreign ministers, and also by promulgation of the four-year aid program for western European nations resisting communism, seemed to have had a popular, bipartisan appeal, even though full implementation of the foreign recovery proposal still faced a fight in congress.

Despite inflation that saw prices on bread-and-butter commodities surpass wartime peaks, his friends figured that he would not be seriously damaged by this issue if even more sensational skyrocketing could be checked in 1948. In any event, they calculated that the failure of a Republican-controlled congress to enact his ten-point anti-inflation program, which called for wage, price and priority controls on key materials, would enable them to throw the dust of responsibility in the eyes of the political opposition.

Another Democratic explanation for Truman's new strength was his defiance of John L. Lewis. Although the administration party felt that it would receive a majority of the labour vote in 1948, based on Truman's veto of the Taft-Hartley act, his 1946 attempt to jail the president of the United Mine Workers, in the opinion of his advisers, satisfied many conservatives without antagonizing labour elements which had long thought that the U.M.W. boss was too bold and arrogant.

Last but not least, the leaders attributed Truman's increased popularity to his kindly, unassuming and homey nature. Even his political enemies warmed, personally, to the man from Missouri.

Although not so intended, perhaps, several major administration moves during the year showed plainly the Democratic pattern for 1948 victory, and it did not differ in many essentials from Roosevelt's formula of mobilizing numerous heterogeneous elements behind him.

The Marshall plan, as well as U.S. co-sponsorship of the partition of Palestine, was expected to hold great racial and religious minority groups in key cities. So were various administration-sponsored gestures against real estate and educational segregation. Truman's veto of the Taft-Hartley act appeared to have won him the favour of labour, organized and unorganized. Thus, it was felt that if he could command this support, together with the nominal Democratic strength in 1948, he would make strong claim to four more years in the White House.

As the year closed, however, Henry A. Wallace became a man of concern to the Democrats. Ever since Pres. Truman asked him to resign as secretary of commerce, his speeches and writings had been derogatory to the administration; he charged that the official attitude toward the U.S.S.R. had transformed the Democrats into a "war party," and threatened to revolt.

In a Dec. 29 radio address, Wallace announced that he would be an independent, third-party candidate, with the backing of the Progressive Citizens of America. Although his action led large labour unions and prominent Democrats to disown him, and the party strategists hoped to discredit his candidacy as "giving aid and comfort to Moscow," they feared his possible strength in such electorally important states as New York, Pennsylvania, Illinois and California. They realized that if he could split the normal Truman vote in these areas, he would be a welcome asset to the Republicans. Nobody, of course, gave him any chance of election.

In his announcement, the former vice-president assailed both major parties for pursuing policies which, he charged, would lead to a third world war. He urged that U.S. aid to western Europe be advanced on a "humanitarian" basis through the United Nations rather than by the United States alone in an avowed attempt to combat the spread of communism. In an emotional and evangelistic peroration, he called upon an "Army of Gideon" to reinforce him in a battle for "peace, progress and prosperity."

Another difficulty confronted the Democrats in their search for a 1948 running-mate for Truman. They were handicapped in the hunt because the Republicans controlled congress and every important state whence a governor, as had happened so often in the past, could be elevated to the vice-presidential nomination.

James Forrestal, secretary of national defense, Secretary Marshall and Senator Scott W. Lucas of Illinois were frequently mentioned, but in seemingly unequivocal language the trio eschewed the tentative offers. Among those often on the politicians' tongues were Senator Joseph C. O'Mahoney of Wyoming, Senator Brien McMahon of Connecticut, Senate Minority Leader Alben W. Barkley of Kentucky, Governor Monrad C. Wallgren of Washington, Secretary of Agriculture Clinton P. Anderson of New Mexico, Secretary of Commerce W. Averell Harriman of New York, and William O. Douglas of Oregon, associate justice of the supreme court. Despite their official prominence, however, it was recognized by Democratic strategists that none of these men would contribute national strength to the presidential ticket, with the possible exception of Secretary Marshall.

Whereas Pres. Truman behaved in the early months after entering the White House as if he were a trustee of the Roosevelt regime and policies, he took complete command of the administration and the party in 1947. He framed and enunciated its basic viewpoints on foreign and domestic issues. All Roosevelt holdovers had resigned or had been dismissed, so that every cabinet member and head of a key agency was a man of his own choosing.

On the last day of the year, significantly enough, he refused to reappoint James M. Landis, former dean of Harvard Law school and last survivor of the original New Deal "brain trust," as chairman of the Civil Aeronautics board.

He completed the political shakeup when, in September, he named a former senate colleague, J. Howard McGrath of Rhode Island, as chairman of the Democratic national committee to succeed Robert E. Hannegan.

In the process of becoming president in his own right rather than merely Roosevelt's legatee, Truman was aided indirectly by publication of memoirs by several members of the official Roosevelt family. They tended to cast historical doubt on the fundamental wisdom of certain New Deal policies, especially on monetary matters, the conduct of the war, Roosevelt's executive talent and his relationship with Russia.

Among the authors appearing in book form or anticipatory magazine articles were Henry L. Stimson, Cordell Hull, James A. Farley, Henry Morgenthau and Frances Perkins—five former cabinet members who had been conspicuously close to Truman's distinguished predecessor. (*See* also UNITED STATES.)

(R. TU.)

Denfeld, Louis Emil (1891–), U.S. naval officer, was born on April 13 in Westboro, Mass., and was graduated from the U.S. Naval academy at Annapolis in 1912. During World War I, Denfeld served with U.S. destroyer squadrons in European waters.

In the years between World Wars I and II, he shuttled between sea and shore duties. In 1941 he went to London as a special observer; between April and December of that year, he also took command of a task force that convoyed merchant ships to Britain. The following May, he was promoted to a rear admiral and was made assistant chief of naval personnel.

Denfeld returned to sea duty in March 1945 as commander of battleship division 9, which supported the Okinawa landings and participated in the bombardments of Hokkaido and Honshu in the last days of the war. After the collapse of Japan, he returned to Washington, and on Sept. 11, 1945, his appointment as chief of naval personnel was confirmed; later he was given the added post of deputy chief of naval operations for personnel.

Raised to the rank of admiral on Jan. 29, 1947, Denfeld was made commander of the Pacific fleet a month later (Feb. 28), and on Nov. 13 President Truman announced his appointment as chief of naval operations to succeed Fleet Adm. Chester W. Nimitz.



KING FREDERICK IX, Queen Ingrid and Princesses (left to right) Margrethe, Anne-Marie and Benedikte of Denmark. King Frederick ascended the throne on April 20, 1947, upon the death of his father, King Christian X

Denham, Robert N. (1885–), U.S. government official, was born on Oct. 23 in St. Louis, Mo., and was graduated from the University of Missouri in 1907 with a bachelor of laws degree. He received his master's degree at the University of Michigan. He practised law in St. Louis but, stricken with ill health, he moved to Texas and later to Washington, D.C., where he practised law. He was a trouble shooter for banks and investment houses from 1920 to 1933, later worked for the treasury department and in 1937 was hired by the National Labor Relations board as a federal trial examiner.

At NLRB, Denham became the leader of a small conservative group who fought what he called a "rearguard action against the radicals" in the government agency. On July 17, 1947, he was selected by Pres. Harry S. Truman to become general counsel of the newly revamped National Labor Relations board.

Shortly after taking office, Denham fell afoul of his own political supporters, as well as the opposition, by issuance of the celebrated noncommunist affidavit order; the criticism was that Denham had committed a political blunder in demanding signature of the order by national as well as local union leaders.

Later, on Oct. 7, the board itself overruled Denham's order by a 4–1 vote.

De Nicola, Enrico: *see* NICOLA, ENRICO DE.

Denmark. A monarchy of north central Europe. Area, 16,569 sq.mi.; pop. (1945 census) 4,045,232. Capital: Copenhagen (731,707). Other principal cities: Aarhus (107,393); Odense (92,436); Aalborg (60,880). Religion: Lutheran Christian. Ruler in 1947: King Christian X until his death on April 20, and thereafter his son, Frederick IX (*q.v.*); prime minister, Knud Kristensen, from Nov. 1945 to Nov. 1947; after Nov. 1947, Hans Hedtoft.

History.—To crown the disasters of war came industrial strife, political turmoil, vicious weather and international complications to plague Denmark in 1947.

In the industrial arena the most serious items were the unemployment of 19,000 (in April) and the four-month typographers' strike, March to July, which left only Socialist and Communist dailies—except for some mimeographed leaflets. Communist agitation was disruptive at other points also, as when the Communists got workers to march in a demonstration against the scarcity of potatoes—in a country where the diet was 3,000 calories, or about double the European average.

Political disaster struck first in the death of Christian X, fearless and beloved monarch, who had presided graciously over Denmark for 35 years. The 76-year-old ruler suffered a heart attack on Easter Sunday, and the crown prince was appointed regent. Pneumonia complicated the trouble, and on April 20 the king's death was announced to the sadly expectant throng outside the palace. Frederick IX took over the kingship and with Queen Ingrid promised to reign like "the old couple."

One of the difficult problems of domestic politics was the status of South Slesvig (or Schleswig in the German spelling), In the plebiscite of 1920, North Slesvig had voted for Denmark and had been annexed. From Flensburg south, the people had chosen to go with Germany, and in later elections had voted 40%–41% nazi. Under the changed circumstances of 1947, increasing numbers yearned for the Danish flag—and perhaps for Danish butter. Most of Denmark's leading statesmen were wary of the issue. Christmas Møller resigned the chairmanship of the Conservative party because he opposed expansion. The Farmer-Liberal prime minister, Knud Kristensen, was a vigorous advocate of Danish acquisition of the Flensburg district at least, by means of a plebiscite. As the differences of opinion waxed hotter, Kristensen calmly flew off to an Oxford Movement conference. Aplomb, however, was not enough, nor an offer to resign. The opposition demanded an election. Kristensen lost a vote of confidence by 80–66 on Oct. 4 and the election was held Oct. 23. The Communists lost slightly, and no single party got a working majority in the Folketing. Kristensen stayed on for a time while leaders manoeuvred for a new cabinet. The Social Democrats had a plurality, and eventually their chairman, Hans Hedtoft, was named premier. The parties and votes:

	Delegates	Votes
Socialdemokratiet (Social Democrats)	57	836,231
Radikale Venstre (Radicals)	10	144,246
Konservative (Conservative)	17	259,185
Venstre (Agricultural)	49	529,140
Kommunister (Communist)	9	141,037
Retsforbundet (Georgist)	6	94,538
Færøerne (Færoe Islands)	1	

Foreign attitudes on the Slesvig question were interesting: Britain seemingly thought it would be all right for Denmark to occupy the Flensburg district, but feared a move farther to the south, thinking that Denmark would not be strong enough to defend the Kiel canal. France apparently relished the prospect of a Danish seizure which might be accepted by the U.S.S.R., because France would then have a good precedent for what it wished to do in the Ruhr. In any case, the whole issue still hung fire at the end of 1947.

Rationing of foods involved both political and economic difficulties. Denmark had ample food, but its balance of trade was highly unfavourable, forcing it to ration food to its own people in order to sell food abroad. Meat rationing was applied on April 1, for the first time after World War I, but had to be abandoned in August because lack of fodder forced heavy slaughter. After a brief surfeit of beef, rationing was then reinstalled.

Denmark had to curtail imports to maintain its finances. It was impossible to control food or foreign exchange as long as Danes could send across the sound and buy what they pleased in Sweden. At length Denmark placed an embargo: only Danes who stayed in Sweden for at least four days could bring back such forbidden luxury items as bananas; on the day before this regulation became effective 30,000 Danes jammed the boats to and from the Swedish shore.

On the positive side, Denmark made a finance and trade agreement with Switzerland involving a $7,000,000 credit. It also joined in a balance of payments agreement with Norway, Sweden, Great Britain, Benelux (the Belgium, Netherlands, Luxembourg bloc), France and Italy in connection with the 16-nation economic conference at Paris (and later Basel). Most helpful would have been re-establishment of the old healthy trade with Great Britain, but Danish costs were rising and the British felt they could not pay the prices the Danes thought they must have. Repeated negotiations produced meagre results. The money question produced acrimonious debates. Once a Communist delegate asked in parliament, "Where do the Liberals get their money from? Where do the Conservatives, the Social Democrats, the Radicals, get their money from?" Another deputy roused a big laugh when he shouted, "Where do the Communists get *their* money from?"

The Danes were averse to continuing to care for some 75,000 German refugees at the end of 1947, but they were grateful that 50,000 had been admitted to western Germany. The Danish Red Cross undertook to feed 81,000 German children in Slesvig and sent three months' rations to 15,000 children in Hungary. In another kind of foreign movement, Denmark marched 4,000 troops into Germany to take over a segment of the British zone of occupation.

The question of U.S. privileges in Greenland, Denmark's great island, was raised vociferously by the Danish Communists. Danish scientific and business activities in Greenland, as well as a press uproar demanding improvement in the administration of the colony, all indicated a determination to keep control and not to sell out to the United States, as had been rumoured.

Education.—In 1940 there were 407,355 students in the elementary schools and 67,064 in the middle and secondary schools. In the two Danish universities 6,474 students were enrolled. Even during World War II about one-third of Denmark's famous folk high schools continued to function.

Finance.—The Danish crown (krone) was officially worth 20.877 U.S. cents in 1947. Some of the significant financial statistics:

		1945–46	estimates 1946–47
Ordinary account:	receipts	1,304,200,000 kr.	1,230,400,000 kr.
	expenditures	1,551,500,000 kr.	1,570,400,000 kr.
Capital account:	receipts	12,729,700,000 kr.	1,481,500,000 kr.
	expenditures	12,729,700,000 kr.	1,481,500,000 kr.

The domestic debt amounted to 3,830,500,000 kr., the foreign debt to 611,900,000 kr., making a total public debt of 4,442,400,000 kr.

	1945	1946
Notes in circulation	1,561,000,000 kr.	1,487,000,000 kr. (end of Aug.)
Gold reserve	83,000,000 kr.	83,000,000 kr. (end of Aug.)
Commercial bank deposits	5,906,000,000 kr.	5,985,000,000 kr. (end of July)

Trade and Communications.—The strange distortion of Denmark's foreign trade because of World War II is shown by the statistics for 1944.

	Imports from	Exports to
Germany	908,050,000 kr.	1,090,141,000 kr.
Finland	85,748,000 kr.	64,882,000 kr.
Sweden	37,511,000 kr.	62,465,000 kr.
Norway	57,155,000 kr.	67,503,000 kr.
Switzerland	27,977,000 kr.	30,902,000 kr.
Total imports	1,166,801,000 kr.	.....
Total exports	.....	1,360,467,000 kr.

In 1945 Denmark's trade with Germany decreased to imports 156,251,000 kr., exports 184,270,000 kr., and with Switzerland to imports 12,839,000 kr., exports 20,388,000 kr. Trade with Sweden increased, however, to imports 152,990,000 kr., exports 72,064,000 kr., and with Norway to imports 90,629,000 kr., exports 115,220,000 kr. Total imports into Denmark for 1945 were 700,000,000 kr.; exports from Denmark were 903,690,000 kr.

Failure to achieve trade recovery in 1946 meant that Denmark had to plan to reduce imports in 1947 by 600,000,000 kr.–800,000,000 kr. Losses in export trade forced cancellation of many orders in Britain and required a drive for new export markets.

Denmark had 1,630,000 mi. of telephone wires (1947) and 371,000 instruments (1945); 904,610 radio sets (1945); 30,290 motor vehicles (1944); 4,860 km. of railway lines (1944) of which almost exactly one-half was privately owned and one-half state owned. The Danish merchant fleet was almost back to prewar tonnage.

Agriculture.—Production of the chief agricultural products in short tons:

	1944	1945 (preliminary figures)
Bread grains	758,000	636,000
Feed grains	3,329,000	3,220,000
Potatoes	1,553,000	1,731,000
Sugar beets	1,400,000	
Milk	4,420,000	4,519,000
Butter	141,000	146,000
Beef and veal	143,000	127,000
Pork	237,000	293,000
Eggs	51,000	55,000

The livestock census showed for 1944: 612,224 horses, 3,185,823 cattle, 1,555,176 milk cows, 2,032,623 pigs. In 1947 the drought so reduced the grain harvest that imports of 150,000–200,000 tons would be required to maintain rations.

Manufactures.—Industrial production in 1944, from 6,717 establishments and 195,097 workers, totalled a value of 4,791,711,000 kr. In 1946 the number of industrial workers was increased by a shift of 10% of the agricultural workers to industry.

BIBLIOGRAPHY.—See the "Danish Books for American Libraries," in *American Scandinavian Review* (Sept. 1947 and Dec. 1947). (F. D. S.)

Dental Association, American: *see* AMERICAN DENTAL ASSOCIATION.

Dentistry. Reports of the increasing prevalence of diabetes in the United States during 1947, with the estimated number of cases exceeding 2,000,000, had important implications for dentists. Gingivitis and inflammation of the supporting structures of the teeth (diabetic pyorrhoea) may appear early in the disease. In all cases tests of blood and urine for sugar were recommended.

Workshops were held in several states during 1947 to study the problems of community dental health planning and the control of dental caries. The workshop in Michigan, devoted entirely to the evaluation of dental caries control techniques, was attended by 114 dentists, physicians, biochemists, nutritionists and dental health educators who devoted one week to a critical analysis of the problem. The mechanism of the caries process and its relationship to system conditions, the effectiveness of prophylaxis, tooth brushing, chewing gum, dentifrices and mouth washes, the utilization of fluorides and silver salts, the relation of vitamin and mineral ingestion and the contribution of various types of diet in caries control were all given careful study.

One of the summary statements by the group studying tooth brushing was of special interest. Its conclusion was that "maintenances of oral hygiene by means of dental prophylaxis and tooth brushing with acceptable aids can be recommended for numerous reasons, although the evidence that such measures

are effective in the prevention of dental caries is limited and, at present, inadequate." (The Michigan Workshop, *The Evaluation of Dental Caries Control Technics,* Sept. 8–12, 1947, Brochure.)

On the subject of fluorine, which had received wide attention, the group confirmed the statement that "there is no direct evidence demonstrating whether or not the addition of fluorine to a fluorine-free community water supply will decrease the incidence of dental caries in the community." Studies were begun in several communities to determine the facts. It was stated that "caries reduction of approximately 40% has been observed in the teeth of groups of children treated topically with sodium fluoride solutions."

If dental caries could be reduced 40% in children by the single and inexpensive procedure of topical application of sodium fluoride, a profound social and health advance would result, and such a procedure should be universally adopted, especially in all clinics for children and in offices where children receive treatment.

Much publicity was given to the importance of vitamin C, especially in keeping the gums in healthy condition. That lemon juice may harm the teeth, however, was reported during 1947. Fifty patients who had been taking lemon juice chiefly in water showed evidence of dissolution of the dental structure. The degree and rapidity of decalcification varied, but all showed tooth damage. The proportion of women to men in the group was four to one. In most cases the lemon juice had been taken on nonprofessional advice. The authors of the report concluded that "an adequate amount of vitamin C can be had without resorting to improper use of lemon juice." (*Proceedings of the Staff Meetings of the Mayo Clinic,* 22:81–84, March 5, 1947.)

Another source of abrasion and damage to teeth had arisen from the habit of repeatedly using the upper incisors as a convenient means of opening bobby pins. These abrasions, named "bobby-pin notches," occurred in women mostly in the 19 to 25 age group, but were found also at other ages. The destruction of tooth structure occurs at the incisal edges of the upper incisors and takes the form of a notch which may advance to a point where it is disfiguring. To prevent this damage, an acrylic appliance was devised to slip over the teeth. Bobby pins can then be readily and easily opened without damage.

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Deposit Insurance Corporation, Federal: *see* FEDERAL DEPOSIT INSURANCE CORPORATION.

Dermatology. Rickettsialpox is the name given to cutaneous manifestations of a self-limited febrile disease which is preceded by an initial lesion of the skin and is accompanied by general malaise, chills, backache and a rash with round elevated spots. Cases were first reported by L. N. Sussman and B. Shankman in the borough of Queens, New York city, and numerous others soon developed in that region. Complete clinical epidemiologic and laboratory studies were soon under way by M. Greenberg and his associates, and by R. J. Huebner and W. L. Jellison. Within a short time the cause, epidemiology and clinical course of the disease were elucidated.

The causative organism was found to be a Rickettsia, named *Rickettsia akari.* This organism is inoculated into the human being by the bite of a mite, *Allodermanyssus sanguineus* (Hirst), which infests the common house mouse. The bite of this mite inoculates the Rickettsia and produces a painless initial lesion which is first a large elevated spot, then topped with a blister and next covered with a dry black crust. About a week after the appearance of the initial lesion, chills, fever, backache and headache develop. At the same time or a day or two later, the spotty rash appears. In a day or two, the papules are surmounted by blisters. This eruption does not have a characteristic distribution.

Extensive laboratory investigations were carried out and blood tests for typhoid bacilli, paratyphoid A and B bacilli, *Brucella, Leptospira icterohaemorrhagiae, Leptospira canicola* and *Pasteurella tularensis* and *Proteus* OX 19, OX 2 and OX K were negative. Heterophil antibody tests were also negative. The organism was recovered from the tissues of a mouse inoculated with blood drawn from one of the patients; it was also cultivated in the yolk of embryonated eggs. Antigens prepared from this organism gave negative complement fixation tests (similar to the Wassermann test) when tested with serums of patients who had recovered from endemic typhus, tsutsugamushi fever, Q fever and syphilis. There was a positive cross reaction for serum of Rocky Mountain spotted fever.

A new approach to the treatment of cancer of the skin was established by F. E. Mohs in the development of the chemosurgical method of therapy. This technic combined the use of a paste containing zinc chloride which hardens the tissues with the use of immediate microscopic examination of thin slices of tissue fixed by the paste so that the smallest processes of the cancer tissue could be located and removed. Thus the entire lesion could be removed, and massive destruction of tissue was avoided by applying the paste only to the area shown to be cancerous by the histologic examination.

Gradually increasing incidence of Rickettsial disease led to more intensive study during 1947 of a disease called eastern spotted fever, which had been indigenous to the Southampton, N.Y., area for several years. The dog tick, *Dermacentor variabilis,* was found to be the vector of the disease in this area. The pinkish, spotty eruption appearing first on the wrists and ankles and spreading centripetally, becomes full of large confluent spots of a deep purple colour, but no death of skin was seen as in Rocky Mountain spotted fever. Also, the white blood count and the differential blood count were normal except for a slight increase of white blood cells in about one-fourth of the cases. However, of the cases admitted to the Southampton hospital, there was a mortality of 30%.

A promising new therapy for Rocky Mountain spotted fever was further investigated by L. B. Flinn and associates following the report of the first use of para-aminobenzoic acid in this disease by H. M. Rose and others. This drug, when given in large doses at frequent intervals throughout the 24 hours, appeared to lessen definitely the morbidity and mortality of Rocky Mountain spotted fever.

With the continuing spread of the epidemic of ringworm of the scalp (tinea capitis), the subject was investigated from various angles. S. Rothman and his associates showed that adult hair contains a higher concentration of low boiling point saturated fatty acids than does the hair of children. The fatty acids that were particularly destructive of fungi were identified as those made up of an odd number of carbon atoms such as pelargonic, undecylenic and tridecylic acids. The increased concentration of these active fatty acids at puberty prevents the growth of *M. audouini*—a ringworm organism—in adult scalps, and by sterilizing the skin and follicles brings about a slow cure of the infection of the scalp when the infected hairs fall out naturally.

Since benadryl had been generally accepted as of value in the treatment of various allergic conditions, studies and develop-

ment of other so-called antihistamine drugs were carried out. R. L. Mayer had first called attention to pyribenzamine (N′ pyridil-N′ benzyl-N-dimethylethylenediamine). E. D. Osborne and coworkers, who studied the use of this drug in diseases of the skin, reported that, as with benadryl, almost all patients with acute wheals and blisters (urticaria) were relieved and about two-thirds of those with chronic urticaria were benefited. They also found that patients with chronic allergic inflammation of the skin and with physical allergies responded to pyribenzamine in many cases. An important finding was the fact that at least in these cases, reactions to pyribenzamine were minimal.

A new drug for the treatment of lupus erythematosus (a skin disease with inflammation) was studied by C. S. Wright and E. R. Gross. This is a soluble salt, sodium bismuth triglycollamate ("Bistrimate"), which can be taken orally and was reported to be of low toxicity and therapeutically more effective than the injection of bismuth. Not all cases of lupus erythematosus responded to this therapy but the ease of administration, the low toxicity and the inconsistent responses to other therapy established the drug as one form of treatment to be tried. These investigators also reported improvement in some cases of scleroderma (hardening of the skin) treated by sodium bismuth triglycollamate.

The search for a satisfactory antibacterial agent for local use continued, and one such substance, Furacin, 5-nitro-2-furaldehyde semicarbazone, was investigated by J. G. Downing and coworkers. This particular agent was incorporated in a water soluble base. The investigators believed the drug to be of value in treatment of superficial infectious eczematoid inflammation of the skin, and in ulcers of the skin, either traumatic or postoperative bed sores on the back. Excellent results were obtained in impetigo. The fact that several patients developed local and even generalized skin sensitization, however, made general use of such treatment questionable.

The use of streptomycin in the treatment of various types of cutaneous tuberculosis was investigated by P. A. O'Leary and associates, and this drug showed some promise of being effective in treating scrofuloderma particularly. Another disease which appeared to respond to streptomycin was infected glands in the groin, according to R. L. Barton.

Following earlier investigations on the therapeutic use of nitrogen mustards, H. H. Henstell and J. N. Tober used the drug methyl-bis (B-chloroethyl) amine hydrochloride in the treatment of a case of mycosis fungoides. They reported that the eruption and the itching disappeared, at least temporarily. Temporary favourable results were also reported in this disease by O. S. Philpott and associates. (*See* also MEDICINE.)

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Destroyers: *see* NAVIES OF THE WORLD.

Detroit. Fourth largest city of the United States in the 1940 census, Detroit is the centre of the large industrial area of southeastern Michigan. Area, 137.9 sq.mi.; pop. (1940) 1,623,452, of whom 320,664 were foreign-born whites, British and Canadian ranking first with 110,698, and Polish second with 52,235. Pop. est. (Jan. 1947), 1,785,000.

Assessed value as of June 30, 1947, $3,642,146,922; gross bonded debt, $299,955,900; net bonded debt, including utility debt, $271,183,284; net tax supported debt, $205,796,916; gross city appropriations, fiscal year ending June 30, 1947, $251,305,615 including schools and utilities; tax levy, city and school purposes, $98,965,469; combined city and school tax rate $28.585. Mayor, Jan. 6, 1948: Eugene I. Van Antwerp, serving a first two-year term.

Freed from important work stoppages, the automobile industry reached an all-time peak of production during 1947. The manufacture of replacement parts was four times that of the highest prewar period; more trucks were produced than in any previous year; the total output of trucks and cars exceeded 5,000,000. Production was slowed somewhat by shortage of steel and parts. The Kaiser-Frazer company, operating at the former Willow Run bomber plant, passed its other competitors to become the fourth largest manufacturer of motor cars.

The most momentous change in the motor world resulted from the death of Henry Ford and the passage of control of the Ford industries to his grandson, Henry Ford II. The nonvoting stock of the Ford Motor company passed to the Ford foundation, giving it approximately a 95% ownership of the company. The value of the foundation was estimated conservatively in excess of $500,000,000, making it the largest foundation in the world.

Also of great importance to the automobile industry was the election of Walter Reuther as president of the United Automobile Workers (Congress of Industrial Organizations), with an executive committee favourable to him. Since the opposition was allegedly radical left wing, the election presaged a period of regularized labour relations.

Although the city was free from serious labour difficulties, a relative minor disturbance, the strike of garage mechanics, had important political effects. Edward J. Jeffries, Jr., who made a bid for a fifth term as mayor, was accused of limiting police activity in a turbulent situation. His opponent, Eugene I. Van Antwerp, won by a substantial majority said to have been augmented, if not created, by the attitude of Mayor Jeffries in the strike and by his endorsement by the U.A.W.-C.I.O. Six new councilmen in a total of nine were also elected over all candidates endorsed by the C.I.O.

The tax rate was reduced by nearly $4 a thousand of assessed valuation over the previous year, a loss made up in part by a 10% increase in assessments. Late in 1946 the voters adopted a constitutional amendment sponsored by Detroit officials and designed greatly to increase state aid to local units of government (est. $11,000,000 for Detroit) and to alleviate the heavy tax on real property. This was promptly off-set by legislative reduction in other state grants and resulted in a deficit in excess of $7,000,000—the first major operating deficit in a decade. (L. D. U.)

Dewey, Thomas Edmund (1902–), U.S. lawyer and politician, was born on March 24 in Owosso, Mich. Graduating from the University of Michigan, Ann Arbor, Mich., he took his law degree at Columbia university, New York city, 1925, and was admitted to the New York bar the following year.

In 1933 Dewey was U.S. district attorney for New York's southern district, in which post he achieved nation-wide prominence for his successful prosecution of gangsters and criminals. In 1938 he ran as Republican candidate for governor but was defeated by Herbert H. Lehman, the Democratic incumbent, by a narrow margin. Four years later (1942), Dewey ran again and this time was elected.

Although Dewey lost out to Wendell L. Willkie as G.O.P. candidate for president in the 1940 Republican national con-

vention, he won the nomination on the first ballot in the party's convention in 1944. In the election, Dewey received more than 22,000,000 votes, but was defeated by Franklin D. Roosevelt. His re-election as governor of New York in 1946 again put him in the forefront of presidential aspirants for 1948. However, his refusal to commit himself during the first ten months of 1947 caused apprehension among his supporters. He ended his long silence on Oct. 10 with a nation-wide broadcast in which he maintained that the health of the U.S. people must have precedence over the admitted responsibility for feeding Europe's hungry.

While he was still regarded as one of the leading presidential "hopefuls," his candidacy was unannounced as the year ended.

Diabetes. Diabetes ranked sixth, barring accidents, as a cause of death in the United States during the first nine months of 1947, according to a survey by the Metropolitan Life Insurance company. In another survey, conducted by the United States public health service in Oxford, Mass., tests were made of 3,516 individuals, or 70.6% of the 4,983 inhabitants. There were 40 known diabetics in the community prior to the survey, and 30 unknown diabetics were discovered. The inference was, therefore, that if all residents had been examined, an unknown diabetic would have been discovered for each known case. The implication would be that instead of 1,000,000 diabetics in the United States there were actually 2,000,000.

The death rates and life expectancies of diabetic patients for successive periods in the experience of the George F. Baker clinic were tabulated by the Metropolitan Life Insurance company in 1947. The accompanying table is notable in that it shows an uninterrupted decrease in mortality for all ages and all periods during the years 1897–1945.

Death Rates per 1,000 at Specified Ages Among Diabetic Patients in Successive Periods, 1897-1945; Experience of George F. Baker Clinic, Boston, Mass.

	Death Rates per 1,000					
	Preinsulin Era		Insulin Era			
Age	1897–1913	1914–1922	1922–1925	1926–1928	1929–1938	1939–1945
10	824.0	386.1	61.4	19.1	8.1	4.6
15	623.0	398.8	84.0	14.9	9.2	5.6
20	614.0	410.8	89.4	18.3	12.6	7.6
25	585.6	342.8	77.4	28.0	15.9	10.1
30	359.8	236.8	74.8	33.4	13.9	9.8
35	200.6	152.1	57.5	28.5	10.6	9.4
40	165.7	115.1	34.7	23.8	16.6	10.4
45	119.8	87.1	33.4	26.3	22.2	15.2
50	96.1	77.4	45.3	41.0	30.6	24.3
55	97.1	90.1	64.2	56.5	46.4	36.4
60	188.8	112.5	85.2	70.1	66.6	52.4

Note:—Excludes deaths within one week of first observation or hospital discharge.
Statistical Bulletin, Metropolitan Life Insurance Company, Aug. 1947.

An analysis of cases admitted to the Central hospital in Boras, Sweden, between 1932 and 1941 revealed that at the conclusion of the period, 515 were alive (66%), 240 dead (30.8%) and 24 untraced (3.2%). Females predominated among the living, 55.8%, and among the dead, 60.7%. A comparison was made between the results of treatment for the first five years, during which Petrén's low carbohydrate diet was employed, and the second five years, in which a "normal" diet was given, but the writers carefully pointed out that many extraneous factors entered into such a comparison. The mortality was essentially the same in the two periods. However, it should be mentioned that insulin was given to 52.5% of the patients in the first five years compared with 74.2% in the second five years.

Improvements in the manufacture of insulin as a result of discoveries in Denmark and the United States were reported by Charles H. Best. An anti-insulin factor, a small amount of which had been present even in crystalline insulin, was eliminated; although this achievement was not of great clinical significance, it was of real scientific importance. Furthermore, new methods disclosed how both insulin and trypsin can be obtained from the pancreas without sacrificing the one to the other. Thus the diversion of millions of pounds of pancreas to the amino-acid digest and tanning industries could now be averted and make more insulin available for diabetics.

Recognition of the work of Carl F. and Gerty Cori of St. Louis for their discovery and isolation of the enzyme phosphorylase which begins the conversion of glycogen into sugar in the metabolism of carbohydrate, and of Dr. Bernardo A. Houssay of Buenos Aires for his discovery of the significance of the hormone produced by the frontal lobe of the hypophysis and its importance in the distribution of glycogen in the body and in the control of diabetes was accorded by the Nobel prize committee.

D. Stetten, Jr., proved that once glucose has been phosphorylated it may be converted to glycogen, to fat or it may be oxidized. He and his co-workers showed that in the well-nourished rat, only about 3% of the glucose ingested is converted to glycogen, while about 30% is consumed in the manufacture of fatty acids.

A. Lazarow found that intravenous injection of large doses of glutathione or cysteine, sulphhydryl compounds normally found in the body, a minute or two prior to the injection of a diabetogenic dose of alloxan, protected the rat completely from diabetes. BAL (British anti-lewisite) also prevents the diabetogenic action of alloxan in rats, presumably because it, too, is a sulphhydryl compound. A low protein diet or high lard diet increases the rats' susceptibility to alloxan. The high lard diet, however, loses this effect if methionine, thiouracil or coconut oil is added. Although encouraging results were cited in one case of hyperinsulinism presumably due to islet cell adenoma treated with alloxan, very poor results were described by others as summarized by C. C. Bailey and P. le Compte.

The appalling incidence of arteriosclerosis in diabetes was shown by an investigation of its presence in the eyes and the arteries of 200 among 350 diabetic children who had survived the disease for more than 20 years. Of this group all but eight had lesions in the eyes and the vessels as demonstrated by X-ray or by disease of the kidneys. Particularly notable in this study by Priscilla White was the demonstration that pelvic arteriosclerosis was common, and especially that it was of prognostic import for the foetus in pregnant diabetics. When calcified pelvic arteries were found in pregnant women the chances for a living child were reduced to one in five. The tendency to calcification was so strong in diabetics that among 19 instances of calcification of the vas deferens there was but one in a non-diabetic.

In H. Dolger's studies of 200 diabetics of 25 years' duration, not one had escaped vascular damage as shown by retinal haemorrhages, albuminuria, or hypertension in varying degree. On the other hand, in the children's series investigated by White, there were a few instances in which no evidence of arteriosclerosis was found by competent ophthalmologists, roentgenologists and clinicians after 20 years, and at least two in cases with onset in childhood but of 25 years' duration. (*See* also PHYSIOLOGY.)

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Diamonds. Data on the output of diamonds in the major producing countries and the estimated world total are presented in Table I, as compiled by S. H. Ball in *Minerals Yearbook*.

Table I.—*World Production of Diamonds, 1940–46*
(Thousands of carats)

	1940	1941	1942	1943	1944	1945	1946
Angola	784	787	792	795	799	804	808*
Belgian Congo	9,603	5,866	6,018	4,881	7,533	10,386	6,033
French Africa	91*	88	96	92	130	163	139
Gold Coast	825*	1,000*	1,056	1,317	1,166	812	830*
Sierra Leone	750	850	1,046	834	609	504	559
South Africa	543	158	119	302	934	1,141	1,282
S.W. Africa	30	47	56	94	154	153	164
Tanganyika	6	29	40	53	91	116	119*
Brazil	325*	325*	300*	275*	301*	275*	325*
Others	58	63	63	48*	48*	30*	53*
Total	13,016	9,210	9,587	8,694	11,764	14,384	10,313

*Estimated.

The production total for 1946 shows a decrease of 28% from 1945, practically all of which was confined to Belgian Congo. Increases in output were scattered, the largest of which was in South Africa.

Cutting.—When the German invasion of the Low Countries disrupted the diamond-cutting centres in Antwerp and Amsterdam, new cutting centres were established or existing ones were expanded in Palestine, Cuba, South Africa, Brazil and England. By 1947 the Belgian and Dutch industries were again getting on their feet and there was a surplus of cutting capacity.

United States Imports.—The imports of diamonds into the United States showed a sharp increase in 1946. While the major increase was in cut stones, the increasing importance of the cutting industry established in New York city was evidenced by imports of rough stones which for the first time exceeded 1,000,000 carats.

Table II.—*U.S. Diamond Imports, 1939–46*
(Thousands of carats)

	Rough	Cut	Industrial	Total
1939	153,982	488,154	3,570,111	4,212,247
1940	227,886	321,471	3,809,856	4,359,213
1941	215,026	229,582	6,882,750	7,327,358
1942	278,437	126,004	11,204,754	11,609,195
1943	751,674	193,701	12,173,918	13,119,293
1944	896,547	169,097	12,656,823	13,722,467
1945	893,761	377,243	10,792,186	12,063,190
1946	1,044,517	604,638	4,705,118	6,354,273

Most of the rough diamond imports reach the United States directly from South Africa, but cut stone imports come from all of the various cutting centres. Arranged according to the decreasing order of magnitude of the 1946 imports, the sources of supply of cut stones were in the following order: Belgium, Palestine, South Africa, Cuba, Netherlands, England and Brazil.

Although gem stones make up the greater portion of the value of the diamond imports, industrial diamonds make up the bulk of the weight. Imports of industrial diamonds in 1946 dropped heavily but still showed an increase in value, indicating a market advance in prices, from $1.19 per carat in 1945 to $3.04 per carat in 1946. (G. A. Ro.)

Diatomite. The production of diatomite in the United States is not reported annually, but sales in the three-year period 1942–44 averaged 140,624 short tons per year. This average was reported to have been exceeded in 1945 and again by a considerable margin in 1946. More than half of the output is used as a filter aid, about one-fifth as filler and one-eighth as insulation. (G. A. Ro.)

Dictatorships: *see* COMMUNISM; FASCISM; SPAIN; UNION OF SOVIET SOCIALIST REPUBLICS.

Dietetics: *see* FOOD RESEARCH.

Dimension Stone: *see* STONE.

Dimitrov, Georgi (1882–), Bulgarian statesman, was born on June 18, at Radomir. A compositor by trade, he was active in the trade union movement and in 1904 was elected secretary of the Trade Union federation. In 1919 he was in control of the Bulgarian Communist party and two years later was elected member of the executive committee of the Comintern. In Sept. 1923 a coup d'état organized by him in Bulgaria failed and he fled to Moscow, where he was active as organizer and supervisor of the Communist movement on behalf of the Comintern. Arrested in Germany in 1933, he was charged with complicity in the burning of the Reichstag, but was acquitted. On returning to Moscow he was appointed secretary-general of the Comintern in 1935 and held office until the official dissolution of that body in 1943. In the meantime he became a soviet citizen and in 1937 was elected deputy to the supreme soviet (parliament). He returned to Bulgaria in 1944 to transform the country into a Communist republic. After succeeding in this objective he renounced soviet citizenship and reverted to Bulgarian nationality. On Nov. 22, 1946, Vasil Kolarov, president of the republic, appointed him prime minister. In July 1947 he made a state visit to Belgrade and in November went to Sochi, Georgia, where he visited Joseph Stalin.

Dinnyes, Lajos (1901–), Hungarian statesman, was born in 1901 in Alsódabas in the county of Pest, of a Protestant farmer's family. After his secondary education at a Protestant grammar school, he graduated from the Agricultural academy at Keszthely. Elected to parliament in 1929, he belonged to the dissident Agrarian group led by Gaszton Gaal, which later fused with the Independent Smallholders party. Dinnyes was returned to parliament at the general elections of 1931 and 1936. He was a member of the opposition against Gen. Julius de Gombos' pro-fascist government. After Gombos' death in 1936, the political importance of the Independent Smallholders considerably increased and Dinnyes played a part in the opposition to German influence. He had to go into hiding after March 1944, when German forces assumed full control over Hungary, and reappeared only after the Russian army had driven out the German forces in the winter of 1944–45. A deputy of the constituent assembly in Nov. 1945, he succeeded General Albert Bartha as minister of national defense on March 15, 1947, and after Ferenc Nagy's resignation (*see* HUNGARY), he was appointed prime minister on May 31, as leader of the group of the Smallholders party which still consented to remain in the coalition with the communists. The Smallholders party suffered a heavy defeat at the elections on Aug. 31, 1947. None the less, Dinnyes, after some reshuffling of his cabinet, remained as prime minister. (B. ME.)

Diplomatic Services: *see* AMBASSADORS AND ENVOYS.

Disabled American Veterans. An organization of veterans, commonly called the D.A.V., who served honourably in time of war in the armed forces of the United States and who became wounded, gassed, injured or disabled as a result of that service. A small group of World War I veterans, while taking vocational train-

ing in Cincinnati, O., early in 1920, founded this organization in an attempt to improve the methods then being inefficiently employed in the administration of the affairs of veterans in vocational schools, hospitals and the then existing complicated system of overlapping government bureaus.

There was steady growth in the importance and usefulness of the organization. In recognition of its policies and valuable services to disabled veterans, their dependents and the public, a charter was granted by congress in 1932, and was amended in 1942 to extend eligibility to those who served in World War II.

The training of disabled veterans to handle administrative and service duties connected with assisting disabled veterans in their claims for benefits to which they are entitled continued to completion during 1947, with more than 300 such trainees having finished their studies in American university, Washington, D.C.

Funds for maintaining the executive and service activities are derived from per capita tax from membership dues, from voluntary gifts and contributions and from other sources. The production and distribution of "Ident-O-Tags," assumed by the organization in 1946, was continued in 1947, and yielded a substantial portion of the total financial income. The "Ident-O-Tags" are miniature automobile licence plates, worn on key rings. In the event that the keys are lost, the finder may deposit them in any letter box. They are then delivered to D.A.V. headquarters for identification and subsequently returned to the owner without charge.

National headquarters are located at 1423 E. McMillan street, Cincinnati, O. National service offices are maintained at 1701 Eighteenth street, N.W., Washington, D.C. As of 1947, Vivian D. Corbly had served for 22 years as national adjutant and business manager in charge of executive functions at national headquarters. At the annual convention in Las Vegas, Nev., on Aug. 22, 1947, John L. Golob was elected national commander.

Membership at the close of the fiscal year, June 30, 1947, was 127,023 in about 1,200 local chapters throughout the United States and in foreign countries. Eligibility requirements are such as obviously limit the numerical strength of the organization, but in 1947 it nevertheless ranked third in size among all veterans' organizations in the United States.

Publications include a newspaper, *The D.A.V. Semi-Monthly,* sent to all members, also reports to congress, various pamphlets and leaflets occasionally distributed to acquaint potential members and the public with the activities of the organization, and the annual convention proceedings.

The women's auxiliary is composed of wives, widows, mothers, sisters, daughters and granddaughters of D.A.V. members. Mrs. Fred C. Jeths, Chicago, Ill., was national commander in 1947. Headquarters office was at Colorado Springs, Colo., where Mrs. Ann Weber served as national adjutant. (*See* VETERANS' ORGANIZATIONS.) (V. D. C.)

Disasters.

During 1947 loss of life and property in disasters included the following:

Aviation

Jan. 4 — Northern Brazil. Eleven passengers and crew members of Brazilian air liner were killed when craft crashed into Solimoes tributary of Amazon river.

Jan. 5 — Near Tsingtao, China. Crash of Chinese air liner brought death to all 42 persons aboard craft.

Jan. 12 — Galax, Va. Passenger air liner flying from Detroit, Mich., to Miami, Fla., burst into flames after crashing during rainstorm, bringing death to 15 passengers and all 3 crew members; only 1 person survived disaster.

Jan. 12 — South China sea, off northern Luzon. Thirty-six survivors of air liner that crashed into South China sea were rescued by U.S. army transport "Gen. E. T. Collins." Six others aboard aircraft were killed in crash.

Jan. 25 — Hong Kong, China. Crew of 4 were killed and $5,000,000 cargo in gold bullion and coins was scattered when craft of Philippine air lines crashed into peak near Hong Kong.

Jan. 25 — Croydon airport, England. Dakota air liner crashed and burst into flames a few minutes after take-off. Twelve of 23 persons aboard were killed.

Jan. 26 — Near Copenhagen, Denmark. All 22 persons, including Grace Moore, U.S. opera star, and Prince Gustavus Adolphus of Sweden, aboard Dakota air liner of K.L.M. (Royal Dutch Airlines) were killed when craft crashed and exploded onto Kastrup airport several minutes after taking off.

Jan. 27 — Albuquerque, N.M. Army B-29 plane crashed and caught on fire shortly after take-off from Kirtland field, killing 11 persons.

Feb. 1 — Near Cintra, Portugal. Sixteen persons aboard French passenger plane were killed when craft crashed into peak near Lisbon airport.

Feb. 5 — West of Madrid, Spain. Crash of Cuban air liner in mountains west of Madrid resulted in death of all 11 occupants of craft.

Feb. 13 — Near Macon, Ga. All seven occupants aboard army passenger plane were killed when craft crashed in Georgia swamp.

Feb. 15 — Near Terracina, Italy. Seventeen persons, including Princess Armena Sazil of Egypt, were killed when army plane in which they were riding crashed into Tyrrhenian sea.

Feb. 15 — Near Bogota, Colombia. Fifty-three occupants of Avianca Airlines passenger plane were killed after plane crashed into El Tablazo cliff, 30 mi. northwest of Bogota.

March 14 — Near Grenoble, France. Air France passenger plane passing through heavy fog crashed into mountainside in French Alps, bringing death to all 23 occupants of craft.

April 18 — London, England. R.A.F. reported Halifax aeroplane with crew of nine was missing on meteorological flight from its base in Northern Ireland.

April 21 — Kwajalein, Marshall Islands. Fourteen U.S. army air force personnel aboard B-29 that crashed into Pacific shortly after its take-off from Kwajalein were presumed dead.

April 22 — Columbus, Ga. Nine persons were killed when 2 aircraft collided 30 ft. above Muscogee airport and crashed in flames.

May 20 — Near Champaign, Ill. Crash of army plane resulted in death of five persons aboard craft.

May 29 — New York city, N.Y. Crash of four-engined commercial air liner near La Guardia field shortly after its take-off brought death to 44 persons and injuries to 5 others on craft.

May 29 — Southwest of Tokyo, Japan. U.S. army courier plane flying to Tokyo from Korea struck mountain southwest of capital killing all 40 persons aboard craft.

May 29 — Northern Iceland. Icelandic air liner crashed into mountainside, killing all 25 occupants aboard.

May 30 — Port Deposit, Md. All 53 persons aboard commercial air liner that crashed and burned in wooded swamp in Cecil county, Maryland, were killed.

June 13 — Near Charles Town, W.Va. Air liner carrying 50 passengers and crew members crashed into mountain top near there and exploded, bringing death to all persons aboard craft.

June 15 — Near Springfield, Vt. Twelve men aboard army B-29 bomber that crashed and exploded onto granite ledge of Hawkes mountain were killed.

June 18 — Mayadine, Syria. U.S. air liner en route from Karachi, India, to Istanbul, Turkey, crashed near east bank of Euphrates river, killing 15 of 36 persons aboard.

July 13 — Melbourne, Fla. Crash of DC-3 air liner in coastal swamp brought death to 21 persons aboard craft, including 18 Puerto Rican residents of New York city who had chartered plane for visit to homeland; 15 others were injured.

July 29 — Eglin Field, Fla. B-29 superfortress crashed in swamp north of airfield after taking off on routine flight, bringing death to nine of crew and injuries to remaining two crew members.

Aug. 7 — Everett, Mass. Four persons were burned to death when pilot of small plane apparently mistaking glowing lights for airport illumination, steered craft into maw of flaming oil and gas furnace.

Aug. 16 — West of Oahu, Hawaii. Six of 13 passengers were killed and 4 others, including George Atcheson, Jr., ranking U.S. diplomat in Japan, were missing and presumed dead when army B-17 plane bound from Tokyo to Washington, D.C., forced down by fuel shortage, sank in Pacific; remaining 3 were rescued.

Aug. 28 — Northern Norway. Thirty-five persons were killed when Norwegian hydroplane crashed against mountainside near Lofoten Islands.

Sept. 15 — Near Aberdeen, Md. Nine of 10 persons aboard B-17 perished when bomber exploded and crashed into Bush river; lone survivor parachuted to safety.

Sept. 19 — Nazca, Peru. At least 3 persons were killed in crash of U.S. army transport plane en route from La Paz, Bolivia, to U.S.; 11 others were listed as missing.

Sept. 27 — Near New Delhi, India. Fourteen persons aboard British army plane were killed when craft crash-landed at Palam airport.

Oct. 16 — Near Cartagena, Spain. Forty-two of 44 persons aboard French air liner that crashed in Mediterranean were believed lost.

Oct. 24 — Bryce Canyon, Utah. All 52 persons aboard passenger air liner were killed when craft crashed into hillside.

Oct. 26 — Near Athens, Greece. Crash of Swedish air liner on Mt. Hymettos brought death to 45 persons aboard craft.

Oct. 26 — Annette Island, near Ketchikan, Alaska. All 18 persons aboard commercial air liner perished when craft crashed into mountainside.

Oct. 28 — Dog Lake Mt., Oregon. Gov. Earl Snell (of Oregon), his two companions and pilot were killed in crash of private aircraft into mountainside.

Nov. 18 — Near Ravello, Italy. Twenty Swedish pilots were killed and five others were injured when Swedish air liner crashed near there.

Nov. 27 — Near Yakutat, Alaska. All 13 persons aboard commercial air liner were killed when craft crashed shortly after predawn landing attempt.

Dec. 9 — Near Goose Bay, Labrador. Twenty-three of 29 persons aboard

U.S. C-54 air transport plane were killed in crash; 6 survivors were evacuated from scene by helicopter.

Dec. 11 Near Memphis, Tenn. All 20 persons aboard army C-47 plane were killed when craft crashed on wooded hillside.

Dec. 11 Europe. U.S. air force ended search for C-47 plane which vanished Nov. 28 with 20 persons aboard while en route from Pisa, Italy, to Frankfurt-on-Main, Germany.

Dec. 16 Near Davis-Monthan airfield, Ariz. Twelve persons were reported killed in crash of B-29 superfortress.

Fires and Explosions

Jan. 13 Nottingham, Pa. Gas explosion in coal pit resulted in death of 15 miners.

Feb. 8 Berlin, Germany. Overheated furnace caused fire in dance hall in British zone. Many of patrons were killed or injured in panicky attempts to flee from burning building. Toll of dead was put at at least 81 and number of missing at 10.

Feb. 20 Los Angeles, Calif. Sixteen persons were killed and about 100 others injured in explosion that completely razed electroplating plant and badly damaged near-by buildings. Cause of blast was laid to mistake in mixing chemicals.

March 25 Centralia, Ill. One hundred and eleven miners were killed in explosion in coal pit.

March 30 Camden, N.J. Forty-year-old woman, 6 of her 14 children and her grandson were burned to death in fire that destroyed their home.

April 2 Clinton, Mo. Twelve workers were killed in fire and explosion that wrecked one-story frame fireworks plant.

April 10 Exeter, Pa. Gas pocket blast in coal mine brought death to ten miners and injuries to nine others.

April 16–18 Texas City, Tex. Five hundred and fifty persons were killed in catastrophic series of explosions set off by blast of nitrate cargo in anchored ship that destroyed larger part of Texas City, setting fire to chemical plants, oil refineries, docks, buildings, etc. Estimated damage caused by fires was put at $35,000,000.

April 18 Fiume, Italy. Twenty-six persons were killed when dynamite-laden freight car exploded, causing heavy damage to station and near-by buildings.

June 22 Wilmington, Calif. Explosion on tanker carrying 3,000,000 gal. of gasoline destroyed shore installations valued at about $10,000,000 and brought death to at least 4 crewmen; 10 others were missing.

July 1 Santo Stefano, Italy. Blast aboard freighter "Panigaglia," which occurred during unloading of munitions, resulted in death of at least 68 crew members and dockers.

July 29 Harrisonburg, Va. Blast that wrecked beauty shop killed 13 persons and injured 30 others.

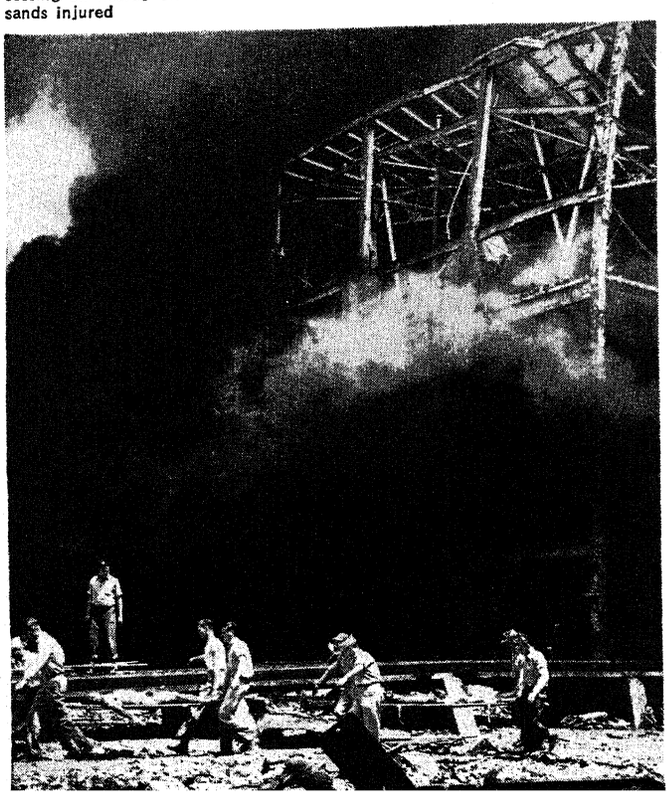
July 31 Paris, France. Twenty-one women prisoners perished in flash fire that swept through Caserne des Tourelles barracks.

Aug. 15 Whitehaven, Cumberland, Eng. One hundred and four miners perished in blast that trapped them in undersea workings of mine.

Aug. 18 Cádiz, Spain. Explosion in naval arsenal resulted, according to unofficial estimates, in 149 deaths and injuries to 5,000 others; government refused to permit publication of complete casualty figures.

Aug. 23 Annfield Plain, Eng. Nineteen miners were killed in explosion in Morrison North coalpit.

RESCUE WORK at Texas city, Tex., which was virtually destroyed by fire and explosions on April 16-18, 1947. A freighter carrying nitrates blew up, setting off nearby oil and chemical plants; 550 persons were killed and thousands injured



Aug. 30 Rueil, France. Eighty-seven persons perished in fire that destroyed Select motion picture theatre; estimated 200 others were injured.

Oct. 9 Chicago, Ill. Ten persons perished in fire of unknown origin that started in four-story tenement populated by Negroes.

Oct. 21 Hof, Germany. Twenty-eight persons were burned to death in fire that razed asylum for old people.

Oct. 24 New England. Forest fires sweeping through New England, particularly Maine, destroying large part of Bar Harbor, caused damage estimated at $30,000,000 and razed 110,000 ac. of timberland and townships; at least 17 persons perished.

Marine

Jan. 19 Gulf of Petalia, Greece. One thousand, five hundred-ton Greek steamship "Himara," plowing through heavy seas 20 mi. offshore from Athens, struck mine near entrance to Gulf of Petalia and sank in 30 min. At least 392 persons of 637 passengers and crewmen aboard vessel were killed or drowned.

Jan. 30 Near Cape Finisterre, Spain. Eighteen of 44 persons who escaped in lifeboats from burning British ship "Samwater" were drowned after 2 lifeboats capsized in heavy seas.

March 21 Near Honolulu, Hawaii. Twelve or 13 men who escaped in lifeboat when tanker "Fort Dearborn" split in two on March 12, were presumed lost at sea after thorough navy search for survivors proved fruitless; 22 others were rescued from ship which sank 500 mi. from Honolulu.

April 24 Porthcawl, England. Tanker "Samtampa" smashed up in heavy seas near there; 40 persons aboard who abandoned wrecked ship were lost, as well as 8 members of a lifeboat crew who went to the rescue.

June 4 Off Isle Royale, Mich. Twelve crew members perished in sinking of Canadian freighter "Emperor" that rammed against rocks jutting out into Lake Superior.

July 17 Bombay, India. Small ferry steamer "Ramdas" sank in storm in Bombay harbour; about 626 persons aboard 400-ton craft were believed lost.

July 28 Brest, France. Explosion aboard Norwegian freighter "Ocean Liberty," laden with nitrate, killed at least 8 persons and injured several hundred others; vessel caught fire and exploded just outside of Brest harbour; damage caused by blast was estimated at minimum of $3,000,000, as flames spread to city.

Sept. 9 Pittsburgh, Pa. Twenty-one persons were killed in blast that set fire to excursion steamer "Island Queen."

Nov. 25 Hippa Island, off British Columbia. Forty-nine persons were presumed drowned in wreck of army transport "Clarksdale Victory" off Hippa Island; four persons were rescued.

Dec. 1 Oporto, Portugal. Hurricane that struck north and south of Oporto virtually wiped out Portugal's north coast fishing fleet and killed or drowned at least 160 fishermen.

Dec. 24 Southwest Finland. Ten U.S. merchant seamen were killed or died of exposure in wreck of U.S. freighter "Park Victory" off Turku.

Dec. 25 The Hague, Netherlands. Twenty-six aboard "Skoghaug," Norwegian ship, perished when vessel struck mine off Netherlands coast.

Miscellaneous

Dec. 13 Boyacá department, Colombia. At least 37, and possibly 50, persons were killed when the Pauna bridge spanning the Minero river suddenly collapsed.

Natural

Jan. 30 Southern U.S. At least 20 persons were killed by tornado that swept through Georgia, Alabama, Arkansas, Tennessee and Missouri.

April 9 Western Texas and Oklahoma. Tornado whipping through southwestern U.S. communities killed 167 persons and injured 1,305 more; 70% of town of Woodward, Okla., was destroyed by twister.

April 29 Worth, Mo. Freak windstorm razed every building on Worth's main street, killing 16 persons and injuring 25 others.

June 1 Pine Bluff, Ark. Tornado sweeping through rural communities in Pine Bluff region killed 35 persons, injured scores more and caused heavy property damage.

June 22 Cambridge, Neb. Sixteen persons were killed in flash flood that inundated Cambridge at dawn, catching most of its residents in bed.

July 5 St. Louis, Mo. Floods in Missouri and upper Mississippi valleys brought death to 16 persons, left 34,812 others homeless and caused damage totalling at least $850,000,000.

Sept. 17–19 Gulf of Mexico. Violent hurricane that cut through southern Florida and struck Louisiana and Mississippi before spending itself, caused widespread property damage; casualties were put at 84 dead and missing.

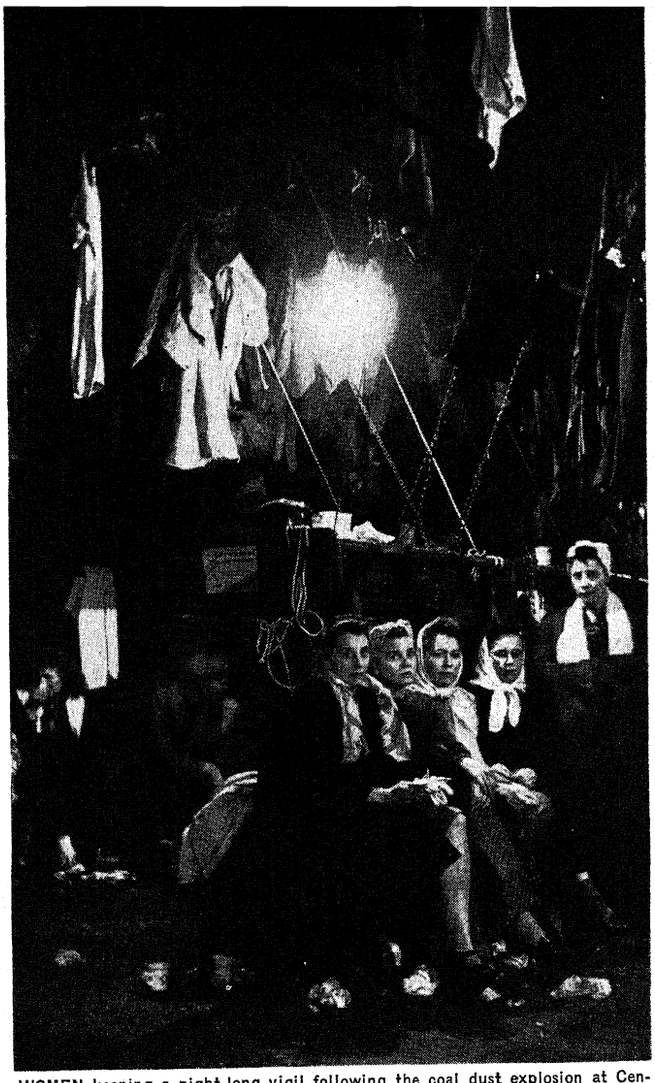
Sept. 20 Honshu Island, Japan. Five-day floods borne in wake of typhoon caused widespread damage in Kanto and Tohoku districts; final casualty figures were 999 persons killed, 984 missing and 1,616 injured.

Sept. 21 New Orleans area, La. Floodwaters coming in wake of hurricane inundated vast areas, caused heavy crop damage, crippled communications and resulted in casualty toll of 55 dead, with others listed as missing.

Oct. 5 Eastern India. Disastrous flood in eastern Bengal destroyed 100,000 tons of rice and thousands of cattle; made 1,000,000 persons homeless and caused famine that took thousands of lives.

Nov. 2 Andes Mountain region, Chile. Earthquake that struck east of Lima killed 233 persons and destroyed considerable property.

Dec. 26 New York city and North Atlantic states. Greatest snowfall in



WOMEN keeping a night-long vigil following the coal dust explosion at Centralia, Ill., on March 25, 1947, when 111 miners lost their lives in the worst U.S. mine disaster after 1928

recorded history of New York blanketed city under record snow mantle of 25.8 in. Storm, heaviest in metropolitan area, paralyzed all forms of traffic, buried city under estimated 99,000,000 tons of snow and resulted in 55 deaths in 8 North Atlantic states. (*See* also SEISMOLOGY.)

Railway

Jan. 17	Near Bakersfield, Cal. Eight persons were killed and 70 were injured in derailment of Southern Pacific railway train.
Jan. 27	Walton, Ind. Four persons were killed and 20 injured when a roll of bailing wire derailed a Pennsylvania railroad train en route from Cincinnati to Chicago.
Feb. 17	Near Michigan City, Ind. Thirteen railway workers were killed when electric train crashed into their bus at crossing.
Feb. 18	Near Altoona, Pa. Twenty-four persons were killed and 124 others injured when Pennsylvania railroad flyer pitched over 150-ft. embankment as it headed for celebrated "horseshoe curve," 2 mi. west of scene of accident.
Aug. 9	Near Doncaster, Yorkshire, England. Collision of 2 trains packed with holiday crowds outside the Doncaster railway station resulted in death of at least 17 persons and injuries to 46 others.
Aug. 23	Near Berlin, Germany. Twenty-four persons were killed and more than 50 others injured when overcrowded passenger coach of train caught fire; fire started mysteriously in section where packages of films and gasoline were stored in same car.
Sept. 1	Dugald, Man. At least 35 persons were killed when speeding train plowed into stationary transcontinental express at flag station. Estimated 15 other persons were listed as seriously injured.
Sept. 30	Central Java. Twenty-five persons were killed and 70 others were injured when 4 passenger coaches broke loose from train and rocketed down steep hill between Parakan and Temanggung.
Oct. 24	South Croydon, England. Thirty-one persons were killed and more than 70 others injured when speeding suburban train ploughed into slowed train ahead, telescoping 2 rear passenger coaches.
Oct. 26	Near Goswick, England. Twenty-eight persons were killed when speeding London express jumped track and hurtled into embankment; 71 others were injured.
Dec. 12	Pontmort, France. Collision of fast passenger express with mail train brought death to at least 17 persons.
Dec. 22	Fahr-Irlich, Germany. Head-on crash between 2 express trains resulted in death of 36 persons and injury to more than 300 others.

Traffic

Oct. 15	Near Mazagan, French Morocco. Fifteen persons were burned to death when bus and truck collided and burst into flames.
Oct. 25	Palestine. Thirteen British soldiers were killed or mortally injured in collision of two army buses on Haifa-Jerusalem road.
Dec. 26	Near Como, Italy. Twenty-one skiers were killed and 29 others injured when truck in which they were riding ran off mountain road.

Disciples of Christ. Statistics as of June 30, 1947, showed a world membership of 1,838,397 (loss of 50,667 for the year), of whom 1,703,010 (loss of 15,000) were in the United States and Canada. Additions by baptism numbered 59,350 in U.S. and Canada (up 11%), more than one-fourth of which were reported from Indiana and Oklahoma. In addition, there were 7,404 baptisms in other countries. The apparent loss in membership may not, and probably does not, reflect a decrease in strength. The Disciples are a free association of autonomous congregations. The margins of the group, for statistical purposes, are somewhat vague, owing to the existence of a fringe of churches whose willingness to co-operate with the central agencies, or even to report to them, varies from season to season. During the same period, and doubtless for the same reason, the number of congregations reported in the U.S. and Canada dropped from 7,945 to 7,844. Of these, only 5,871 made contributions through agencies reporting to the international convention or through state and provincial missionary societies. The total of gifts for missions and benevolence through the co-operative agencies was $10,376,544, an increase of $435,492 over the preceding year. Of the total amount, $596,293 was contributed as "Week of Compassion" gifts. The per capita average of gifts for missions and benevolence was $5.89. The resumption of foreign missionary work continued with accelerated tempo. A joint committee was exploring the possibility of union between Disciples of Christ and the Northern Baptist convention. Friendly but noncommittal reply was made to a suggestion looking toward union with the Congregationalists, and the Disciples joined with the Congregationalists in petitioning the Federal Council of Churches to invite to a conference on union all those denominations which "recognize one another's ministry and sacraments." The international convention (U.S. and Canada) met at Buffalo, N.Y., July 29–Aug. 6, 1947, with Rev. Hampton Adams, St. Louis, Mo., as president. It elected Rev. Roy C. Snodgrass, Amarillo, Tex., as president of the next convention, which was to meet at San Francisco, Calif., Sept. 27–30, 1948. The world convention, quinquennial except when war interferes, followed the international convention at Buffalo. (W. E. GA.)

Displaced Persons: *see* PRISONERS OF WAR; REFUGEES.
District of Columbia: *see* WASHINGTON, D.C.
Divorce: *see* MARRIAGE AND DIVORCE.

Dodecanese. A group of 14 inhabited islands in the Aegean sea. Area, 1,035 sq.mi.; pop. (Oct. 19, 1947, census), 115,913; pop. of the island of Rhodes, including the city of Rhodes (cap.), 22,121. Language: Greek (92%), Turkish (7%). Religion: mainly Greek Orthodox, but the Turkish minority is Moslem.

History.—The Italian peace treaty, signed in Paris on Feb. 10, 1947, stipulated (article 14) that Italy was to cede the Dodecanese to Greece. Sovereignty of the islands was transferred from British military administration to Greek control on Sept. 15 when the ratification instruments of the Italian peace treaty were exchanged in Paris.

Later, the Greek administration had some difficulty with the adjustment of wages and prices between the islands and the mother country. As the islands were not self-supporting, they

were for the time being a financial burden on Greece to the sum of about £500,000 a year. (*See* also ITALIAN COLONIAL EMPIRE.) (K. SM.)

Dog Racing. Greyhound racing flourished in both the United States and Europe during 1947. England especially was affected by the betting craze, although the fuel shortage necessitated the limiting of races to week ends. Ninety tracks operated in England. Dog racing in the U.S. again was restricted chiefly to Florida and Massachusetts. A bill to legalize dog racing in New Hampshire was defeated, 226 to 105. (M. P. W.)

Dog Shows: *see* SHOWS, ANIMAL.
Dominica: *see* WINDWARD ISLANDS.

Dominican Republic. A West Indian republic occupying the eastern two-thirds of the island of Hispaniola or Haiti. Area: 19,129 sq.mi.; pop. (1946 est.) 2,059,113. Racial distribution is estimated to be 15% white, 15% Negro and 70% mestizo and mulatto. The capital is Ciudad Trujillo (formerly Santo Domingo) with a population (1946 official est.) of 131,271. Other urban centres (with 1945 or 1946 pop. ests.) are Santiago de los Caballeros (56,618), San Pedro de Macorís (23,267), San Felipe de Puerto Plata (15,610). Roman Catholicism is the predominant religion; the official language is Spanish. President in 1947: Gen. Rafael Leónidas Trujillo y Molina.

History.—Chief developments of 1947 centred around the opposition to the Trujillo regime, culminating in an abortive attempt to invade the republic from Cuba in late September. President Trujillo was named on March 22 as the candidate of the Dominican (or government) party for re-election. Two other candidates appeared, Rafael A. Espaillat (National Democratic party) and Francisco Pratts Ramírez (National Labour party), though neither was conceded any chance of election. The election was held May 16 and, as expected, resulted in an overwhelming sweep for the Dominican party, which won all senate seats and all but two in the chamber of deputies, each of the other parties getting one of the latter. Puerto Rican sources on June 18 reported a government purge of political opponents. The Dominican embassy in Washington, D.C., charged on July 31 that three ships with 3,000 filibusters recruited in Cuba, Guatemala, Venezuela and Puerto Rico had sailed from Cuba to invade Dominican territory in an effort to overthrow Trujillo.

President Trujillo was inaugurated for a new term, 1947–52, on Aug. 16. Two days later he repeated charges that "communists" planned an armed invasion from Cuba; he asked for an international inquiry, though Cuban officials denied any such activity. On Aug. 23 the Dominican government charged that Guatemala and Venezuela were providing planes and money to aid anti-Dominican revolutionists gathering in Cuba; both of the other governments denied complicity. The Dominican government on Aug. 26 promised to recognize any new western hemisphere government which was "definitely anticommunist." The Cuban government announced on Sept. 29 that an armed revolutionary plot against the Dominican government had been smashed, that Cuban army and navy units had captured about 1,100 insurgents (including several North Americans), 11 bombers and large amounts of arms and munitions on keys near Nuevitas in Camagüey province, Cuban airfields and 2 L.C.I.'s in Cuban waters. Leaders of the movement were announced as Dr. Angel Morales, former League of Nations official and chairman of the "central committee of the Dominican revolution," and Cuban Education Minister Dr. José Manuel Alemán. The Dominican government on Nov. 18 demanded that Cuba pay "damages" for the plot. On Dec. 5 a mob ransacked the Dominican consulate in Santiago, Cuba; the Dominican government "identified" participants as members of the International Communist brigade.

The Dominican government early in the year began creation of an army reserve of 50,000 men from 18 to 40, mostly drawn from government employment. On May 17 the government announced that from 5,000 to 10,000 Yugoslav refugees from Italy would be admitted to colonize a new industrial area near the Haitian border. The government completed contracts for the Columbus Memorial lighthouse at a cost of $5,000,000; construction was planned to be started Oct. 12.

NONSECRET BALLOTING in the Dominican elections at Ciudad Trujillo, May 16, 1947. Pres. Trujillo was returned to office by 93% of the voters



Education and Religion.—The 1947 budget allotment for education was $2,307,759. Government statistics indicated a total of 2,484 schools with an enrolment of 229,417; there were 1,161 "emergency schools" and it was planned to increase the number ultimately to 5,000. Illiteracy was officially claimed to be less than 36%.

Finance.—The monetary unit is the peso, valued at par with the U.S. dollar. The 1947 budget estimated revenues at $40,224,620 (general fund $29,683,770; special fund $9,941,850; municipal fund $599,000) and expenditures at $40,087,155.41 (general fund $29,546,305.41; special fund $9,941,850; municipal fund $599,000), leaving a surplus of $137,464.59. On the strength of the estimated surplus, President Trujillo recommended salary increases for all government employees. Government receipts in 1946 were $47,971,435.00 as against budget estimates Dec. 22, 1945, of $26,831,960.66; expenditures for 1946 were $44,332,691.77 as against estimated expenditures of $26,806,714.87; the surplus for 1946 was $3,638,743.83. Total bank deposits May 31, 1947, were $50,749,551. The construction program in force by June 1947 involved $6,033,826.34; it included sewage systems, waterworks, street repairs, government buildings and police barracks in various parts of the republic. Constitutional amendments effective Jan. 10 established an independent monetary board and a central bank authorized to issue Dominican currency to replace U.S. currency which had long been legal tender; the new currency, issued in October, was backed by $2,000,000 in metallic gold and $48,215,000 in U.S. dollar resources. The government on July 19 discharged its remaining foreign debt by payment to U.S. bondholders of $9,271,855.55, plus $1,102,625.70 on credit in New York city. This left a remaining public debt of $8,053,797.23, consisting of an internal loan of $6,423,743.90 and an Export-Import bank credit of $1,630,053.33.

Agriculture.—Sugar production from Sept. 1, 1946, to June 30, 1947, was 458,446 metric tons. The leaf tobacco crop in 1946 was 28,231 metric tons (1945: 18,640 tons); the estimate of production in 1947 was 12,500 tons, but the quality, it was thought, would be poor. Milled rice production in 1946 was 52,423,457 kg. (1945: 62,467,337 kg.). The estimate of cacao production in 1947 was 300,000 bags of 70 kg. each. Government appropriations for irrigation canals in 1947 were $1,395,649.

Trade and Communications.—Exports for the first six months of 1947 were 515,407 metric tons valued at $55,555,246 (same period in 1946:

477,542 tons valued at $40,755,949); imports during the same period were valued at $20,621,983 (1946: $12,349,769). Total exports in 1946 were valued at $64,792,054 and imports at approximately $33,000,000. Great Britain was the republic's best customer in 1946, buying products valued at $26,978,956 (41% of total exports; crude sugar accounted for all but $66,351 of British purchases); other important 1946 customers included the United States $11,998,083 (20% of total); Canada $5,883,750; the Netherlands $2,570,269; France $2,064,790; Spain $1,913,002; Netherlands West Indies $1,746,533. Principal exports by items in 1946 were sugar and other cane products $36,058,709; tobacco $8,795,260; coffee $5,419,975; cacao beans $4,450,712; corn $1,456,256; beans $896,214; bananas $875,689; pine lumber $781,599; copra $721,146; chocolate $718,467; fresh beef $502,908. Green coffee exports in the first four months of 1947 were 5,849,997 kg. valued at $2,602,864 (same period in 1946: 3,347,913 kg. valued at $1,011,355). Banana exports in the first six months of 1947 were 532,368 stems valued at $373,812. Cacao exports for the first six months of 1947 were 21,550,991 kg. valued at $8,806,171 (same period in 1946: 13,810,737 kg. valued at $2,178,251). Leaf tobacco exports in the first half of 1947 were 6,360,870 kg. valued at $1,861,730.

The government in 1947 undertook port construction and improvement projects at Puerto Plata on the north coast at a cost of about $1,000,000 and at San Pedro de Macoris at a cost of $4,593,150. The appropriation for road construction in 1947 was $1,089,668.

Manufacturing.—Tobacco processing in 1946 involved 32,000,000 cigars, 611,619,000 cigarettes and 1,455,725 kg. of andullos; for the first quarter of 1947 the manufacture was 7,990,280 cigars, 139,430,000 cigarettes and 408,265 kg. of andullos. Building permits in 1946 numbered 3,851 valued at $10,711,475.

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Donaldson, Jesse M. (1885–), U.S. government official and postmaster general, was born on Aug. 17 in Shelbyville, Ill. Educated at Teachers Normal college, he gave up teaching in 1908 to become a mail carrier. By the time he was 30, Donaldson had become a postal inspector, serving for 17 years in this capacity at Kansas City, Mo.

During this period of his career, he became an expert in detecting mail swindlers.

In 1933 Donaldson became first assistant postmaster general, about as high a position as a "career" postal employee could hope to attain in view of the tradition that the postmaster generalship was generally awarded on a political basis. However, Pres. Harry S. Truman upset tradition on Nov. 25, 1947, by naming Donaldson to succeed the retiring Robert E. Hannegan as postmaster general. Great significance was attached to the Donaldson appointment insofar as some Washington political observers claimed to see in it a continuation of what they called President Truman's new policy of selecting cabinet members on the basis of public rather than political service.

Donations and Bequests. Total U.S. philanthropy in 1947 apparently receded somewhat from the record high levels set during World War II, according to the annual study of giving made by the John Price Jones corporation. Year-end estimates indicated that the level of $2,500,000,000 set in 1946 was probably not attained in 1947.

Many factors affected the total giving, but an important one appears to have been a probable decline in corporation contributions. While corporate gifts were allowable for war philanthropies, certain questions arose as to the legality of such gifts for some peacetime philanthropies. Another important factor was a decline in organized foreign relief. While cash contributions for such purposes apparently declined, gifts-in-kind increased considerably as facilities became available for sending food and clothing packages abroad. It was estimated that at least $250,000,000 worth of food packages were sent by individual citizens of the U.S. to relatives and friends in other countries during 1947.

The study of the John Price Jones corporation in eight large cities showed that during 1947 publicly announced gifts and bequests in these cities totalled $232,013,104 as compared with $275,853,339 in 1946. The cities studied were New York, Baltimore, Boston, Chicago, Los Angeles, Philadelphia, St. Louis and Washington, D.C. Of the totals, gifts accounted for $194,956,461 in 1947 and $249,445,290 in 1946; bequests were $37,056,643 in 1947 and $26,408,049 in 1946. Only one major classification—health—showed an increase in gifts during 1947—$33,994,965 in 1947 as compared with $19,652,327 in 1946.

Established annual campaigns during 1947 showed, in the main, exceptional success. The American Red Cross announced receipts of $75,322,700, or 125.54% of its 1947 goal. In December, 344 community chests reported they had raised $103,908,155 or 2.8% more than in the previous year. The National Foundation for Infantile Paralysis reported $17,987,800 raised in 1947, as compared with $15,982,150 in the preceding year. The American Cancer society reported $12,075,000 raised in 1947, as against $11,614,749 in 1946. (J. P. J.)

Great Britain.—Donations to the National Trust in 1947 included those of Buckland abbey, Devon, the home of Sir Francis Drake, by Capt. Arthur Rodd, and of the famous Knole house, Kent, by Lord Sackville; the oratory of All Souls, Burghclere, Hampshire, was also given to the trust for the preservation of its modern mural paintings by Stanley Spencer. Major General Sir Harold Wernher announced his intention of opening the mansion of Luton Hoo, Bedfordshire, as an art gallery, in memory of his only son who died in active service in World War II; pictures in the house included works by Romney, Holbein, Botticelli and Constable. Arthur Sims, New Zealand industrialist, was the donor of a commonwealth travelling professorship in medicine, to which Sir Hugh Cairns, Nuffield professor of surgery at Oxford university, was first appointed. The Nuffield foundation offered £50,000 to Oxford for the founding of a haematological research unit. The Castle Eden vase, the finest glass vase of Anglo-Saxon workmanship, was presented to the British museum.

Two thousand acres of the Brockhampton park estate in Hertfordshire were bequeathed to the National Trust by Col. John Talbot Lutley, and Histon court in Somerset was bequeathed by Hilda Proctor Wills. The painter Sir Cuthbert Cartwright Grundy left his house at Blackpool to serve as a home art museum. Dr. Thomas Watts Eden left £10,000 to the Royal College of Obstetricians and Gynaecologists for the establishment of an Eden travelling fellowship, and £10,000 to the Royal College of Physicians for the same purpose. (*See* also COMMUNITY CHEST; SOCIETIES AND ASSOCIATIONS.)

Douglas, Lewis Williams (1894–), U.S. businessman and diplomat, was born on July 2 at Bisbee, Ariz., and was graduated from Amherst college, Amherst, Mass., in 1916 with a B.A. degree. In 1917 Douglas abandoned his postgraduate studies at the Massachusetts Institute of Technology, Cambridge, Mass., to join the army and went overseas as 1st lieutenant in a field artillery outfit.

After the armistice, he taught history at Amherst until 1921 when he returned to Arizona and entered politics. In 1926 he was elected to the federal house of representatives and was twice re-elected. In 1933 Douglas left congress to become budget director in Franklin D. Roosevelt's government; but denouncing the New Deal's "unsound spending" policies, he resigned on Aug. 31, 1934. He supported Alfred M. Landon in 1936 and Wendell L. Willkie in 1940.

He was vice-president of the American Cyanamid Co. (1934–38), principal and vice-chancellor of McGill university at Montreal, Can. (1938–39) and president of the Mutual Life Insurance Co. (1940). Roosevelt and Douglas buried their differences in 1941, and the latter returned to the government as

deputy administrator of the War Shipping administration. After the nazi surrender, he went to Germany to help establish the initial policies for governing the U.S. zone of occupation.

Then, on Feb. 26, 1947, President Harry S. Truman appointed Douglas as ambassador to Great Britain. In England, he made several important speeches supporting the Truman doctrine and the Marshall plan and stressed Anglo-U.S. community of interests.

Draft: *see* SELECTIVE SERVICE.
Drama: *see* RADIO; THEATRE.
Dress: *see* FASHION AND DRESS.
Drought: *see* METEOROLOGY.

Drug Administration, U.S.

Worthless therapeutic devices and the laboratory and manufacturing controls in drug plants received major regulatory attention in 1947 from the Food and Drug administration, operating under the Federal Security agency.

Many of the devices seized were assembled from surplus electrical parts manufactured for war use; they were designed to create a scientific impression upon gullible purchasers. Labelled with blatant claims for the cure of many serious diseases, they were found by experts to be incapable of curing any but imaginary ailments. Usually the machines were harmless in themselves, but they caused irreparable damage to persons who turned to them for treatment of the type of diseases that require immediate competent diagnosis and rational medical treatment. The highest fine of the year, coupled with a suspended jail sentence, was imposed upon the promoter of a coloured-light machine that had been used for the treatment of diabetes, cancer and other critical diseases, with tragic consequences.

Persistent sellers of misbranded nostrums continued to misrepresent their compounds through the subterfuge of oral sales talks or collateral literature. The products were often shipped with meaningless statements on the labels, in a mistaken belief that the terms of the law could thus be circumvented. Actions were continued against products promoted by false claims in circulars that were eventually brought together with the medicine, and against products sold for diseases for which no directions were given in the labelling.

A number of reports of manufacturing errors or label mixups in pharmaceutical plants were received in 1947. In most cases manufacturers took prompt and effective steps to recall all outstanding lots, but in some instances the recall was superficial in coverage and the manufacturers failed to disclose to consignees the dangerous nature of the products until they were required to do so. In each case, the Food and Drug administration checked upon the effectiveness of recalls and the safe disposition of the returned goods, and, when necessary, conducted a thorough roundup with the assistance of state and local enforcement agencies. In 1947 seizures of drugs for violation of official or professed standards continued to decrease in number. For all types of violations, 194 drugs and devices were seized and 108 criminal prosecution and 3 injunction cases were instituted in the federal courts. New-drug applications made effective in the fiscal year numbered 145.

By amendment to the Food, Drug, and Cosmetic act, streptomycin was added in 1947 to the groups of drugs requiring predistribution certification by the Food and Drug administration. Certified during the year were 447 batches of streptomycin, 7,327 batches of penicillin and 261 of insulin and insulin-containing drugs. (*See* also NARCOTICS AND NARCOTIC TRAFFIC.)

(P. B. D.)

Drugs: *see* AGRICULTURAL RESEARCH ADMINISTRATION; ALIMENTARY SYSTEM, DISORDERS OF; ALLERGY; ANAESTHESIOLOGY; BACTERIOLOGY; BIOCHEMISTRY; BOTANY; CHEMISTRY; CHEMOTHERAPY; CHEMURGY; DENTISTRY; DERMATOLOGY; DRUG ADMINISTRATION, U.S.; ENDOCRINOLOGY; ENTOMOLOGY; EYE, DISEASES OF; GYNAECOLOGY AND OBSTETRICS; MEDICINE; NARCOTICS AND NARCOTIC TRAFFIC; PHYSIOLOGY; PUBLIC HEALTH SERVICES; SURGERY; UROLOGY; VETERINARY MEDICINE; VITAMINS. *See* also articles on specific diseases, such as ANAEMIA; DIABETES; LEPROSY, etc.
Drug Traffic: *see* NARCOTICS AND NARCOTIC TRAFFIC.
Drunkenness: *see* INTOXICATION, ALCOHOLIC.

Duke University.

A privately endowed institution at Durham, N.C., founded by James B. Duke in 1924. It includes Trinity college for men, which goes back in its origin to 1838, the woman's college, the college of engineering, the graduate school of arts and sciences, the schools of divinity, law, medicine, dietetics, nursing and forestry, and the summer session. By the beginning of the academic year 1947–48 all military organizations except the naval reserve officers training corps had left the campus, and the return to the normal two-semester year was made. It was deemed wise not to accept an enrolment larger than could be well taught and housed and while more students were enrolled than ever before, sections in all subjects were kept to reasonable size by increases in the teaching staff.

Careful study of the various curricula leading to graduation and preparatory to advanced graduate study or professional training was continued in the effort to aid students better to understand and meet the increasing changes, social and political, in the U.S. and the rest of the world.

The large building, begun in 1946, to accommodate the college of engineering was completed and was being fully equipped for occupancy early in 1948. A large additional physics building was begun in 1947. To provide needed additional library facilities a large addition to the main university library was begun in November. A building properly equipped for various kinds of medical research was completed in October. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.)

(R. L. Fs.)

Dulles, John Foster

(1888–), U.S. government official, lawyer and church layman, was born on Feb. 25 in Washington, D.C. He was graduated from Princeton university, Princeton, N.J., in 1908, took his law degree at George Washington university, Washington, D.C., three years later and started the practice of law. Dulles served in World War I as a major attached to the general staff and later was the principal counsel for the U.S. delegation at the Paris peace conference. He thereafter became a successful Wall street lawyer, an authority on international law and a prominent lay member in the Federal Council of the Churches of Christ in America. In the critical years preceding U.S. entry into World War II, he was a noninterventionist; after Pearl Harbor he swung around to the other extreme, and following his appointment April 5, 1945, as an adviser to the U.S. delegation to the United Nations, he urged the senate to ratify the U.N. charter. After the war, he was regarded as the Republican party's expert on foreign policy, and he accompanied both James F. Byrnes and George C. Marshall to important diplomatic conferences in the role of adviser. In July 1947 he was appointed U.S. delegate on the U.N. general assembly.

An ardent supporter of the Truman doctrine and Marshall plan, Dulles also advocated a western bloc of European nations to restrain what he called the soviet policy of expansionism. Andrei Y. Vishinsky, in his celebrated speech on Sept. 18, 1947, labelled Dulles as one of the principal U.S. "warmongers."

Dutch Possessions: *see* CURAÇAO; NETHERLANDS INDIES; SURINAM.

Dutra, Eurico Gaspar (1885–), Brazilian statesman and army officer, was born May 18 in Cuiabá, Brazil. He joined the army in 1902, and after studying at the Brazilian Military school in Rio de Janeiro (1904–08) he was commissioned in 1910 as a second lieutenant. Dutra became one of the leaders of the Brazilian officers clique and participated in the coup d'état that put Getulio Vargas in the presidency in 1932. Dutra helped to crush the anti-Vargas revolt staged by Paulistas and in 1936 he was appointed minister of war. Upon relinquishing the presidency in Oct. 1945, Vargas supported Dutra's candidacy as his successor. Elected Dec. 2, Dutra was inaugurated Jan. 31, 1946.

In 1946 and 1947, Dutra took drastic measures to check the growth of communism in Brazil. (Some 800,000 Brazilians voted for communist candidates in the Jan. 1947 provincial elections.) He ousted Brazilian communists from government posts, suspended communist newspapers and youth organizations and shut down the Brazilian Workers confederation and its affiliates for six months. On Sept. 1, Dutra greeted President Harry S. Truman who arrived in Rio de Janeiro to attend the Inter-American conference.

Dyestuffs. The pent-up demand for colour by consuming industries which originated during the years of World War II had been largely responsible for an all-time record in 1946 for the production of dyes. Preliminary figures for 1947 indicated that this record was surpassed. Temporary shortages of certain coal-tar intermediates and inorganic chemicals existed but were not serious enough to hinder production generally. The U.S. dye industry, operating at the peak of its productive capacity, still was unable to satisfy the domestic and export requirements for colour. Producers had always been active in the export field, and during the war the United States government permitted export of allotted quantities of dyes to friendly nations. After the cessation of hostilities concentrated efforts were directed toward establishment of a stronger position in foreign markets, and increasing quantities of both high-priced and tonnage colours were being sold to other countries.

Despite higher costs, principally in raw materials and labour, prices of dyes remained fairly constant until the latter part of 1947, when increases ranging from 6% to 10% on certain colours went into effect. These were still below the market index shown for other commodities.

Research was continued in developing new and improving colours, and many dyes with superior fastness and simplified characteristics of application were placed on the market. Study of dyeing and application techniques resulted in numerous improvements in processing methods; fast vat colours were applied more economically than formerly in high-speed equipment by continuous methods, and their utilization in a wide variety of fibres and constructions continued to increase.

According to official figures prepared by the United States tariff commission, the production of all types of U.S. dyes in 1946 amounted to 186,307,000 lb.—41,000,000 lb. or 28% above the total reported in 1945 and 18,000,000 above the former record high reached in 1941. Sales of all dyes in 1946 were 184,855,000 lb., valued at $120,289,000, compared with 138,248,000 lb., valued at $103,489,000, in 1945. The unit value of all dyes sold amounted to $0.65 per lb. compared with $0.75 in 1945. The class of vat colours still remained the most important from the standpoint of both production and sales, and in 1946 accounted for 29% of the total quantity produced; direct dyes accounted for 21%, sulphur dyes for 16% and acid dyes for 12%. Production of azoic dyes and their components increased 59% to 8,000,000 lb. in 1946 from 5,000,000 lb. in 1945; sales totalled 7,000,000 lb., valued at $10,000,000. Production of direct dyes increased 9,966,000 lb. to 39,301,000 lb., acid colours increased 4,646,000 lb. to 23,208,000 lb., and sulphur colours 12,617,000 lb. to a total of 29,926,000 lb. Sales of vat dyes other than indigo were valued at $30,069,000, direct dyes at $24,613,000, acid dyes at $17,579,000 and sulphur colours at $7,466,000.

Of the colours produced in large quantities, sulphur black increased 72% in output to 20,075,000 lb., synthetic indigo increased 67% over 1945 and direct black 28%. A good portion of these cheaper tonnage colours was absorbed by export markets. Production of many other less important colours was two or three times higher than in 1945. Figures for 1947 production and sales were not yet available at the end of that year.

(A. G. BR.)

Ear, Nose and Throat, Diseases of. **Use of Penicillin in Acute Sore Throat.**—Selvan Davison discussed the bacteriology of acute tonsillitis and pharyngitis, reviewing briefly the effects of sulfonamide preparations, but emphasizing the greater efficacy of penicillin. He outlined the method of therapy in a group of 28 cases: 20,000 units were given every 3 hr., day and night; the average dose of penicillin in these cases of acute sore throat was 360,000 units, during 54 hr. There was only one relapse, in which recovery occurred without further penicillin treatment. One patient's condition did not respond until sulfadiazine replaced penicillin in the treatment. No complications occurred either during or after the treatment. A short but intensive course of penicillin would hence seem to be effective against acute sore throat.

Vertigo.—Vertigo may be a symptom of some toxic disorder. Its occurrence in septic patients, after the administration of certain drugs and of the antibiotic streptomycin, is considerable proof of this assumption.

Vertigo may be the result of a nervous depression. The diagnosis is not difficult, although a therapeutic response is not always obtainable. The otologist must be careful not to say or do something that will fix the patient's symptoms upon some specific cause. The sedative dilantin seemed to benefit some of these patients.

Vertigo is occasionally a symptom of high blood pressure. The prospect of relieving the patient of this troublesome condition is favourable if surgical measures result in a substantial reduction in blood pressure.

Organic lesions of the central nervous system may produce vertigo, but they are usually associated conspicuously with other clinical signs of intracranial disease. The classical example is the tumour between the cerebellum and the pons at the back of the brain.

There are instances when vertigo is the result of an end organ lesion in the acoustic nerve. The vertigo derived from this source, as for example that of Ménière's disease, is so specifically characteristic as not to be confused with any other type. Also, if a patient suffers with a violent paroxysmal vertiginous attack—one that fells him in his tracks—he probably has an end organ lesion, not an intracranial disease.

Treatment of Hay Fever Patients by Chilling.—L. C. Lazarowitz slowed up the rapid absorption of aqueous ragweed extracts in 30 patients by chilling the mid-outer part of the arm with an ice bag for 15 min. before and 15 min. after the subcutaneous injection. The chilling made it possible to give larger doses further apart so that the patient made 40% less visits to the allergist. General constitutional reactions occurred very seldom and no delayed reactions were observed. There was

a greater degree of improvement in these individuals because of the ability to reach higher dosages at an earlier date. He also found that the chilling of the area made the injection painless.

Headache.—A review of 1,000 cases of headache revealed that the commonest causes in the order of frequency were: allergic reaction of the nasal mucous membrane, inflammation of the muscles in the neck; mechanical nasal obstruction, inflammation of the sinuses and neuropsychiatric disorders. Less frequent causes were the vascular headaches, pharyngeal, dental and cervical spine disorders.

Vasomotor rhinitis was diagnosed 552 times but could be designated as the prime cause of headache in only 282 instances. Myositis cervicalis was found 630 times and was regarded as the prime cause in 241 instances.

The importance of recognizing muscle inflammations and the vicious cycle of headaches for which they may be responsible was pointed out. It was indicated that this cycle may be responsible for the continuation of a headache long after the prime cause has been corrected. It was concluded that the patient with a headache must be studied in a systematic manner which will evaluate all the factors that may either directly cause, increase or prolong the ache. Researches resulted in clearer concepts of the mechanics of the vacuum headache, spastic muscular headache, vascular cephalgia and psychosomatic headache.

Evaluation of the possible causative factors permits the planning of effective schemes of treatment.

Other Treatments.—A new treatment for troublesome infections of the ear was put forward by Merrill B. Hayes and C. Fremont Hall. Dalyde or dibromsalicylaldehyde in solution (2%), ointment or powder was put into the external canal, after careful cleansing and drying. Minute bacteriologic studies revealed that the *Bacillus pyocyaneus* is often the instigator. Most of the cases cleared up within a few days or several weeks, and very little relapse was encountered.

The penicillin spray, hand-operated, in respiratory infections was highly recommended by Samuel Morse. He spoke of the absorptive properties of the lung, directing attention to the fact that its inner surface has an area 500 times as great as the body surface. Drugs given as aerosols are absorbed so rapidly that their effect is similar to that of intravenous injection. In general the author used, over a period of 24 hr., spraying every 4 hr., the following amounts: 100,000 units in the severe pneumonias; 60,000 units for severe sinusitis and only 40,000 units for moderate sinusitis and laryngitis.

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Earnings, Company: *see* BUSINESS REVIEW.
Earthquakes: *see* DISASTERS; SEISMOLOGY.
East Africa, British: *see* BRITISH EAST AFRICA.

Eastern Orthodox Churches.

The Russian Orthodox Church made substantial progress in re-opening its churches, re-organizing its dioceses and, in general, building up its hierarchical structure. The Church of the Kingdom of Greece continued under the impulse of a patriotic emergency to recover from the discord caused by the deposition of Archbishop Chrysanthos in 1941. In the Levant the Orthodox Church showed new vigour, well illustrated in the *Mouvement de jeunesse orthodoxe* which had expanded in Syria under the guidance of the patriarch of Antioch.

At the same time, the Orthodox Church as a whole suffered more and more from an embroilment in the political divisions of the world. On the one hand the ecumenical patriarchate had associated itself, in effect if not through any political desire, with the canonical defense of those Slavonic Orthodox members who, in exile, were desirous of retaining their independence of the Soviet Union, for instance by confirming the Metropolitan Vladimir as exarch for Russian parishes in western Europe. On the other hand, the patriarchate of Moscow was energetically extending its influence and, indeed, as in Czechoslovakia, its jurisdiction, outside Russia. The consequences of these two conflicting tendencies were many and unhappy. The Patriarch Alexei of Moscow announced in the spring his intention of calling a conference of all Orthodox churches which should meet in Moscow at the end of September; he postponed it until the summer of 1948 when the ecumenical Patriarch Maximos indicated, in a friendly but firm reply, that it was for him alone to summon a conference of this nature. The patriarchs of Antioch and Alexandria had already declined the invitation to Moscow, as had most Orthodox hierarchs outside the soviet sphere of political influence, and even some within it, such as the Serbian patriarch and the Finnish metropolitan, and it seemed that when the conference met it would have an excessively sectional and political complexion. Other political considerations arose in Cyprus, where an election was made in June to the archbishopric, vacant from 1933 in consequence of certain governmental acts incompatible with canon law, such as the requirements that there must be a government scrutiny of the election and that candidates must necessarily be Cypriots by birth. The metropolitan of Paphos, Leondios, was elected, and accepted the throne with much reluctance at the instance of the representative of the ecumenical see, only to die a fortnight later. In the further election, in October, Bishop Makarios of Kyrenia was successful; he belonged to the opposite school. In other words, what was called "the Left" gained a victory in the summer, for Leondios, although he declined the invitation to the projected Moscow conference, was the opponent of the British colonial government and the advocate of the union of Cyprus and Greece; but what was called "the Right" prevailed in October. (M. DK.)

East Indies, Dutch: *see* NETHERLANDS INDIES.
Eclipses of the Sun and Moon, 1948: *see* CALENDAR, 1948 (page xxii).
Economic Association, American: *see* SOCIETIES AND ASSOCIATIONS.
Economic Development, Committee for: *see* COMMITTEE FOR ECONOMIC DEVELOPMENT.

Economics.

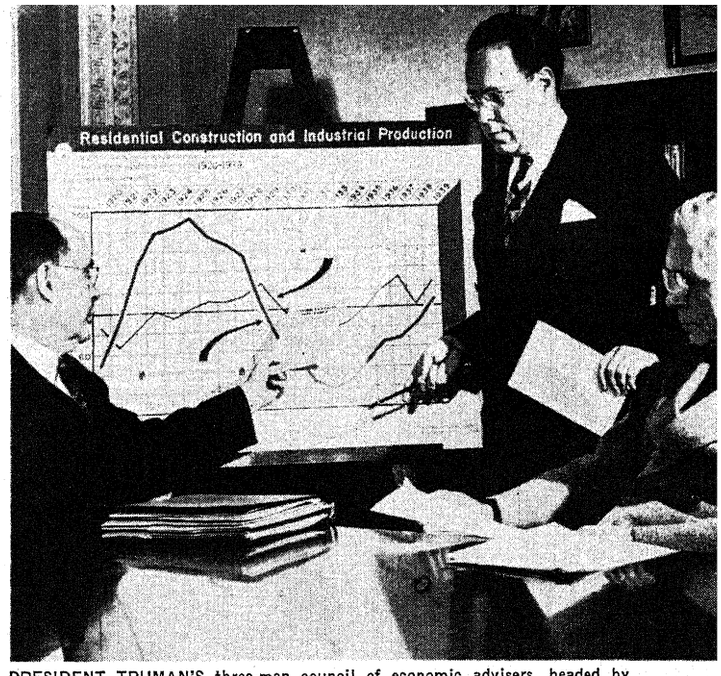
The questions receiving most attention from professional U.S. economists as well as from business and governmental economic administrators were the following, all posed and answered with the fact that 1947 was a pre-election year: how could high production rates be maintained? How could the technological, transportation and foreign trade bottlenecks responsible for the more spectacular price rises be eliminated? How should industrial and labour monopolies be dealt with? When would inflation and high employment break up in recession? How could the "surplus" and slightly anti-inflationary federal fiscal policy be maintained in the face of the urgent demand for lower taxes? What were the inflationary, budgetary and long-run European productivity implications of the Marshall plan? Was the Taft-Hartley act constitutional and workable, and would it, in combination with the Wagner act, provide an adequate basis in law for effective public policing of the employer-employee relationship over the

long run?

A survey of the more important economic journals indicated, however, a continuing lively concern with abstract theory. A controversy developed during the year over the general adequacy of the marginal analysis in price and distributive analysis. Interest in imperfect competition, monopoly, oligopoly, etc., as well as in the Keynsian economics was sufficiently great that the program of the American Economic association convention held in Chicago in December was organized largely about the theoretical and policy implications of these two systems of analysis. Considerable attention was also directed in these meetings toward the basic laws of production. The members of the association appeared, however, to be most keenly interested in such questions as the high cost of food, aid to Europe and the Taft-Hartley act. American economists in 1947 had a "problem" orientation.

The president's council of advisers set up under the Full Employment act continued to stress the necessity of halting expansion of the money supply. The annual report dealt with generalities, however, and apparently attested both to the difficulties of getting the definitive type of prediction contemplated in the act, as well as to the inescapable influence of approaching presidential elections on such bodies. The National Bureau of Economic Research published a number of technical and research reports, including a study entitled *Business Finance and Banking*. The Committee for Economic Development in its various publications stressed the importance of entrepreneurial innovation with special reference to the problems of small business. The chief publications of the Brookings institution were *Aluminum Cartel* and *A National Labor Policy*. The Federal Reserve board studies were concerned with such subjects as the money market and rates, consumer credit, small business, department store sales, bank debt holdings and individual and business holdings of liquid assets.

Histories of various economically oriented war agencies and boards began to flow into print in greater volume during 1947. The war experiences of specific industries were set forth both in governmental reports and in industrially sponsored publications. (G. J. C.)



PRESIDENT TRUMAN'S three-man council of economic advisers, headed by Edwin G. Nourse (right), and including John D. Clark (left) and Leon H. Keyserling, was commissioned in June 1947 to study the effect on domestic economy of U.S. foreign aid under the Marshall plan

Ecuador. A west-coast republic of South America, astride the equator, for which it is named. It is bounded on the north, east and south, and west, respectively, by Colombia, Peru and the Pacific ocean. Area, 104,510 sq.mi. (including the Galápagos Islands, a Pacific dependency, 3,029 sq.mi.); pop. (1946 est.) 3,340,000. Racial distribution is estimated at 60% or more pure Indian, 25% to 30% mestizo, and at most 15% white. The capital is Quito (est. pop., 211,000); other important cities (with pop. ests.) are Guayaquil, the chief port (172,948); Cuenca (52,519); Riobamba (27,459); Jipijapa (22,097); Vinces (21,860); Chone (21,834); Ambato (21,692); Loja (20,776) and Latacunga (20,357). Roman Catholicism is the predominant religion. Presidents in 1947: Dr. José María Velasco Ibarra, to Aug. 23; Col. Carlos Mancheno, Aug. 23–Sept. 2; Mariano Suárez Veintimilla, Sept. 2–Sept. 17; Carlos Julio Arosemena, from Sept. 17.

History.—The last day of 1946 saw Ecuador's 16th constitution, and its second within less than two years, effected. The new basic law set up a unitary government headed by a president elected by direct, popular vote for a four-year term and ineligible for immediate re-election; a vice-president, who regularly presides over the senate, is also elected. The executive branch is also served by presidentially appointed ministers of state. Congress is bicameral, including a senate and a chamber of deputies. The senate is composed basically of two senators from each province, plus certain "functional senators," all of whom serve four years. Deputies are elected on a population basis for two-year terms. The judiciary is headed by a supreme court of justice.

The national assembly on Jan. 12, 1947, elected Mariano Suárez Veintimilla, a Conservative, as vice-president under the new constitution. On Feb. 9 the government arrested Capt. Luis Cerón and 16 others for alleged revolutionary plotting. Four days later the national assembly recommended dissolution of the Ecuadorian Labour federation. Dr. Humberto Albornoz resigned on Feb. 24 as leader of the Liberal Radical party. The government announced on March 14 that it had suppressed a military coup by Gen. Alberto Enríquez Gallo. On Aug. 23, Col. Carlos Mancheno, who had only recently been appointed defense minister, seized control of the government in a bloodless coup which forced the retirement of Pres. Velasco Ibarra. The crisis was precipitated when Velasco tried to oust Mancheno from his cabinet post. Mancheno on Aug. 24 proclaimed himself "president and chief of government" and Velasco fled by plane to Cali, Colombia. Mancheno on Aug. 27 reorganized the cabinet with four new appointments, although he retained Velasco's foreign minister, who at the time was heading the Ecuadorian delegation to the hemisphere defense conference at Rio de Janeiro; this retention was in order to preserve Ecuador's standing in that conference, but that body ultimately excluded Ecuadorian delegates from voting and they thereupon withdrew. Mancheno on Aug. 28 declared the constitution of Dec. 31, 1946, abolished and that of 1906 restored provisionally. At the same time he warned Vice-President Suárez Veintimilla, who had proclaimed himself president as the constitutional successor to Velasco, against creating unrest.

Quickly gathering opposition to Mancheno, both within and without the army, flared into open revolt on Aug. 30 in Riobamba and elsewhere, spread to Guayaquil and other cities, and brought about the downfall of the Mancheno regime on Sept. 2. The countermovement was led by Col. Angel Baquero Dávila. Mancheno resigned and fled the country. Suárez proclaimed himself acting president, with Baquero as defense minister, but in Guayaquil Maj. Sergio Enrique Girón announced the creation of an eight-man "junta of national concentration" and claimed that it represented the insurgents who overthrew Mancheno; both regimes agreed in rejecting any return by Velasco.

The council of state, acting independently, also barred a return by Velasco but, following prescriptions of the 1946 constitution (which it proclaimed restored), called a session of congress for Sept. 15 to name a new president. The Suárez government announced on Sept. 5 that Girón had accepted its leadership. Congress on Sept. 16 elected Carlos Julio Arosemena as vice-president to serve as president until Sept. 1, 1948; he assumed the presidency the following day and José Rafael Bustamante, a Liberal leader, became vice-president. The army announced on Nov. 9 that a revolt at Quito had been crushed.

Education.—A governmental decree on Aug. 9 created a national council of education, composed of the chief of the technical department of the ministry of education and one representative each of primary, secondary, higher and private education.

Finance.—The monetary unit is the sucre, valued at 7.41 cents, official rate (Oct. 31, 1947), or 5.56 cents, free rate (Sept. 30, 1947), U.S. currency. Congressional investigators reported on March 10 that $1,860,000 was missing from public funds. It was reported on July 15 that currency circulation and living costs had increased 500% from 1939. Later in the year it was reported that the Export-Import Bank of Washington would loan the municipalities of Quito and Guayaquil each $4,000,000 for construction of modern water systems.

Trade.—Total exports in 1946 were valued at $39,787,000 (1945: $27,992,000), of which the chief items were crude petroleum and gasoline, copper, rice, cacao, hats and coffee. The principal customers in 1946 were the U.S. ($13,607,000) and Cuba ($5,621,000). Imports in the same year totalled $30,686,000 (1945: $23,965,000). The chief suppliers were the U.S. ($17,795,000), Argentina ($2,447,000) and Great Britain ($2,103,000). Exports of cinchona bark (the natural source of quinine) dropped 97% by volume and 93% by value in 1946 from 1945; the volume in 1946 was 28,436 kg. (1945: 827,886 kg.) and the value was 218,709 sucres (1945: 2,847,831 sucres). Balsa wood exports also dropped greatly in 1946 from 1945; the respective figures were 2,778,228 kg. valued at 7,125,099 sucres and 7,354,387 kg. valued at 18,509,184 sucres; 93% of 1946 exports went to the U.S. Rice exports in 1946 were 67,099,907 kg. (1945: 29,318,378 kg.). Crude oil exports in 1946 were 1,229,839 bbl., including 936,166 bbl. to Uruguay and 293,672 bbl. to Argentina. Coffee exports in 1946 were 7,635,607 kg. valued at 34,839,189 sucres (1945: 10,736,688 kg. valued at 33,862,637 sucres); of the 1946 exports the U.S. took 3,407,356 kg. valued at 16,698,052 sucres and Cuba 2,628,130 kg. valued at 10,734,024 sucres. Cocoa exports for the first eight months of 1947 were 14,226,471 kg. (same period in 1946: 12,695,753 kg.), of which the U.S. took 9,842,837 kg. (69%) and Colombia 1,318,765 kg. (9%). Rice exports for the first six months of 1947 were 10,014,885 kg. (same period in 1946: 11,663,774 kg.). Coffee exports for the first five months of 1947 were 1,465,980 kg. valued at $629,752 (same period in 1946: 3,420,596 kg. valued at $1,012,541). Banana exports for the first five months of 1947 were 890,196 stems (same period in 1946: 345,912 stems). Toquila hat exports in the first three months of 1947 were 983,490 units (same period in 1946: 843,432), of which the U.S. took 801,364. Kapok exports in the first three months of 1947 were 157,156 kg. (same period in 1946: 138,295 kg.). Crude rubber exports in the first three months of 1947 were 69,533 kg. valued at 905,107 sucres (entire 1946: 1,326,862 kg. valued at 15,111,035 sucres).

Production.—Production of sugar in 1946 was 32,890 metric tons but was expected to increase in 1947. The rice estimate for 1947 was about 2,200,000 Spanish quintals of 110.23 lb. (1946: 2,218,442 quintals). Estimate of the 1947 coffee crop was 300,000 quintals. Rubber production in 1947 was estimated at about 1,000 metric tons. Crude oil produced in 1946 totalled 2,322,000 bbl. (1945: 2,624,000 bbl.); refined petroleum products in 1946 amounted to 1,076,498 bbl., and included 277,337 bbl. of motor fuel, 76,935 bbl. of kerosene, 120,216 bbl. of distillates and diesel oil and 573,177 bbl. of fuel oil.

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Edinburgh, Prince Philip, DUKE OF (1921–), the only son of Prince Andrew of Greece (d. 1944) and Princess Alice of Battenberg, was born on Corfu Island, June 10, but at an early age went to live in England, where he was brought up by his uncle, Lord Louis Mountbatten (now Earl Mountbatten of Burma, *q.v.*), and educated at Cheam school, Surrey, and Gordenstoun, Scotland. At 18 he entered the royal naval college, Dartmouth, and in 1940 served on H.M.S. "Ramillies." He subsequently served on H.M.S. "Shropshire," and on H.M.S. "Valiant" during the battle of Matapan. His later war service took him to the Pacific, and he was present at the Japanese surrender in Tokyo bay. After the war he served as an instructor at the shore establishment at Corsham, Wiltshire.

On March 18, 1947, his naturalization as a British subject was announced, and he became known as Lieutenant Philip Mountbatten. His betrothal to Princess Elizabeth, the heiress-presumptive to the British throne, was announced on July 9. On the eve of his marriage to the Princess Elizabeth, which was solemnized in Westminster abbey, London, on Nov. 20, the king conferred upon him the honour of Knighthood and invested him with the Order of the Garter, created him duke of Edinburgh, earl of Merioneth and Baron Greenwich, of Greenwich in the county of London, and at the same time authorized him to use the title his royal highness.

Education. The outstanding developments in 1947 in the United States were (1) the steps to better the economic status of the teacher; (2) increases in enrolment in the elementary schools and colleges; (3) greater interest and participation in international educational co-operation, especially in the United Nations Educational, Scientific and Cultural organization, U.N.E.S.C.O.; (4) the attempts to get federal aid for education; and (5) the growing controversy on the place of religion in public education.

In September, the U.S. office of education estimated that the total scholastic enrolment would reach 32,100,000, with more than 1,000,000 veterans in attendance. The over-all registration in the elementary school was expected to attain 22,620,000, with 2,450,000 children in the first grade. The latter figure, an increase of 200,000 over that of 1946, was generally attributed to the high birth rate during the early part of World War II. High-school registration was predicted to be 6,330,000, only 25,000 more than in 1946. This small gain was ascribed to the low prewar birth rate. The cost of education below the college level for 1947–48 was estimated at $4,800,000,000, about $300,000,000 above that of the preceding year.

The actual fall enrolment in 1,753 collegiate institutions was 2,338,226, 12.5% higher than in 1946, according to figures compiled in November by the office of education. To observers like Pres. Raymond Walters of the University of Cincinnati it appeared that the veteran attendance of 1,149,993 represented a peak, or a plateau at least. Proof was found in the slowing up of veteran registration in comparison with nonveteran increases and in the decided decrease in the number of veterans entering as freshmen (*School and Society,* Dec. 27, 1947). (*See* also VETERANS' ADMINISTRATION.)

The Teacher Crisis.—The teachers' strikes for better salaries were carried over into 1947. The first major strike occurred in February in Buffalo, N.Y., the nation's 14th largest city. An aftermath of this strike, which was ended by a compromise, was the passing of a law by the New York state legislature prohibiting strikes by teachers and civil servants. Similar laws were enacted by Ohio, Pennsylvania and Texas.

The teacher's financial status was so effectively publicized in the newspapers and in other media of communication that public opinion was created in behalf of salary increases and other improvements. One of the outstanding factors in directing attention to the teacher situation was the series of 12 articles in the *New York Times,* Feb. 10–21, 1947, by Benjamin Fine, in which the following facts were revealed: since 1940, about 350,000 have left the profession; 1 teacher out of 7 possesses an emergency or substandard certificate; there are 70,000 teaching vacancies; the annual teacher turnover, now 20%, is double that of prewar days; the average salary of teachers is $37 per week, with 200,000 paid less than $25 weekly; more than half of the U.S. teachers are not protected by tenure rights; enrolments in teachers' colleges are far below those in other colleges. These articles were reprinted in a brochure, "The Crisis in American Education," and later expanded into a book, *Our Children Are Cheated.*

The various state legislatures began voting pay increases as early as January. By the end of June, at least three-fourths of

the legislatures had appropriated emergency funds toward raising minimum salaries or granting cost-of-living bonuses. The *New York Times* estimated on Dec. 30, that the average teacher's salary for 1947–48 would exceed that of the previous year by $400. On the other hand, as Prof. Harold F. Clark, Teachers college, Columbia university, pointed out, teachers were not as well off as previously, since the cost of living rose about as much and only few communities took the higher living costs into account when raising salaries. Prof. Clark warned that public interest would be difficult to arouse in behalf of additional salary increases.

Another trend in the teacher crisis was the growing sentiment to adopt a single salary schedule for elementary and high school teachers. The American Conference of Teacher Examiners expressed unanimous satisfaction in October "at the increasing number of single-salary schedules being adopted throughout the United States" and predicted that they "will do much to alleviate the teacher shortages in the elementary field and will encourage more competent candidates to prepare for teaching in the elementary school."

There were other improvements in teachers' conditions of service throughout 1947: more than half of the states enacted new or liberalized retirement plans; Maryland and Arkansas reduced class loads to 30; Illinois and Virginia eliminated marriage as a cause for dismissing a woman teacher; South Carolina provided legal redress for teachers in cases of salary discrimination; Connecticut legislated against racial and religious bias in the employment of teachers. Among the other reforms were better provisions for sick leave, tenure protection and the discontinuance by some towns of restrictions on the teachers' private lives. All in all, however, the situation was still unsatisfactory. The Citizens Federal Committee on Education, a group formed under the auspices of the office of education, reported in October that "the conditions under which teachers work and live still leave much to be desired" in many parts of the country and that "many communities do not let their teachers live like normal human beings."

Despite the gain in the number of teachers during 1947, there was no letup in the critical teacher shortage. Estimates of the ratio of teachers employed on emergency substandard certificates to qualified teachers varied at the end of the year from 1:9 to 1:8. In Wisconsin, the ratio was 1:5, according to a report by the Wisconsin Educational association. Little encouragement came from teacher-education institutions, which reported only an 8.1% increase over the 1946 registration, whereas the average increase for colleges and other higher institutions was 12.5%, with a range from 12.0% to 26.0%.

Surveying the rapidly rising elementary-school enrolments, Professors Harl R. Douglass and Lloyd H. Elliott inquired in *School and Society* (Society for the Advancement of Education, Inc., Nov. 15, 1947): "The $64-question is—where are the teachers coming from?"

During April and May, the Commission on Teacher Education and Professional Standards of the National Education association launched an intensive campaign to urge outstanding young people to enter the teaching profession, to eliminate unqualified teachers and to secure the best conditions necessary to attract and hold the most qualified teachers. A group of 300 representative school leaders, constituting the National Conference for the Improvement of Teachers, issued in July a "Bill of Rights" with a program calling for a 40-hour week, a maximum class load of 25, a minimum annual salary of $2,400, a single-salary schedule, greater academic freedom, more democratic procedures in planning the school program, satisfactory tenure and retirement laws and reforms in educational service.

Federal Aid.—The 80th congress voted $3,000,000 toward providing equipment and facilities for the Veterans' Educational Facilities program (public law 76); $35,000,000 for temporary housing for veterans studying under the G.I. Bill of Rights (public law 85); a program of institutional on-the-farm training for veterans (public law 377); and the establishment of a navy postgraduate school (public laws 302 and 303). Other appropriations included $65,000,000 for the School Lunch program and $1,633,900, representing a substantial increase over the preceding year, for the office of education. The National Science Foundation act, providing federal subsidies for scientific research, was passed by the senate and the house but vetoed with "deep regret" by the president because of alleged administrative deficiencies in the act. Held over for the 1948 session were S. 140 (Fulbright-Taft), proposing a department of health, education and security; H.R. 3342 (Mundt), on the international exchange of information and educational services; and S. 472 (Taft), an annual appropriation of $300,000,000 of educational aid to the several states.

No articulate opposition to the principle of federal aid was apparent in educational circles. At the 30th annual conference of the American Council on Education in the spring, Pres. George F. Zook suggested that a minimum of $1,000,000,000 a year in federal aid was necessary for the educational welfare of the states.

None of the delegates, who comprised the leading educators, school administrators and college presidents voiced dissent. Even the principle of federal aid to colleges and universities failed to arouse protest.

Universal Military Training (U.M.T.) received much attention during 1947. In May, the President's Advisory Commission on Universal Training reported unanimously that "universal training is an essential element in an integrated program of national security intended to safeguard the United States and to enable us to fulfil our responsibilities to the cause of world peace and the success of the United Nations." U.S. educational leaders ranged themselves on both sides of the question: Presi-

PUBLIC SCHOOL STUDENTS at Buffalo, N.Y., pouring hot coffee for teachers who struck for higher wages on Feb. 24, 1947. The U.S. teacher shortage grew in 1947 as salaries continued to lag behind a rising cost of living



dents Karl T. Compton (Massachusetts Institute of Technology) and Harold W. Dodds (Princeton), members of the commission, pro; Chancellor Robert M. Hutchins (The University of Chicago), George D. Stoddard (University of Illinois), and Harold Taylor (Sarah Lawrence college, Bronxville, N.Y.), con. To promote the cause of U.M.T. and to counteract the efforts of such groups as The National Council Against Conscription, 50 national organizations created in October the National Security committee, with Presidents James B. Conant (Harvard), Edmund E. Day (Cornell), Charles Seymour (Yale) and Donald Tressider (Stanford) as members.

At least 20 states increased their educational appropriations during 1947, Iowa leading with a rise of 266%. Many states provided salary increases for their teachers.

Elementary and Secondary Education.—The trends of recent years continued with little radical change. Social studies in co-ordinated form received stress in the elementary curriculum, while science and social studies were particularly emphasized in the high school. American history interested professional leaders as a result of the publication of the 17th yearbook of the National Council of the Social Studies. Work experience and vocational guidance again occupied significant positions in secondary education. Hope for the basic revision of the secondary curriculum was held in the appointment of the Commission for Life Adjustment Education.

Higher Education.—Despite mounting registrations in undergraduate, graduate and professional schools, there were signs that the peak had been reached. Occasional decreases in enrolment warned college administrators of possible future trends. Surveys indicated that the rising tuition and other college expenses, as well as the persistent housing shortage, were responsible for discouraging students from going to college. According to a *New York Times* survey in September, the average cost in 400 colleges rose 37% over that of 1940–41. The cause of democracy in higher education was seen injured by the withdrawal of students of moderate means.

Student veterans continued to do well, although there was no conclusive, consistent evidence that they were superior or inferior to nonveterans. The Evening college of the University of Cincinnati reported a slight edge in favour of the former in grades, attendance, attention and comprehension of subject matter. On the other hand, veterans' grades at Cornell were slightly below those of nonveterans.

Changes in the administrative organizations of institutions included the conversion of the Massachusetts State college into the University of Massachusetts, of the Junior College of Connecticut into the University of Bridgeport, and of Bucknell University Junior college into Wilkes college (Wilkes-Barre, Pa.). Sacramento State college was opened by the California legislature.

The influence of World War II and of the current world situation on the college curriculum may be seen in the adoption by some colleges of a core requirement in contemporary international issues. The intensive language program of wartime was being continued, with some modification, in many institutions. Language and area studies—in Portuguese, Russian and Japanese, especially—became popular all over the country. By the end of 1947, a number of colleges were planning area-study programs on the Arctic region, the U.S.S.R., China, the near east, India, southeast Asia and Scandinavia.

Experiments in the correlation of science and the humanities, with special reference to the history of science, were started at Harvard, Yale and Wisconsin, ostensibly as a result of the ideas advanced by Pres. James B. Conant in "On Understanding Science," the 1946 Terry lectures.

Other developments included the attempts made to link the social-science courses with actual conditions in politics, industry and society; the increase in the number of colleges offering majors in American civilization; the establishment of a school of public relations at Boston university; the use of a fleet of 30 planes, "flying classrooms," in the teaching of geology at the University of Illinois; and the formation of the National Student association, an organization representing 1,100,000 students in 351 colleges.

The first report of the President's Commission on Higher Education recommended in December a program of federal aid to double the present college enrolment by 1960, to provide free public education through the first two years of college for all able to profit therefrom, and to establish "community colleges" (junior colleges). From the standpoint of the curriculum, the commission urged better co-ordination between liberal education and professional and vocational education, less overspecialization, and training for "citizenship in our democracy." The second report, released Dec. 22, proposed that congress appropriate immediately $135,000,000 for a program of federal scholarships and fellowships to aid more than 300,000 needy but qualified students to complete college and graduate school. The suggested grants, ranging up to a maximum of $1,500 annually for graduate students, would amount to $1,000,000,000 annually by 1960, according to the estimate of the commission.

Adult Education.—Interest in adult education continued to be high throughout the year. A Gallup poll disclosed that two out of five Americans were actively interested in adult education. The United States Armed Forces institute reported an enrolment of 300,000 service personnel. The Great Books foundation, headed by Chancellor Robert M. Hutchins, planned to expand its campaign to extend free adult education throughout the country. In the meantime, discussion groups on the Great Books were organized in many cities.

Race and Religion.—Several incidents in Gary, Ind., St. Louis, Mo., and other communities convinced Negro leaders and others interested in racial equality that the Negro was still a long way from attaining educational opportunity on the same level as the white man. While there was some improvement in Negro education under segregated conditions, the discrepancy between the white and Negro schools was too great. Negro schools in the segregated areas suffered from inadequate financial support, the lack of qualified teachers, insufficient salaries for teachers and other difficulties.

Some attempts were made to alleviate the situation. Federal Security Administrator O. R. Ewing appointed a committee to discover new opportunities for training Negro physicians. The Southern Governors conference requested congressional approval of interstate agreements for the establishment of cooperative regional schools for Negro professional and technical students. That these measures were deemed unsatisfactory by Negroes was evident from the decision of the National Association for the Advancement of Colored People to file "county-by-county" law suits to end educational segregation.

The relation of religion to public education grew in importance as an issue in 1947. The American Council on Education urged a reconsideration of the place of religion in the curriculum. Ecclesiastical leaders deplored the lack of religious content in the school program. In North College Hill, O., sectarian differences were injected into an incident involving the refusal of the local school board, consisting of a Catholic majority, to reappoint the superintendent. The 5–4 decision in February of the U.S. supreme court upholding the subsidization by New Jersey of the transportation of children to parochial schools aroused much discussion. The supreme court of Iowa and the attorney general of Minnesota ruled, on the other hand, that parochial school pupils may not travel free in public school buses. The





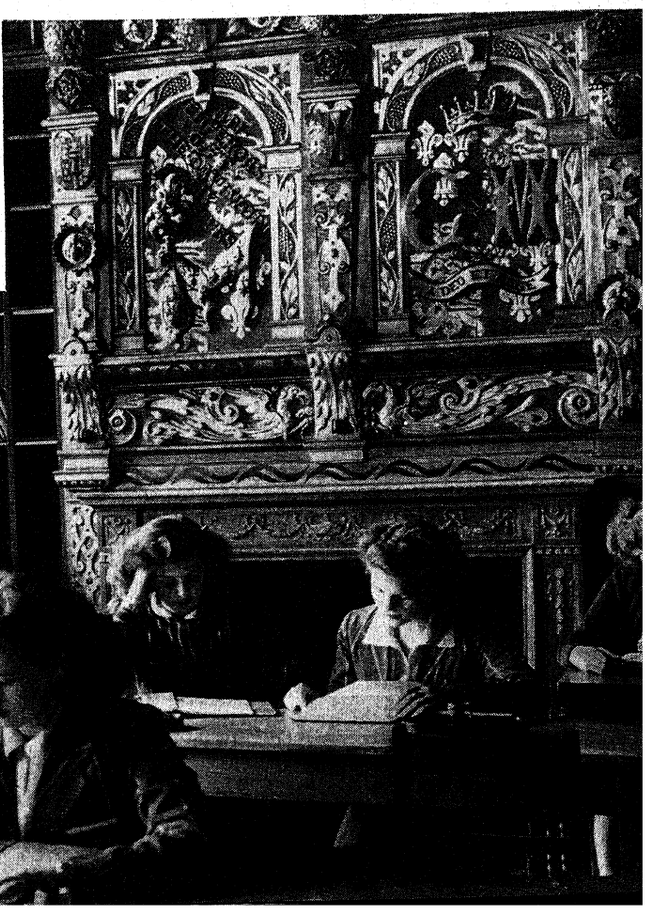


Above, left: CO-EDUCATION was introduced in Japan as part of the program of democratization being carried on in 1947. Boys and girls are shown working together in a Tokyo school

Above, right: CROWDED LECTURE HALL at the University of Iowa which was typical of U.S. colleges and universities in 1947. Overcrowding continued as veterans studying under G.I. subsistence pay swelled normal enrolments

Left: GERMAN SCHOOL CHILDREN were learning to read and write without the use of textbooks in 1947. Blackboards, chalk and pointer served as substitutes, after the teacher had printed the text by hand

Below: BRITISH teacher trainees studying at Elvaston castle in the Midlands during 1947, as part of a nation-wide program for ensuring adequate teaching facilities in British schools





appeal to the U.S. supreme court from the decision of the Illinois supreme court in the Vashti McCollum case, wherein religious teaching during school hours on public-school premises was declared legal, was not yet decided when 1947 came to a close.

Presidential committees urged the abolition of racial and religious discrimination from U.S. education. The President's Committee on Civil Rights condemned in October "the separate but equal doctrine" of educational and other facilities for the Negro, and proposed "the elimination of segregation, based on race, color, creed, or national origin, from American life." The President's Commission on Higher Education stated in December: "The first condition toward equality of opportunity for a college education can only be satisfied when every qualified young person, irrespective of race, creed, color, sex, national origin, or economic status is assured of the opportunity for a good high school education in an accredited institution."

International Educational Co-operation.—The United Nations Educational, Scientific and Cultural organization completed its first year of operation in 1947. Actually, it was not until April that the revised program and the detailed budget were approved and active work begun. National conferences were held in various countries, the U.S. conference taking place in March in Philadelphia. Internationally there were regional study conferences on fundamental education during June in Nanking and during November in Mexico City. In July and August, 79 educators from 31 countries attended the first U.N.E.S.C.O. Seminar on Education in International Understanding at Sèvres, near Paris. Director-General Julian Huxley reported encouraging progress in the four comprehensive projects which involved all or most of U.N.E.S.C.O.'s constituent fields: educational reconstruction and rehabilitation in war-devastated countries; plans for fundamental education, especially the pilot projects in Haiti, China and British East Africa; textbooks and other methods of teaching international understanding in the schools; and the scientific-social project, the "Institute of the Hylean Amazon." Another phase of U.N.E.S.C.O. activity was the work of the Commission on Technical Needs, which studied the technical needs of the press, film and radio of 12 war-devastated nations, and submitted comprehensive recommendations on how to meet those needs (*United Nations Bulletin*, Jan. 1, 1948).

Throughout 1947, U.N.E.S.C.O. was popularized by many educational, cultural and other groups. Yet the results of a survey released in December by the National Opinion Research centre disclosed that many Americans who look with approval upon the aims of U.N.E.S.C.O. are not willing to translate their feelings into action. (*See* also UNITED NATIONS.)

In October, the Board of Foreign Scholarships, appointed by the president to administer the Fulbright act, which authorizes agreements with foreign countries whereby the latter set up scholarships for U.S. students in part payment for surplus U.S. war property, requested outstanding educational groups to select the U.S. scholarship recipients. Exchange difficulties, however, made it unlikely that more than a few foreigners would be able to study in the United States. Only one nation, China, signed the act by the end of 1947, although six others were studying its possibilities. Educators looked upon the pending Mundt bill, which provides scholarships for foreign students in the United States, as a necessary supplement to the Fulbright act.

The National Education association initiated the Overseas Teacher-Relief fund in the fall to provide aid to teachers in war-devastated areas. U.S. teachers were urged to contribute sums from $1 to $100 for food, clothing and supplies. This was a teacher-to-teacher Thanksgiving-to-Christmas campaign, administered by the local, state and national educational groups.

Canadian and U.S. historians and educators collaborated in a report which revealed that history textbooks used in the schools of both nations presented inadequate and incorrect accounts of each other. This report, which was based on two years' study under the auspices of the Canada-United States Council on Education, recommended that the history textbooks be revised.

Observers of conditions in Europe reported a deterioration of youth in most countries. Ideological differences stood in the way of effective educational co-operation among the occupying powers in Berlin. In Bavaria and in the other sections of the U.S. zone, the process of re-education was retarded by the lack of textbooks, insufficient and untrained personnel, and passive resistance on the part of German school authorities. The U.S. military government estimated that 10,000 additional classrooms and 7,500 teachers were required in Bavaria alone. Various reforms suggested by U.S. educational advisers in Germany were rejected or ignored by German school officials on various economic and academic grounds. The first official acts of the new Bavarian minister of education, Alois Hundhammer, included the introduction of corporal punishment and the demotion of women teachers (*New York Herald Tribune*, Nov. 16, 1947). There were no indications that a more stringent policy would be adopted by the U.S. military authorities toward recalcitrant German educators.

Visitors to the countries of eastern Europe reported that, despite domination by the Communist party and a general orientation toward soviet Russia, there was no evidence of complete Communist control in education. English was the most popular language in the schools throughout Europe, including Poland and Czechoslovakia. In the latter country, the ministry of education remained in the hands of non-Communists, while in Poland, notwithstanding the Communist-dominated government and the Communist ministry of education, the Communist influence on education was not complete (*New York Herald Tribune*, Oct. 26, 1947).

In the western hemisphere, the ministry of education of Mexico announced during the summer that its three-year campaign against illiteracy succeeded in reducing the percentage of Mexican illiterates from 35 to 30. About 1,000,000 individuals were taught to read and write during the progress of this drive.

The *New York Times* reported on Dec. 26 that a group of Argentine professors who had been dismissed by Pres. Juan Perón founded a Free university, "a sort of university-in-exile within the borders of the country itself." This was interpreted as "the most formidable challenge" to the dictatorial control by President Perón over the Argentine universities. There were indications that the government would adopt a more conciliatory attitude toward the professors and would reinstate many of them in 1948. The Argentine scholars, however, were reported as unwilling to accept anything short of "very specific guarantees of full political and academic freedom." (*See* also CHILD WELFARE; LIBRARIES. For statistics of institutions *see* UNIVERSITIES AND COLLEGES.)

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(W. W. BN.)

Great Britain.—In accordance with the terms of the Education act, 1944, and the Education (Scotland) act, 1945, on April 1, 1947, the upper limit of "compulsory school age" was raised from 14 to 15 years. There were no exemptions; every boy and girl in England, Wales and Scotland must receive "efficient full-time education suitable to his/her age, ability, and aptitude, either by regular attendance at school or otherwise" between the ages of 5 and 15 years. It had taken nearly 30 years to secure this advance; full-time education for all up to 14 was made compulsory in 1918.

The step was not taken without opposition. Few people questioned the principle, but many doubted whether at a time of acute economic crisis the entry of some 400,000 recruits to employment should be deferred and the expense of keeping them at school continued. But the government rejected the idea of postponement, and public opinion undoubtedly supported it.

The full benefit of raising the age would not be felt for some time. School building was restricted to relieving extraordinary shortages of accommodation caused by raising the age, the increased birth rate, new housing estates and industrial developments. Consequently, many thousands of children had to be given the longer course of education in premises neither designed nor equipped for the purpose. To meet ordinary shortages of accommodation, schools were being supplied with prefabricated huts, popularly called "Horsa" huts (huts operation—raising school age), each housing two classes. Many local education authorities also transferred 14-year-old children from small or less well equipped schools to larger or better equipped ones. Valuable experiments in the teaching of children of varied educational attainments were being launched as a result of this procedure.

Four days before the compulsory school age was raised in Britain the Education (Northern Ireland) act, 1947, became law. In accordance with the policy of the British government that the provision of public education should be on approximately the same level throughout the United Kingdom, this measure was similar to the Education act, 1944, many of the main sections being identical. As in Britain, the statutory system of public education was organized in three progressive stages: primary, secondary and further education. The same statutory duties are laid upon the local education authorities, and upon parents. Compulsory school age was to be from April 1, 1948, 5 to 15, although local education authorities might with the approval of the minister make bylaws prescribing $5\frac{1}{2}$ or 6 years as the lower limit. Religious worship and instruction were made compulsory in primary and secondary schools. All private schools were to be registered and inspected. The most important difference from the English and Scottish acts is that there was no provision for compulsory part-time education of young persons after leaving school.

Thanks largely to the success of the emergency training scheme, a sufficiently large number of male teachers was entering the schools. Recruitment of men under this scheme ended in June, except for one or two specialist categories. Because of strong competition from industry and administration for the services of highly qualified graduates, there was a growing shortage of specialist teachers, particularly scientists, in grammar schools. In October the Burnham committee recommended revised salary scales for teachers, to operate from April 1, 1948, offering, *inter alia,* larger allowances to highly qualified graduates. Women teachers were still in short supply, especially for younger children, of whom larger numbers were daily entering the schools as a result of the increasing birth rate.

A promising reform in the organization of teacher training was launched by the inauguration in October of the Bristol and Birmingham University Institutes of Education, which federated university and training college facilities under the direction of the university. Similar schemes were planned elsewhere.

The exchange of teachers between Britain and the United States, reopened successfully in 1946, was continued and expanded, with 126 teachers exchanged as compared with 74 in 1946.

Despite all handicaps, much good experimental work was done in the schools, especially the new secondary schools. This was encouraged, in England and Wales by the publication of a forward-looking pamphlet, *The New Secondary Education,* by the ministry of education, and in Scotland by a remarkably progressive report on *Secondary Education* made by the Scottish Advisory Council on Education. The main emphasis in both documents is on development of more active methods without neglect of intellectual standards.

The British government increased its educational budget for 1947–48 by more than £22,000,000, because of the raising of the school age to 15 and other changes required under the education acts of 1944 and 1946. The total cost of education, including the expenditures of the local educational authorities, was estimated to be £212,685,000, an increase of £27,850,000 above the cost of education in 1946–47. Additional government funds, administered by the University Grants committee, were spent for higher education.

The universities were full to overflowing; it was estimated that they contained nearly 70,000 students, as compared with a prewar peak of 50,000. Rather more than two-fifths were ex-service men and women. In June Trinity college, Cambridge, celebrated its fourth centenary, and Eton its fifth centenary. In April the Educational Institute of Scotland, the all-embracing teachers' organization, celebrated its centenary.

In March a comprehensive scheme of compulsory general and voluntary individual education in the army was announced. (*See* CAMBRIDGE UNIVERSITY; LONDON UNIVERSITY; OXFORD UNIVERSITY.) (H. C. D.; X.)

Education, U.S. Office of: *see* EDUCATION; FEDERAL SECURITY AGENCY.

Education Association, National: *see* NATIONAL EDUCATION ASSOCIATION.

Eggs. The production of eggs in the United States continued at a high level in 1947, reaching a total of 5,015,000,000 doz., compared with 5,098,000,000 doz. in 1946 and the record of 5,365,000,000 doz. in 1944. This high output was sustained with about the same number of laying hens. During the first 11 months of the year the average production per hen was estimated at 149 eggs, compared with 145 eggs in 1946 and a five-year average of 132. Civilian consumption of eggs continued at about 380 per capita, although retail prices were 25% higher.

The number of laying hens on farms in 1947 was lower than in 1946 until July, and only the high rate of laying per hen held up production. A goal for 1948 was set at about 8% below 1947 for egg production and chickens raised to save grains during the winter of 1947–48.

Prices of eggs advanced steadily through 1947. The average farm price was 41.3 cents per dozen in January and held close to that level until June, then advanced to a high of 58.7 cents in December. In October the U.S. government's appeal to the public to cease eating poultry and eggs one day a week had a depressing effect on the market. When this policy was reversed on Nov. 4, the market recovered immediately. Government buying was discontinued in July until late in the fall. Under the Steagall act, price support at not less than 90% of parity was provided through Dec. 1948. The buying of eggs for European relief was expected to support the market through 1948.

Storage stocks of shell eggs declined steadily through 1947 and on Aug. 1 were the lowest on record—4,268,000 cases. Frozen eggs were in larger supply, reflecting increased use by the processed-food industries. The government bought about 275,000,000 doz. shell eggs for shipment to Britain and for price support in 1947. After the confusion resulting from the "no-poultry" holidays in October, the government advised producers that poultry and egg production would probably decline in 1948 because of the large demand for grains for export under

the Marshall plan.

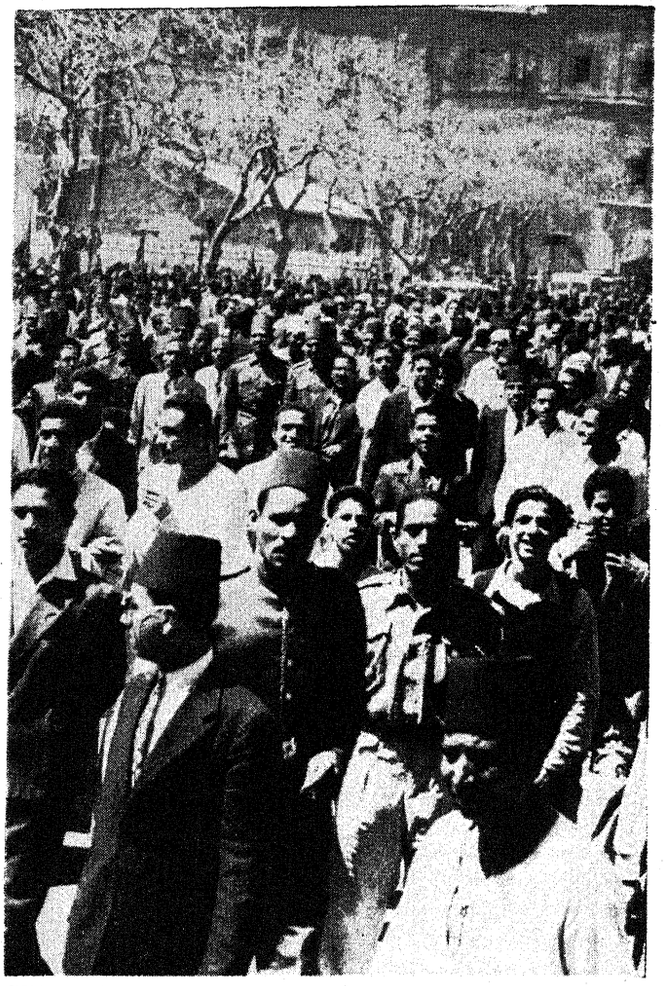
World egg production was somewhat higher in 1947 than in 1946 in all countries for which reliable estimates were available. European countries made definite progress toward restoring the prewar numbers of chickens, but the severe grain scarcity appeared likely to retard the increase in flocks. Egg production in France, Italy and the United Kingdom was so near prewar levels, that increases were unlikely. Reliable statistics on poultry raised and eggs produced were very difficult to assemble because of the many small flocks both on farms and in villages. As a means of subsistence poultry was of great importance in all war-devastated areas. (*See* also FOOD RESEARCH; POULTRY.)

(J. C. Ms.)

Egypt. An independent kingdom of northeast Africa; bounded N. by the Mediterranean, S. by the Anglo-Egyptian Sudan, N.E. by Palestine, E. by the Red sea, W. by Libya and the Sahara. Area: *c.* 383,000 sq.mi. (arable land 13,600 sq.mi.); pop. (est. June 1947) 19,090,448. Chief towns: Cairo (cap. 2,100,486); Alexandria (928,237); Port Said (132,000); Tanta (105,000); Mansura (79,000); Damanhur (71,000); Asyut (65,000). Language: Arabic; religion: Mohammedan 91%; Coptic 7%. Ruler: King Farouk I; prime minister: Mahmoud Fahmy el-Nokrashy Pasha (Dec. 9, 1946).

History.—The events of 1947 were overshadowed by the continued dispute with the United Kingdom, arising out of the Egyptian request for the revision of the Anglo-Egyptian treaty of 1936. The British refusal to meet Egyptian demands greatly excited Egyptian feeling and made friendly relations between the two people increasingly difficult. Another sign of the worsening of Anglo-Egyptian relations and of the embarrassment thus caused was that the situation obliged the Arab league to take sides as between Egypt and Britain. On Jan. 5 the league issued a declaration stating that it supported Egypt's demands in the Sudan. The demand for the unification of the Nile valley had been heard since Egyptians began to call for a revision of the treaty immediately after the end of World War II. Egypt claimed that the Sudan was an essential part of the dominions of the king, both historically and on grounds of common religion and culture, and, particularly, because of the importance of the Sudan in respect to the Nile, upon which Egypt's economy and life depend. The British government maintained, on Jan. 25, that it could not "sign away a people's right of self-determination in a treaty with a third party," and that "the Sudanese may, at the proper moment of political maturity, choose full independence from Egypt." Next day Nokrashy Pasha informed the press that the Egyptian government would submit the whole question of Egypt and the Sudan to the United Nations. In March the British prime minister, Clement Attlee, reiterated the British attitude and stated that British troops would nevertheless leave Cairo for the central zone. This move was completed by March 29. In July the terms of the Egyptian government's note to the Security council were published. The council was asked to order the evacuation of British troops from Egypt and the Sudan, and the termination of the existing regime in the Sudan; it was claimed that the treaty of 1936 was no longer binding, as it had outlived its purpose and contravened the spirit of the charter of the United Nations. Feeling continued to run high and in August, in demonstrations in Cairo and Alexandria, organized by the Moslem brotherhood, casualties amounted to more than 100.

Meanwhile, on Aug. 5, the prime minister of Egypt had put his country's case to the Security council. An Arab delegate supported Egypt but the council passed, with many abstentions, a recommendation for the renewal of direct negotiations. (*See* ANGLO-EGYPTIAN SUDAN.)



EGYPTIANS gathering on the esplanade of Kasr El Nil, April 3, 1947, to see King Farouk raise the Egyptian flag over the garrison, marking the end of the 65-year occupation of Cairo by British troops

Egyptian feeling remained unsatisfied, and their press displayed dissatisfaction, sometimes in the strongest terms. But, in the autumn, political affairs were considerably overshadowed by an outbreak of cholera in the provinces which, although it had not affected the great cities, was by the end of September sufficiently serious to lead the government to postpone the opening of the schools, and of the universities of Cairo and Alexandria, and to ask the governments of the United Kingdom and the United States for supplies of anti-cholera serum. The epidemic spread. Neighbouring countries took severe precautionary measures, limiting travel from Egypt, while aircraft sprayed Egyptian cities with DDT. By the end of October the daily death-rate was officially reported to be in the neighbourhood of 400; by the end of November it had fallen to about 20. Meanwhile political considerations had affected the economic affairs of the kingdom. In May the minister of finance announced that Egypt was unwilling to scale down its sterling balances. After negotiations, a temporary agreement between Egypt and Britian was signed by which £8,000,000 were made available to Egypt before the end of the year. Subsequently Egypt left the sterling bloc. (H. S. D.)

Education.—(1943) Elementary and secondary schools 8,007, scholars 1,309,300; technical and professional schools 115, scholars 19,711; special schools 170, scholars 32,363; higher institutes 42, students 12,522; universities: Al Azhar (Moslem) students 14,185; King Fuad I, students (male) 7,677, (female) 722; King Farouk I, students (male) 1,127, (female) 30.

Banking and Finance.—Revenue (est. 1947–48) £E.94,175,-

500; expenditure (est. 1947–48) £E.103,257,800; notes in circulation (1946) £E.140,924,000; coin in circulation (1946) £E.7,162,000; public debt (Oct. 1946) £E.128,001,850; gold reserve (March 1947) £E.6,376,000; currency, Egyptian pound (£E.) divided into 100 piastres. Exchange rate £E.1=413 cents U.S. (1947).

Trade and Communications.—External trade (merchandise): imports (1945) £E.60,476,000; exports (1945) £E.45,159,000. Communications and transport (1945): roads 8,203 mi.; railways 3,385 mi.; navigable canals (1944) 7,323 mi. Shipping (1945): tonnage entered 24,633,000; tonnage cleared 24,013,000. Suez canal (1940): commercial ships passing 2,419, tonnage 12,713,000; war transport ships 40, tonnage 380,000. Airways (1944): Misr air lines: number of passengers 33,322; freight 526 short tons; mails 30 short tons; miles flown 1,023,430; regularity of service 94.2%.

Agriculture and Minerals.—Production (1945) in short tons: cotton 259,000; maize 2,679,000; rice 954,000; wheat 1,302,500; lentils 58,400; beans 339,400; barley 288,700; fenugreek 36,300; onions 175,200; sugar cane 2,818,100; petroleum 1,487,119; phosphates 358,010; iron oxides and ochre 4,469; talc 4,262; natron 7,380.

Eire. A republic associated with the British commonwealth of nations, Eire occupies five-sixths of an island to the west of Great Britain. Area: 26,602 sq.mi.; pop. (May 13, 1946, census): 2,953,452. Chief towns (1946 census): Dublin (cap. 506,635); Cork (75,361); Dun Laoghaire (44,689); Limerick (42,987); Waterford (28,332). Language: English (76.3%), Erse (Gaelic) 23.7%. Religion: Roman Catholic 93.4%. President: Sean T. O'Kelly; prime minister: Eamon de Valera.

History.—The year 1947 was dominated by economic problems, with political issues in abeyance. The temporary British ban on coal exports (Feb. 6) had a crippling effect on the fuel and power situation. Apart from the Great Northern railway (operating on both sides of the border) no passenger trains were run for a prolonged period, and freight trains were limited to three a week. Bread rationing was introduced in March, and the butter ration was cut by half.

After a period of relative stability since 1943, the cost of living index rose sharply in the third quarter to 319 (1914=100), representing an increase of roughly 80% since 1939. This threatened to wreck the series of wage adjustments made after the removal in Sept. 1946 of the "standstill" orders governing wages and salaries. The result was a number of strikes, the most serious being that of the road passenger transport service, which began on Sept. 3 and lasted for more than two months.

Accordingly, a supplementary budget was introduced in October. This proposed to subsidize the cost of flour, bread, tea, sugar and fertilizers by means of increased taxation. Substantial increases were made in the duties on whiskey and tobacco, and a new stamp duty imposed on sales of estates: 5% on the purchase price when the buyer was a national, and 25% in the case of nonnationals. A Prices and Efficiency bill was also introduced, designed to increase industrial efficiency by state control.

The volume of external trade was considerable, showing a heavy adverse visible balance. In the first six months imports were £52,700,000 and exports £15,900,000. The disparity was largely remedied by interest on investments and the tourist trade. Ministerial talks in London raised hopes that the export trade would be encouraged by an assured market for agricultural produce in Britain. The Irish contribution to the Paris conference also envisaged a desirable expansion of agricultural production. In conformity with other countries, imports from the United States, which amounted to some £10,000,000 in the first six months, were heavily cut in the autumn. (D. J. O.)

Education.—Elementary schools (1946–47): 4,957; scholars 451,820; secondary schools 393; scholars 42,927. Universities (1946–47): National, 4,857 students; Trinity college, Dublin, 1,484 students.

Finance.—Budget (1946–47 actual): revenue £54,353,000, expenditure £58,865,000; (1947–48 est.) revenue £66,901,000, expenditure £66,884,000. Public debt (March 31, 1947) £86,797,000. Notes in circulation (June 30, 1947) £42,977,000. The Irish pound has the same value as the pound sterling. £ = 403.5 U.S. cents.

Trade and Communications.—Foreign trade (1946): imports £72,043,400; exports £38,612,000. Shipping entered (1946): 2,956,000 tons; cleared 1,998,000 tons. Railways: total length (1945), including the mileage situated partly in Northern Ireland: 2,835 mi. Motor vehicles licensed (March 1946): 176,200. Wireless receiving set licences (1944): 173,300. Telephone installations (March 1946): 55,426.

Agriculture and Fisheries Production.—Production (1946, in short tons): wheat 518,039; oats 771,850; barley 124,437; potatoes 3,613,100; sugar beets 107,389. Livestock (1945): cattle 3,856,000; sheep 1,922,000; horses 445,000; pigs (1946) 479,280. Fisheries: total value of fish caught (1946): £594,336. Number of unemployed persons (Feb. 1947): 74,968.

Eisenhower, Dwight D. (1890–), U.S. army officer, was born Oct. 14 at Denison, Tex. He was admitted to West Point, graduating in 1915, and during World War I was an instructor at several U.S. army camps. After graduating from the Army War college he served in the office of the chief of staff, Washington. In 1935 he served in the Philippines as Gen. Douglas MacArthur's chief of staff. In June 1942 he was given command of the U.S. headquarters in England and was promoted to the rank of lieutenant general. Eisenhower commanded Allied armies that conquered North Africa and Sicily (1943), invaded Italy (1943), landed in France (1944) and in conjunction with soviet forces conquered Germany in 1945. Eisenhower, who had been raised to the rank of a general of the army on Dec. 15, 1944, was designated chief U.S. representative in the Allied military government for the rule of Germany (March 29, 1945). He moved his headquarters to Frankfurt-on-Main on May 26. On Nov. 20, 1945, he was named chief of staff of the U.S. army, succeeding Gen. George C. Marshall; on March 28, 1946, he was named for permanent five-star rank by President Harry S. Truman and on June 24, 1947, his appointment as president of Columbia university was announced.

Throughout 1947, Eisenhower's name was persistently mentioned as a possible candidate for the presidency of the U.S., and a "Draft-Eisenhower-for-President" boom, originating in his adopted state of Kansas, soon spread throughout the country. Eisenhower's feelings were believed to have been accurately reflected in his statement on July 4, in which he observed: "I haven't the effrontery to say I wouldn't be president," although two months later, he insisted he was neither a Republican nor a Democrat and that he had no political ambitions. However, on Jan. 23, 1948, he settled speculation concerning his intentions by issuing a statement to the effect that he desired to remove himself completely from the political scene, and that he would not accept the nomination if it were offered him.

Elections. The off-year U.S. elections of 1947 showed no significant or major trend, for they consisted only of scattered contests for congressional vacancies, mayoralty offices and the Kentucky governorship. However, it was generally agreed that the balance in the political ledger favoured the Democrats. Although they did not win on such a scale as to assure them victory in the 1948 presidential contest, they solaced themselves with the thought that they had at least checked the strong Republican trend, which in 1946 had enabled that party to regain control of congress for the first time in 16 years.

There were, for instance, 12 special elections in 1947 to fill house vacancies. Seven were in acknowledged Republican territory—one each in Wisconsin, Washington, Michigan, Pennsylvania, Indiana, Ohio and Massachusetts—and the G.O.P. elected

their candidates in these districts. The other five vacancies occurred in Democratic strongholds—one in Alabama, two in Texas, one in Maryland and one in New York—and the Democrats won handily.

Despite the unprecedented number of special elections because of deaths and resignations, the outcome produced no great numerical change in the house or senate lineup. As 1947 closed, there were 51 Republican senators and 45 Democratic. In the house there were 244 Republicans, 186 Democrats, 1 American Labor party member and 4 vacancies.

The Chicago mayoralty election opened the 1947 political show on April 1. The contestants were Russell W. Root, Republican chairman of Cook county, and Martin H. Kennelly, Democrat, a businessman who had never held public office. He repudiated the spoils system, and seemed to cut loose from the Kelly machine, which had dominated Chicago politics for many years.

Kennelly won by 273,354, the largest lead after 1935, although far below the Democrats' 631,000 plurality in that year. It was, however, more than twice as large as retiring Mayor Kelly's 116,159 margin in 1943. The fact that Kennelly ran from 70,000 to 100,000 ahead of his ticket led Republicans to discount the verdict; they maintained that he had been the beneficiary of many Republican conservatives. The G.O.P. won or retained 18 seats in the city council of 50 members, its largest representation in that body after 1931.

The Democrats scored another mayoralty victory in Baltimore on May 6, when Thomas D' Alesandro, Jr., former member of the house, displaced Theodore Roosevelt McKeldin, Republican, who did not seek re-election. D'Alesandro's majority was 24,272, as against McKeldin's 1943 margin of 20,111.

The special congressional elections held in the early months of 1947 had several interesting aspects, although not particularly prophetic. They commanded attention, however, for the light they would throw on the comparative status of the two parties after the Republicans' 1946 sweep, and on prospects for the critical year of 1948.

On April 22, in the 10th Wisconsin district, the Republicans suffered a setback. Glenn R. Davis, Republican, won over his Democratic opponent, Carl W. Thomson, by only 920 votes, for a Republican percentage of 51. In the regular 1946 contest in this G.O.P. stronghold, the Republican entry had rolled up a 29,137 plurality.

The Republicans again barely held their own in a special election in the 3rd Washington district on June 7. Russell V. Mack defeated Charles R. Savage, Democrat, who was backed enthusiastically by the C.I.O., by 1,923 votes. In the regular 1946 election Savage had lost out by 6,895.

The Republicans made an extremely poor showing in the July 15 election to fill the Maryland seat in congress vacated by Mayor D'Alesandro. Edward Panetti, the G.O.P. nominee, got 3,776 votes, as against 12,179 for the Democrat and 7,070 for an independent nominee. Although it is a strong Democratic district, Panetti got only 16.4% of the total, whereas the Republican entry in 1946 received 36.1%.

Two special elections in the 9th and 16th districts of Texas during August had no political meaning. The Republicans did not even put up a candidate.

The Republicans got a lift from the outcome in two special elections in the 11th Michigan and the 8th Pennsylvania districts. In the Michigan contest, Charles Potter won over his Democratic rival, Harold D. Beaton, by 8,081, or 70%. Although it was an extremely light vote, Potter's percentage tally was the highest total that any Republican candidate had received in many years.

The Sept. 9 election in the 8th Pennsylvania district was regarded as especially important, for the Democrats and their C.I.O. allies made it a test of public reaction to Republican sponsorship and enactment of the Taft-Hartley act. The Democratic nominee was Phillip E. Storch, a veteran and president of the Newspaper Guild of Lehigh Valley, who had strong C.I.O. backing. The Republicans named Franklin H. Lichtenwalter, speaker of the house of the state legislature. Lichtenwalter won by 17,602, for a percentage of 61.3. He topped the G.O.P.'s 1946 plurality of 14,936, which represented only 58.9% of the vote. Lichtenwalter not only carried highly industrialized Lehigh county (coal), but also such strong union centres as Allentown, Bethlehem and Bristol.

The three special congressional contests on Nov. 4 were considered to have special importance for various reasons. They were held, for one thing, after the first Republican congress in 16 years had compiled its legislative record. They were also supposed to reflect popular reaction to the severe price inflation which had set in during late summer and early fall. Lastly, it was believed that they would furnish a test of sentiment on the Marshall plan for aiding Europe with funds and materials estimated to cost from $12,000,000,000 to $20,000,000,000.

In this respect they were disappointing, for they were a standoff. The Republicans won in the 10th Indiana and 4th Ohio districts, as expected, although by reduced majorities. In the 14th New York, a Tammany powerhouse, the Democrat won overwhelmingly, with an American Labor party entry second and the G.O.P. candidate third.

The Kentucky gubernatorial election attracted national notice because the Republicans had won this normally Democratic border state in 1943, electing Simeon Willis by 8,639. On Nov. 4, however, the Democrats recaptured the governorship. Their candidate, Representative Earle C. Clements, defeated Eldon S. Dummit, the Republican state attorney general, by 99,537. It was a larger plurality than either the Democrats or Republicans had expected.

The Taft-Hartley act was a major issue in this contest. As a member of the house, Clements had voted against it. Dummit praised and endorsed it. Despite John L. Lewis' hostility toward the Truman administration, the result indicated that his 60,000 Kentucky coal miners and their families had voted the Democratic ticket, a factor which may have accounted for the unusually large Democratic total. In Louisville, 12 Republican members of the board of aldermen were replaced by Democrats.

Another contest of national interest was staged in Mississippi to fill the vacancy created by the death of Senator Theodore G. Bilbo, violent apostle of white supremacy. Circuit Judge John C. Stennis, who campaigned on a platform of comparative racial tolerance, was elected over four Democratic rivals. Representative John E. Rankin, who had promised to carry on Bilbo's attacks on racial and religious minorities, ran last. He did not win his own congressional district.

The Nov. 4 mayoralty contests presented a mixed pattern, although the general trend was Democratic. The Democrats' gains in numerous industrial centres led them to believe that they had labour on their side because of antagonism to the Taft-Hartley act, and because of their gratitude to President Truman for his veto of that measure.

In Indiana, for instance, the Republicans controlled 74 of 102 cities prior to the Nov. 4 tests. On that day the Democrats won 53, as against 49 for the G.O.P. Among the manufacturing cities carried by the Democrats were Indianapolis, Fort Wayne, Evansville, Muncie and Terre Haute. The Democrats also retained municipal control in Gary and South Bend, steel and automobile centres, respectively.

In Massachusetts the Republicans lost the mayoralty contest at Fitchburg, and Mayor Charles F. Sullivan, Democrat, won

by 7,000 in Worcester, as against only 3,000 in 1945. Another New England city, Manchester, N.H., elected Mayor J. T. Benoit for a third term. The city of Paterson, N.J., staged an upset when Mayor William P. Furrey, two-term Republican executive, lost out by 4,000.

Detroit rejected Edward J. Jeffries, Jr., in his attempt to win a fifth term as mayor. Although the election was conducted on a nonpartisan basis, the victorious candidate, City Councilman Eugene I. Van Antwerp, had the support of the local and national Democratic organizations. The A.F. of L. backed Van Antwerp, while the C.I.O. supported Jeffries for the first time. The outcome preserved the C.I.O.'s record of never having been on the winning side in a Detroit mayoralty contest after its organization.

In Connecticut the Republicans surprised even themselves by recapturing Waterbury city hall for the first time after 1921. They also retained the New Haven mayoralty. In Bridgeport, Jasper McLevy, Socialist, was elected to his eighth two-year assignment as mayor.

In approximately 50 mayoralty elections in New York state, the Republicans made a net gain of one. But the Democrats regained control in the more important industrial cities, including such places as Poughkeepsie, Niagara Falls and Schenectady. The Republicans also lost ground in the Buffalo city council elections. In New York city the voters threw out the system of proportional representation in the board of aldermen, but it was retained in Cincinnati.

The outstanding municipal election in Pennsylvania was for mayor of Philadelphia. There the Republicans scored a clear-cut victory by re-electing Mayor Bernard Samuel with a 92,661 plurality, as against 63,339 in 1943. The Republicans also won all minor city offices, legislative and judicial. In the only statewide struggle, John Sidney Fine, Republican, was elected to superior court by 300,000.

The most important contest in Ohio, another key state, involved the Cleveland mayoralty. Mayor Thomas Burke, Democrat, was re-elected by about 82,000, the largest plurality in the city's history.

Two states—New York and Ohio—voted in favour of issuance of bonds to finance a bonus for World War II veterans.

The final major election of 1947 took place on Nov. 18 in the 9th Massachusetts district. The Republican candidate, Donald V. Nicholson, won over his Democratic opponent by 8,561. The Republican plurality in the regular 1946 contest had been 26,464.

The 1947 election results drew contradictory statements, as to be expected, from the major party leaders. Said Carroll Reece, Republican national chairman: "The Republicans absolutely held the line against bitter and skillful attack. The voters are pleased with the record of the Republican Congress."

Senator J. Howard McGrath of Rhode Island, Democratic national chairman, interpreted the results to mean that "There is widespread dissatisfaction with the record of the Republican party on national issues." (*See* also DEMOCRATIC PARTY; REPUBLICAN PARTY; UNITED STATES and under various states.)

(R. TU.)

Europe.—During 1947, general elections were held in Denmark, Hungary, Poland and Switzerland.

Denmark.—Elections for the *Folketing* (lower house of the parliament) were held on Oct. 28, following a motion of no confidence in the Agrarian Liberal government of Knud Kristensen. The Social Democratic and Agrarian Liberal parties improved their positions substantially; the Communist party suffered a severe defeat. The results were: Communists, 141,047 votes (9 seats, against 18 gained on Oct. 30, 1945); Social Democrats, 834,035 (57 seats, against 48 in 1945); Agrarian Liberals, 529,156 (46 seats, against 38); Radical Liberals, 144,133 (10 seats, against 11); Conservatives, 264,146 (17 seats, against 26).

Hungary.—Voting for the new national assembly took place on Aug. 31. The Communist party headed the poll when the official results were declared. Almost 93% of the total electorate voted, and the Communist-controlled government coalition received 3,007,027, just over 60% of the total (4,996,183 votes), the percentage which, under the electoral law promulgated in July, gave it 80% of the pool of 60 seats known as the national list. The results, expressed as a percentage of the total votes cast, were: government coalition: Communists 21.6% (17% on Nov. 4, 1945); Social Democrats 15.1% (17.4% in 1945); Smallholders 14.6% (57%); National Peasants 9% (6%); opposition parties: People's Democrats 16%, Independence party 14.4%, three other smaller parties 9.3%. In the new national assembly the government coalition won 371 seats out of a total of 411. (*See* also HUNGARY.)

Poland.—The Polish people went to the polls on Jan. 19 to elect the *Sejm*, a single chamber parliament. The Communist-controlled Democratic bloc won 382 seats; the Polish Peasant party (opposition) obtained 28 seats. After escaping from Poland in October Stanislaw Mikolajczyk, leader of the Peasant party, stated bluntly at a press conference in London that, in really free and fair elections, the existing government would not have secured 15% of the votes cast. Asked how the figure of 15% was obtained, Mikolajczyk said that for the purpose of the elections there were 5,200 polling stations for the whole country. By law his own Peasant party should have been able to have an observer at each polling station. In fact, after bringing the strongest pressure to bear, the Peasant party observers were admitted at only 36 polling stations where the Democratic bloc candidates were expected to be returned. At each of these, however, a check showed 65% to 85% of votes cast for the

PRINT SHOP of the Peasant party in Warsaw, Poland, after it was raided prior to the elections of Jan. 19, 1947. Campaign literature was destroyed and the presses badly damaged



Peasant party.

Switzerland.—Elections for the new parliament, or national council, were held on Oct. 27. The main feature of the elections was that the Social Democrats, who in the previous polling (Oct. 31, 1943) had become the largest party, superseding the Radical Democrats, again fell back to the second place behind the Radical Democrats. At the same time the Party of Labour (Communist), hitherto represented by only one deputy elected on the Social Democrat ticket, increased its seats to seven. Party strengths (comparison with the former house shown in parentheses) were as follows: Liberal Conservatives 7 (8); Catholic Conservatives 44 (43); Farmers', Traders' and Citizens' party 21 (22); Radical Democrats 52 (47); Independents' party 8 (6); Democrats 5 (6); Social Democrats 48 (55); Party of Labour (Communist) 7 (1); other 2 (6). (*See* also under various countries of the world.)

Electrical Industries.

Predictions were freely made during the latter half of 1947 that the electric utilities of the United States would be unable to carry the growing loads imposed on them and that disastrous power shortages would occur before the year was ended. Men responsible for utility operation, while recognizing that the danger of shortage existed, were generally confident that peak loads would be carried without public inconvenience or hardship. Their confidence was justified.

An aggregate nation-wide demand of 49,500,000 kw. was carried, leaving a margin of reserve capacity of 5%. As precautionary measures against the possibility of overloading generation facilities, a few power companies had arranged with large industrial customers for certain curtailments of service during peak hours or had reduced voltages from 2% to 5%. These precautions caused comparatively little or no inconvenience and their net effect was estimated to have reduced the aggregate peak demand by less than 0.3%.

During 1946 and the first half of 1947, electric system loads grew at a faster rate than generating capacity could be installed to carry them. This condition was reversed in the middle of 1947 and capacity increase continued to accelerate. It was expected that by Dec. 1948 the margin of reserve capacity would have been widened to 8% or 9% and the danger of shortage would be considerably reduced.

Electricity Output.—Electricity produced for public supply in each week of 1947 topped the outputs of corresponding weeks of the previous year by from 8% to 20%. For the year, the total output was 255,394,000,000 kw.hr., over 14% above 1946. The difference between fuel and hydro power appears in the figures of unit capacity output for 1946 and 1947. In the former year, each kw. of fuel power capacity produced 4,097 kw.hr., while each hydro kw. produced 5,262. In 1947 the hydro kw. had an output of 5,263 kw.hr., practically the same as in 1946. This was because water was not available to produce more. Therefore, all of the 1947 output increase came from fuel power plants, each kw. turning out 4,905 kw.hr., nearly 20% more than in the previous year. The effect of this "forced draft" operation of fuel power plants is seen in the slight rise in pounds of coal burned per kw.hr., from 1.29 in 1946 to 1.30 in 1947.

Energy generated in industrial plants and otherwise not for sale to the public amounted to about 50,000,000,000 kw.hr., bringing the total national output up to more than 305,000,000,000 kw.hr.

Power Plant Capacity.—Gain in generating capacity from 1946 to 1947 was not large, from 50,317,000 kw. to 51,647,000, about 2.6%. However, capacity increase overtook load increase in the middle of the year and the effective gain in capacity is much more significant than the bare figures say. In 1947, new capacity amounting to 2,176,749 kw. was installed. This produced a net increase of only 1,330,000 kw. in the national total, over a third of the new capacity replacing obsolete and inefficient facilities that were retired. Thus the 2.6% increase represents an accretion of modern, highly efficient equipment capable of much better performance than the average of the total capacity.

In 1947, 82% of the new capacity installed was in fuel power plants, and the ratio in 1948 was expected to be 86%.

Government Power.—The proportion of government participation in the national electricity picture declined somewhat in 1947, both as to output and as to capacity. In 1946 the ratios of government and private enterprise were respectively 18.9% and 81.1% as to output and 19.8% and 80.2% as to capacity. In 1947 the output ratios were 18.7% and 81.3% and the capacity ratios 19.6% and 80.4%.

New Construction.—Expenditures for electricity supply facilities in 1947 amounted to about $1,400,000,000. Plans for 1948 contemplated a layout of more than $2,000,000,000. Of the total for 1948, 48% was to be spent for generating capacity as against 33% in 1947.

Maintenance.—To keep their facilities in good operating condition, electric utilities spent $298,666,000 on maintenance in 1947, and they expected that cost to be $323,465,000 in 1948. Per kw. of total capacity at beginning of the year, maintenance cost was $5.94 in 1947 and was expected to be $6.26 in 1948.

Electricity Sales.—Over 13% more electricity was used by the people of the U.S. in 1947 than in 1946, 215,825,000,000 kw.hr. as against 190,794,000,000. Contributing largely to this increase was a reversal of the trend of industrial usage which had declined in 1945 and 1946 from the wartime high level. In 1947 industrial usage turned upward to a point only about 3% under 1944, the highest of the war years.

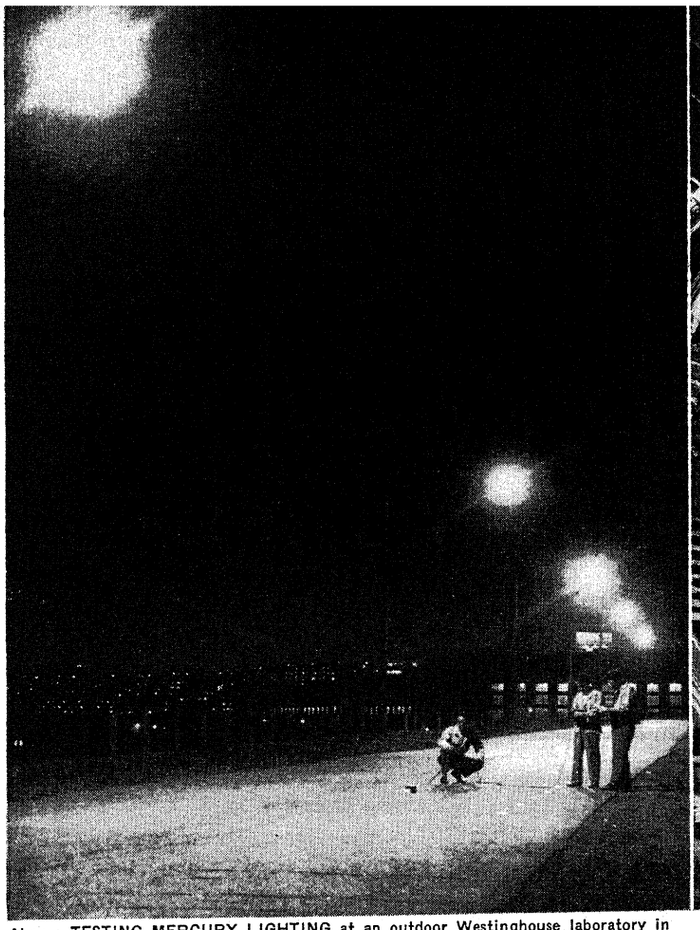
Sales to rural, residential and commercial customers continued to rise in 1947 as they had done in 1945 and 1946. Average residential use of electricity rose from 1,329 kw.hr. in 1946 to 1,435 kw.hr. in 1947. This was the largest increase registered in any year.

Revenues.—Money paid for electric service in 1947 amounted to $3,800,000,000, less than 10% more than the $3,459,560,000 of 1946. The difference between the under 10% of revenue increase and the over 13% increase in sales is accounted for by the fact that about half of the sales increase was taken by industrial users who pay a generally lower rate than others. This effect is seen in the decrease in average revenue per kw.hr. from 1.82 cents in 1946 to 1.76 cents in 1947.

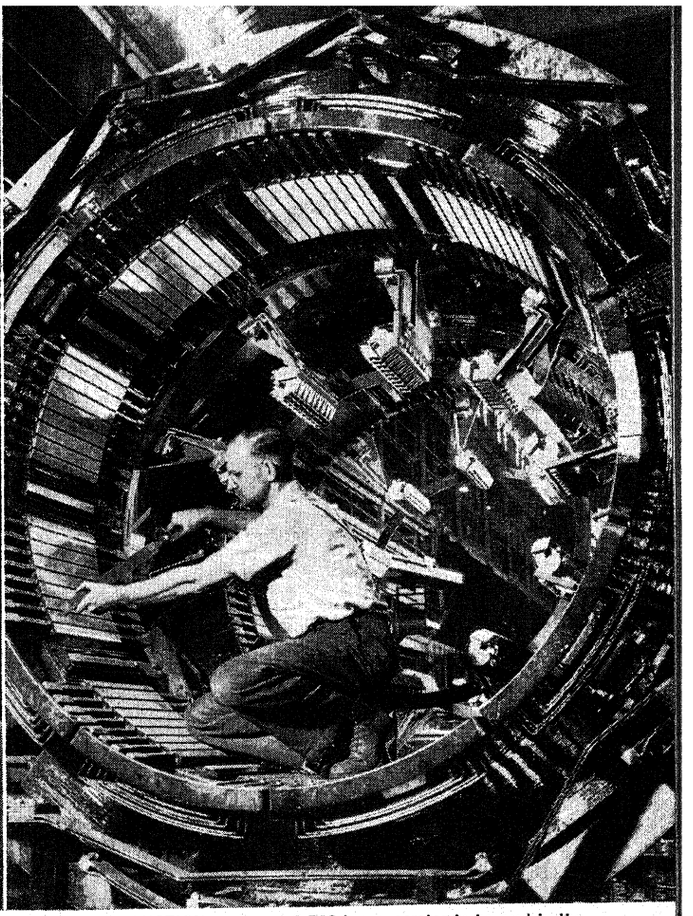
In 1947 the average residential user paid $1.11 more for electric service than in 1946, $43.90 as against $42.79. But he got more electricity and paid less per unit for it. In 1946 he bought 1,329 kw.hr. at a unit rate of 3.22 cents. In 1947 his usage was 1,435 kw.hr. and the unit rate was 3.06 cents. Thus his additional usage cost him only about one cent per kw.hr.

Rural Service.—Evidence that power companies were over the high point of rural line construction appeared in the report of miles of line built and to be built by them in 1947 and 1948. In the former year they built 59,127 mi. of line and in the latter they expected to build 51,195 mi. More than 500,000 additional farms were connected to lines during 1947. Total farms connected numbered in 1947 more than 3,800,000, about 68% of the nation's occupied farms. Counting farms to which service was available but which were not connected, it might be said that the job of extending service to farms was about 82% complete.

Rise in costs all along the line appeared in 1947 operations of the Rural Electric administration co-operatives. Despite

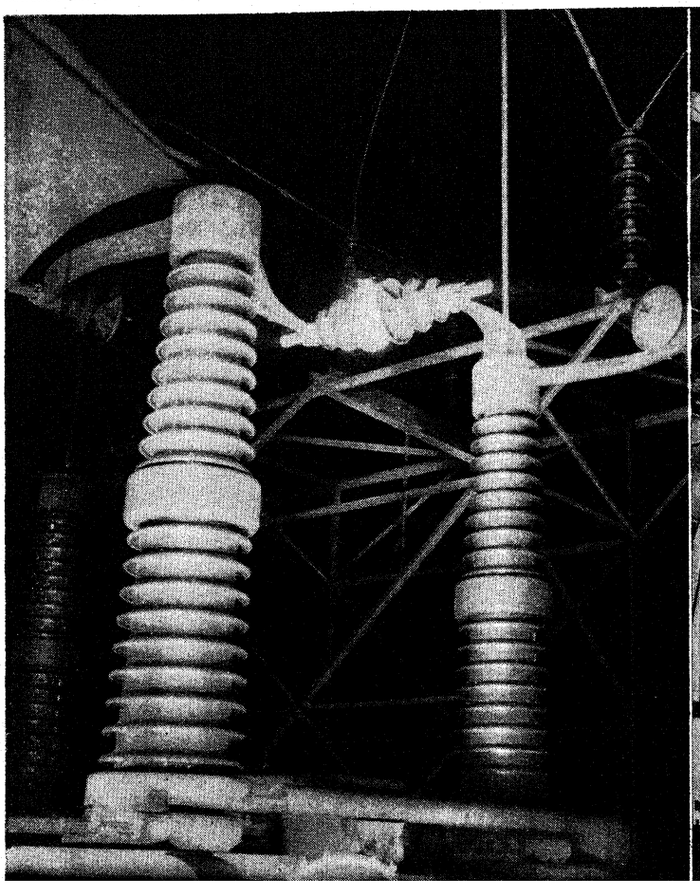


Above: TESTING MERCURY LIGHTING at an outdoor Westinghouse laboratory in Cleveland, Ohio. The oval-shaped lamps were developed in 1947 to provide night drivers with continuous visibility on the roadway

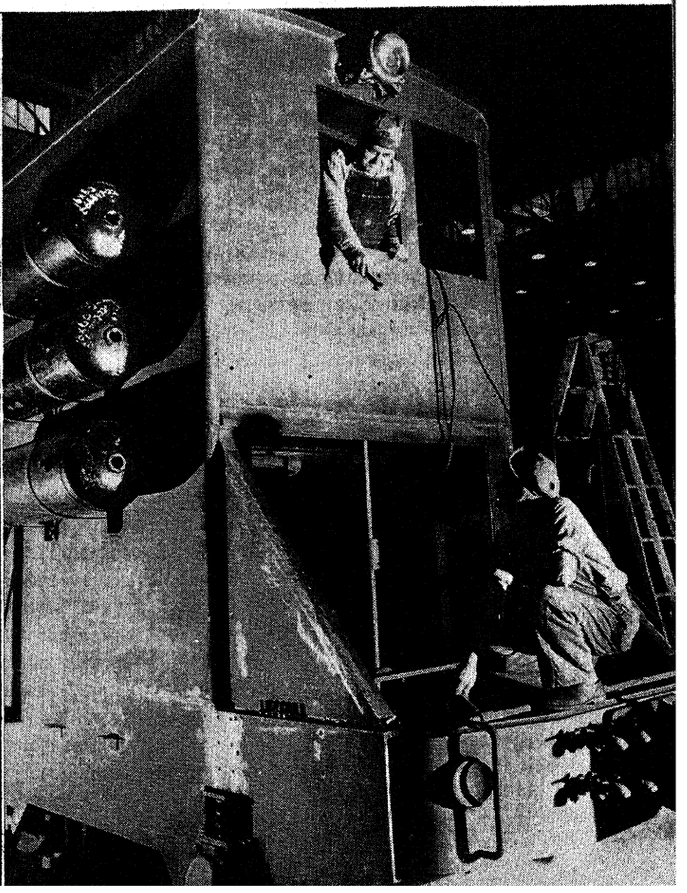


Above: CONSTRUCTION work on a 2,500-kw. generator to be used in the production of steel. A workman is shown preparing the generator frame for final assembly at the Pittsburgh works of the Westinghouse Electric Co. in 1947

Below: GERMAN CIRCUIT BREAKER which was being tested at a substation of the Bonneville power administration, Vancouver, Wash., in 1947. In operation, contact points were separated by air blasts which quenched the arc



Below: GIANT LOCOMOTIVE being built at the Erie works of the General Electric Co. in 1947, for use in moving cars at coke processing plants



this, however, increase in use of service effected a reduction in average revenue per kw.hr. from 3.60 cents in 1946 to 3.41 cents in 1947.

At the end of the year co-operatives had 594,000 mi. of line in operation serving 2,030,000 consumers, as against 506,800 mi. and 1,683,901 consumers at the end of 1946. Number of systems in operation rose from 869 to 904.

Financial.—Utility financing of $1,547,375,000 in 1947 was the highest for more than 15 years. Of the total, two-thirds, $1,009,646,000, was in refunding operations; $537,729,000 was new capital. This was more new money than had come into the industry in the previous seven-year period.

The 10% increase in utility revenue from $3,459,560,000 in 1946 to $3,800,000,000 in 1947 was absorbed by increased expenses, leaving net income available for surplus and dividends practically unchanged at $650,000,000. Pay rolls rose 18% from $603,000,000 in 1946 to $710,000,000 in 1947. Taxes rose from $639,000,000 to $655,000,000. Fuel cost increased to $604,000,000 from $427,000,000, 41%. Part of this increase resulted from larger consumption of fuel, 22%, and part from higher costs; unit price of coal and coal equivalent in gas and oil rose from an average of $4.89 per ton in 1946 to more than $6 in 1947.

Customers.—In 1947, more than 2,000,000 customers were added to electric lines, bringing the total up to 38,370,000. Of these about 33,000,000 were urban residential and rural customers, including farms. About 95% of the occupied homes of the country had service available and 92% were connected. Since the war ended more than 4,500,000 new customers were added to utility systems.

Electrical Manufacturing.—All indexes of electrical manufacturing activity showed increases in 1947 over 1946. The greatest increase occurred in appliance production, the index rising from 395 to 795. The largest contributor to this phenomenal rise was production of refrigerators. More than 3,750,000 household refrigerators were produced in 1947, 67% more than in the previous year. Record productions of electric ranges, 1,250,000 units, and of electric water heaters, 1,000,000 units, respectively 92% and 82% over 1946, also added to the rise of the appliance index.

Compared with the average of all industry, electrical manufacturing was far ahead in 1947. The federal reserve board index of production rose from 210 to 238, but the index of electrical goods production jumped from 258 to 384.

Technical Developments.—The year 1947 saw little of outstanding importance in technical advance. The principal step forward was the launching of a program of research to determine the practicability and economy of energy transmission at potentials up to 500,000 volts. The highest voltage in the U.S. in 1947 was 287,000 volts. The research, which was being carried on near Brilliant, O., on a short experimental line, was initiated by the American Gas & Electric Service corporation and other manufacturers. (*See* also PUBLIC UTILITIES; TENNESSEE VALLEY AUTHORITY.) (F. R. I.)

Canada.—The electrical industry did not achieve sufficient production in 1947 to meet consumer demands; considerable energies were devoted to overcoming shortages in supplies, and to plant and equipment expansion to meet the expanding markets.

The industries' 1947 production problems were sharply increased in mid-November when the federal government's "austerity" program to save U.S. dollars banned many kinds of electrical apparatus. Included were stoves for cooking or for heating, electric light fixtures and appliances, electric flashlights, electric light bulbs, electric irons, electric dry shaving machines and similar items. Under the "austerity" program the government placed a temporary 25% tax on any imported parts or materials for electrical goods. (C. Cy.)

Great Britain.—Two events of major importance to electricity supply in Great Britain were the passing of the Electricity act, 1947, and the power cuts in the early part of the year.

The act amended the law relating to the supply of electricity and established the British Electricity authority, which was to take over complete responsibility for both the generation and distribution of electricity in all parts of Great Britain except that controlled by the North of Scotland Hydro-Electric board, which was already in active operation.

Partly owing to a hard winter, coal shortages at the power stations became so acute that severe power cuts were necessary. The result was the complete or partial shutdown of many industrial plants during several weeks. It was hoped to avoid a recurrence during the following winter by staggering industrial working hours and by other measures to reduce the peak demand. In spite of power cuts, generated energy at 27,289,000,000 kw.hr. during the first eight months of the year showed an increase of 4.6% over the corresponding period in 1946. Plans were in hand for a new generating plant of an aggregate capacity of 10,000,000 kw. to cost nearly £450,000,000, to be installed, if possible, by the winter of 1952.

India and South Africa.—A Central Technical Power board was created for all India, and power schemes to give 800,000 kw. were in hand for commission by 1953. The power stations of the South African Electricity Supply commission, aggregating more than 985,000 kw., operated at maximum capacity.

Europe.—Steady progress was being made in the re-establishment and extension of European electricity supply systems. In the Netherlands, 11 new stations were to be built with an aggregate capacity of 900,000 kw., and in Belgium the total load had risen to more than 1,250,000 kw. French electricity production reached in Jan. 1947 a record output of 2,176,000,000 kw.hr. for the month, and the Electricity Modernization commission fixed a production goal of 40,000,000,000 kw.hr. for 1951, following the planned expenditure of Fr.250,000,000,000 before that date. The Italian ministry of public works drew up a new target for electrification and it was anticipated that hydroelectric plants capable of producing 12,400,000,000 kw.hr. annually would be built, 70% of which were to be ready by the end of 1950. In the U.S.S.R., the Dnieprostroi hydroelectric station was re-opened on March 3. The electrical manufacturing industry in Poland made good progress, and a three-year economic plan for Polish electricity supply included the construction of a plant of 24,000 kw. capacity with a grid system 865 mi. long. (E. W. G.)

Electric Lighting: *see* ELECTRICAL INDUSTRIES.

Electric Transmission and Distribution: *see* ELECTRICAL INDUSTRIES.

Electric Transportation.

Satisfactory conditions prevailed generally in the urban electric transportation industry during 1947. Everywhere the volume of riding continued at a high level. Increased use of private automobile transportation, which had frequently been cited as a threat to the future of public transportation service, failed to materialize to any noticeable extent. In the war-devastated countries, substantial progress was made in restoring disrupted electric transportation services. In the United States the general program of modernization, which had been interrupted by World War II, was carried forward at a steady pace though material shortages held up production to some extent.

From preliminary reports of operations for the year 1947 it appeared that the number of passengers carried by the urban

electric transportation lines in the United States declined a few per cent from the exceptionally high level of the previous year, though the total of approximately 12,000,000,000 remained well above that of prewar years. Such decline as took place was due in large measure to the decreased use of all forms of urban transportation during the summer months, reflecting the prevailing trend toward more and longer vacations after the end of the war. Some part of the decline was due to the substitution of motor bus service for electric railway service in a number of cities. This loss of electric transportation business, however, was offset to a considerable extent by an increase in riding on electric trolley coach lines. While most of the extensions of trolley coach operation were replacements of street railway lines, the electric coaches were installed in some instances as replacements of motor buses. Altogether, it appears that approximately 55% of the total number of passengers carried on urban transportation lines in the United States in 1947, travelled on the electric lines.

Distribution of riding by types of service is shown below.

Passengers Carried by Electric Transportation in U.S. During 1947

Type of Service	Number of Passengers
Electric surface railways*	8,295,000,000
Rapid transit lines	2,807,000,000
Electric trolley coaches	1,442,000,000
Total††	12,544,000,000

*Figures include riding in both urban and suburban areas, but the suburban riding represents only a very minor part of the total.
†Statistics of passengers carried by electrified suburban and trunk-line railroads are not available.

Operating expenses showed a marked upward trend during 1947 due to higher wage rates and increased materials costs. Fares also showed an upward trend.

Two notable events of the year were the creation of the Chicago Transit authority to operate all electric and motor bus transportation services in that city, and the establishment of the Metropolitan Transit authority to perform a similar service in Boston and surrounding towns. These moves undoubtedly reflected a growing recognition of the public importance of urban transportation service.

Modernization.—One of the most notable electric transportation developments in the past few years was the widespread adoption of the P.C.C. (presidents' conference committee) type car on many of the more important street railway systems in North America. During 1947 these cars were in operation in 15 of the 20 largest cities of the United States and the two largest cities in Canada. At the close of the year more than 4,000 were in service, carrying about 4,000,000 passengers daily. Some hundreds more were on order. Experience showed that not even the versatile electric trolley coach could equal the economy and efficiency of these modern cars on routes carrying extremely heavy traffic. It was estimated that of the 15,000 older-type street cars in operation in the United States about half would be replaced by P.C.C. cars within the next few years. At the same time estimates were made that about 4,000 new rapid transit cars would be needed in the near future to augment facilities and replace antiquated and worn-out equipment. Delivery was made in 1947 of the first of 850 new subway cars on order for New York city and plans were being made for additional rapid transit facilities in Cleveland, Detroit and Toronto.

Expansion of trolley coach activities was an outstanding development in the field of urban electric transportation in 1947. While the number of new vehicles ordered did not equal the record-breaking number of more than 2,000 ordered during the previous year, it was far above prewar levels.

Because of its speed and quiet operation, the electric trolley coach had been for some years the most popular vehicle for meeting transportation needs on all but the heaviest urban routes, and more than 6,000 were in operation in 55 cities in the United States and Canada.

In Europe the developments in the field of urban electric transportation were mostly in the direction of restoring normal services. Many of the systems on the continent suffered extensive damage during the war. In London, on the other hand, the rapid transit lines, being located for the most part in deep tubes, suffered little damage from bombing and the trolley coach lines on the surface were virtually undamaged. A substantial amount of work was required, however, to catch up with deferred maintenance. Generally speaking, economic conditions prevented the making of extensions or the undertaking of extensive modernization of equipment.

Heavy Electric Traction.—Extensive electrification of railroads had taken place on the continent of Europe prior to the outbreak of war in 1939, largely because of the limited amounts of coal and petroleum available in most countries and the desire to make the major transportation systems independent of importations of foreign fuel by placing reliance wherever possible on locally generated hydroelectric power. The war and subsequent unsettled conditions accentuated this trend.

In Sweden about 35% of the country's 10,000 mi. of railroads had been electrified. Swedish economy benefited greatly during the war because of the electrification program. It was said that the saving resulting from the use of hydroelectric power instead of coal was sufficient to cover the entire cost of electrification. During 1947 the important Stockholm-Goeteborg line was converted to electric operation. Two particularly interesting features of Swedish railroad electrification were the use of mobile power plants and the operation of combination storage battery and overhead trolley locomotives. Both of these were precautions to prevent stoppage of service in the event of interruption to the regular power supply.

In France plans progressed for electrification of the Paris-Lyons-Méditerranée railroad. Work done on equipment design during World War II was proving extremely useful. Orders had been placed for more than 600 electric locomotives with rubber suspension to eliminate vibration. Electrification of other French railroads was also contemplated, including many branch lines of relatively light traffic, the object being to hold fuel consumption to a minimum. In the northern and northeastern sections of the country, however, steam operation would probably be continued, the belief being that electric railroads are more vulnerable than steam railroads in wartime. Belgium retained steam operation for the same reason.

Switzerland, which had extensive railroad electrification before the war, made some extensions during the war, but the new projects were small compared with those already complete. A substantial number of new electric locomotives were ordered to replace those worn out by hard service. Electrified railroads in Italy, mostly in the northern part of the country, were heavily damaged during the war. Much work was done toward their restoration, and future extensions were under consideration, but would probably not be undertaken in the near future. In Germany the damaged electrified railroads were being restored, but progress was slow because of the generally disorganized state of the country.

While the fuel situation in Great Britain was far from satisfactory, there was no plentiful supply of hydroelectric power available, and hence no strong reason to extend railroad electrifications. Activities were largely restricted to improvement of existing facilities which suffered a good deal from inadequate maintenance during the war.

In the United States, out of a total of about 400,000 mi. of railroad track, only 6,650 mi. had been electrified by the be-

ginning of 1947 and no sizable extensions were made during the year. Of the 42,000 locomotives in service only 742 were of the straight electric type on Jan. 1, 1947. This was but two more than the number in service ten years before. These electric locomotives were used for about 7% of the total passenger train car miles in all locomotive propelled trains in 1947. In freight service they played a somewhat smaller part.

During 1947 two new 11,000-volt, 5,000-h.p. electrics were placed in service by the Great Northern railroad for operation through the 8-mi. Cascade tunnel. Four new 8,000 h.p. locomotives were under construction for the Virginian railway for hauling coal trains over the Appalachian mountains.

Consideration was being given to a number of new railroad electrification projects, the most outstanding being one which would involve the western parts of several transcontinental railroads, power being secured from government owned hydroelectric plants. Advancement of these projects to an active planning stage seemed likely to await changes of price levels of other fuels which would give added incentive to electrification.

Another significant development in the field of heavy electric traction was extension of services by the Soracabana and Paulista railroads in Brazil. These systems had ordered a substantial number of additional electric locomotives built in the United States. In French West Africa electric railroad operation was eliminated when the previously existing line out of Dakar was converted to operation with diesel-electric locomotives.

(J. A. Mi.)

Other Developments in Europe.—Work on the London and North Eastern railway London suburban electrification at 1,500 volts D.C. to Shenfield was proceeding and the electrification of the Manchester-Sheffield line re-started. The Southern railway approved, in principle, plans for the elimination of steam on the eastern and central sections by the conversion to electric traction of 284 route (610 track) mi. Diesel-electric operation would be introduced on light density branch lines. Short extensions of the London Transport Central line were opened during the year.

European.—Railway electrification in 1947 did not go forward as hoped the year before. Shortages of labour and material, the restriction of capital expenditure and the major problem of fuel combined to retard development. Yet many European continental railways, especially those pressed by acute fuel shortage and having some hydroelectric resources, had great faith in electrification and adopted impressive schemes as the main feature of postwar development.

The 12 years' program covering the electrification of 1,250 route mi. planned by the Austrian state railways was still delayed. Certain short extensions of existing electrified sections were started. These included Attnang Puchheim-Linz, 34 route mi., and Bischofshofen-Eben, 11 route mi.

Early in 1947 the Belgian National Electrification committee issued its recommendations for further electrification at 3,000 volts D.C. The Brussels-Antwerp line (27.5 route mi.) was then the only electrified section, but the new program, to be carried out in five stages over five years, planned a total of 930 route mi. which represented about a third of the Belgian railway system carrying 70% of the total traffic. The conversion of the Brussels-Charleroi and Linkebeek-Antwerp main line was put in hand.

Restoration of services on electrified lines of the Netherlands railways was practically complete. Attention was focused on the program for a comprehensive electrification network, of nearly 600 additional route mi. covering the whole country, to be carried out before 1952. Secondary lines were to be worked by diesels and steam would be entirely eliminated.

In Italy, the Milan-Domodossola section was opened with Swiss help in May, involving the conversion of 250 track mi. to the 3,000-volt D.C. system. The Italian state railway administration hoped that the electrification of the connecting line Arona-Mortara would be completed by the end of 1947 to allow through electric running between Domodossola and Genoa. When reconstruction work would have been completed, the steam lines Turin-Venice-Ancona-Bari and lines in Sicily were to be scheduled for conversion.

According to the minister of communications the Russian railways planned the electrification of 298 route mi. during 1947. Extensions to existing 3,000-volt D.C. electrified lines were being carried out in the Ural region. The 31-mi. single-track Nadezhdinsk-Bogoslov section was in hand and electric working began in August between Zlatoust and Baritnaya on the main double-track Ufa-Chelyabinsk line. It was anticipated the electrification would reach Kropatchevo by the end of 1947.

Further details of the proposed 12-year, 2,800-route mi. electrification plan for the Spanish national railways were made available. The 3,000-volt D.C. system was selected as standard. This was significant as practically all the existing Spanish electrification, approximately 570 route mi., was at 1,500 volt D.C. and 3,000 volt was in use only on the short Ujo-Busdongo section.

Work began on a third-rail underground railway for Stockholm and it was hoped that the first trains would be running by 1949. In Switzerland the final 16-mi. section opened in October between Kreuzlingen and Stein am Rhein completed the 40-mi. electrification between Schaffhausen and Romanshorn.

(F. A. H.)

Canada.—Statistics covering the first seven months of 1947, when compared with the same period for 1946, indicated a significant trend. The January–July inclusive vehicle mile run of urban electric cars was 71,291,023 (same period 1946: 72,113,857). In Jan.–July 1947 the vehicle mile run for trolley buses was 2,330,112 (1946: 1,675,048). This showed that the use of electric cars was declining while that of electric trolley buses was increasing.

Halifax took steps to remove streetcars entirely and replace them with trolley buses. It was the first Canadian city to do this, though trolley buses had been placed on some routes in Winnipeg as early as 1937.

Competition with the motor bus on interurban runs also reduced electric car mileage (Jan.–July 1947: 4,082,639; Jan.–July 1946: 4,180,257). Interurban motor bus mileage covering the same periods in each year increased (1947: 46,339,818; 1946: 45,191,718). (C. Cy.)

Electrification, Rural: *see* Rural Electrification.

Electronics.

While many methods had been used in the past to make apparent the presence of electrons, or even a single electron, until 1947 these were all indirect. However, it was announced in May 1947 that researches in the General Electric Research laboratory, Schenectady, N.Y., with the 70,000,000-volt synchrotron had made electrons visible directly by their own radiation. The 70,000,000-volt synchrotron was the first accelerator constructed of sufficient energy to bring the electron radiation into the visible spectrum, and at the same time to be provided with a transparent accelerating chamber through which it could be observed.

In the synchrotron electrons are accelerated in an evacuated glass "doughnut." The radiation is seen as a small brilliant spot of white light when looking into the doughnut, tangent to the circular orbit and toward the approaching electrons. It is not observed if the energy of the electrons is below 30 Mev. Though mainly of theoretical interest, this effect proved useful in con-

nection with accelerator design in studying the distribution of the electrons.

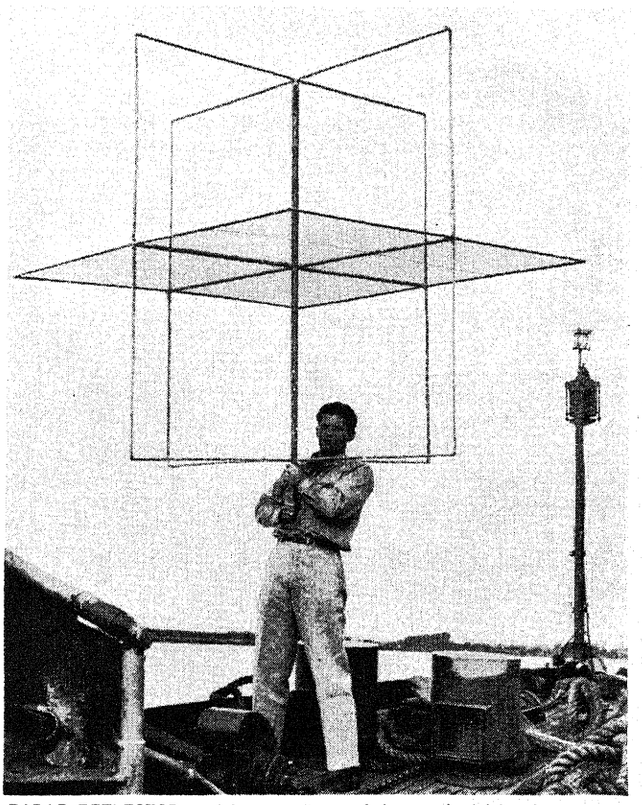
Astronomical Aids.—To measure light from the stars, especially those which vary in brightness, astronomers have employed many types of photometer, and some of the most accurate have been electronic, using a phototube which converts the star light into a minute electrical current. This, in turn, is measured on a galvanometer, a delicate and unstable instrument. At a meeting of the American Astronomical society, I. M. Levitt and William Blitzstein, of the Franklin Institute laboratories, in Philadelphia, Pa., described a new type of electronic photometer which they had developed and tested at the Flower observatory of the University of Pennsylvania.

Instead of a simple phototube, they used an electron multiplier tube, which has within a common envelope nine stages of amplification. For every electron knocked from the first sensitive surface by incident star light, 1,000,000 or more are emitted from the last stage. These come in bursts, and the new photometer counts the bursts with a counter developed by the Radio Corporation of America. After the star has been located with the telescope, and its image centred on the first surface of the photomultiplier tube, operation is automatic. The desired time interval, such as 100 sec., is set on the counter, and when this has elapsed the total number of pulses is shown by rows of neon lights. This number is proportional to the star brightness.

Another astronomical application of electronics was developed at the Mt. Wilson observatory by Horace W. Babcock and used with the 100-in. reflector, to keep the telescope pointed at a star during long exposure by automatic means, thus eliminating manual guiding. It is employed particularly in spectrographic work, where the image of the star is formed on a narrow slit and is then passed through an optical system which breaks it up into a spectrum. In the Babcock device, part of the light from the star is reflected by the polished knife-edge jaws of the slit into a guiding telescope through which the image may be observed visually. For automatic operation the light enters a revolving tube in the axis of this small telescope, and then reaches a multiplier type phototube. When the large telescope is not properly pointed, the reflected guiding image on the phototube is not steady, but changes in brightness as the tube revolves. This causes the operation of mechanism to adjust the direction of the large telescope until it is correctly aimed and the phototube output is again uniform.

Air and Sea Navigation.—It was announced in August that all planes of Trans-World Airlines were being equipped with a new radar anti-collision device. Weighing only 15 lb., this apparatus can be set to give automatic warning of mountains or earth either 2,000 or 500 ft. ahead or below. From an antenna on the belly of the plane, just behind the leading edge of the wing, the radar signal is sent out, covering the entire lower hemisphere. No adjustments need be made in flight, except to select the operating range. As soon as any land surface comes within this distance a warning is given. Approaching a peak, the pilot usually will receive his first warning from the echo from the rising ground below rather than from the mountain itself. The foothills generally extend up to 30 mi. from the peak, and thus give plenty of time for the plane to reach a safe altitude.

An automatic system by which the airways of the country may be divided up into "electronic tracks," so that planes may fly in lanes two miles apart without danger of collision was announced by the General Electric company. The system is called "Tricon," a short designation for "triple-coincidence-navigation." In each 50-mi. section there are three ground transmitters which send out pulses that are brought into triple coincidence at successive points along the tracks. At the same time that the ground station is notified of the position, altitude and identity of each plane in the section, the position is also automatically given to the pilot. The pilot of the plane immediately ahead is also given warning. Thus, the system is similar to the block system of railroads, but instead of signals alongside the track each plane has its indicator on the instrument panel. Automatic equipment both on the ground and in the planes receives, interprets and acts upon the signals from the transmitter, displaying its information by meters and flashing lights.



RADAR REFLECTOR used in surveying work by geophysicists who were engaged in deep-water prospecting for oil on the continental shelf off the coast of Texas and Louisiana during 1947

Using a 3.2-cm. radar equipment made by the Radiomarine Corporation of America, the U.S. army engineer corps prepared a set of navigation charts of the Ohio river. The equipment was installed on the U.S. survey boat "Cherokee." An automatic camera made a series of photographs of the radar scope on which its indications are displayed. These photographs were matched, to form a continuous strip map which was reduced to the scale of standard navigation charts. On the assembled charts, dotted lines were added to indicate the channel, as well as figures to show the depth of water and brief identifying descriptions of important landmarks. Using these charts in conjunction with radar, the pilot of a ship can determine exactly where he is and recognize islands, cliffs, buoys, buildings, etc., as though he could see the landmark itself.

Two war-developed electronic devices were combined in a peacetime use when Shoran (a radio navigation aid) and the air-borne magnetometer (originally devised to detect submarines under water) were employed in a survey of some 85,000 sq.mi. of the Bahamas area to locate possible ocean-bed oil deposits. Already the magnetometer had been used in the United States, Alaska and Canada to locate land deposits of minerals, particularly iron ore. For use over the ocean, it was necessary to add some additional means of determining accurately the plane's position, and this was accomplished with Shoran.

Motion Detector.—In the General Electric Research laboratory, another war device, the proximity fuse, was adapted to a motion detector by W. C. White and H. S. Lasher. As used on anti-aircraft shells, the fuse sent out radio waves which were reflected from a near-by target and caused detonation of the shell without an actual hit. The new motion detector uses microwaves of 2,450 megacycles, a frequency set aside by the Federal Communications commission for industrial use. From a dipole antenna at the focus of a parabolic reflector a beam of microwaves is sent out. When any reflecting object is in the beam some energy is returned and is picked up by the antenna. Depending on whether or not it is in phase with the outgoing signal, the energy being fed into the antenna from the transmitting circuit may be reduced. If the reflector is moving toward or away from the transmitter there is superimposed upon the high-frequency oscillating current a low-frequency variation, of about 7.5 cycles per second for each mile per hour of motion. This is detected by auxiliary circuits and used to operate a light, bell, meter or other indicator, which reveals the moving object. Many uses were suggested for this motion detector, such as controlling automobile traffic, detecting intruders, measuring the height of a liquid in a closed tank, etc. It will operate through a wood or brick wall.

Chemical Analysis.—A method of using microwaves as a method of chemical analysis of unknown substances was announced before the National Electronics conference by Dr. Donald K. Coles, of the Westinghouse Research laboratories. He explained that each type of molecule has a set of distinctive motions, so a molecule will absorb part of a radio wave that is of the same frequency as its rotation.

In the "microwave spectroscope," devised by Dr. Coles and his associates, the gas to be analyzed is admitted to a 35-ft. long brass pipe, wound into a tubalike coil. At one end is the oscillator which produces waves of frequency up to 30,000 megacycles (30,000,000,000 vibrations per second). These are received by a crystal detector at the other end. As waves of continually changing frequency are transmitted through the pipe, there are changes in the crystal current corresponding to different molecular absorptions. In this way various molecular arrangements present can be identified.

Electronic Heating.—Industrial heating of materials which are electrical conductors has been accomplished for some time with induction methods, by which a current is made to flow within the metal and produces heating throughout its volume. Materials such as plastics, which are classed as insulators, may be similarly heated with microwaves if sufficient power is used. In general, the higher the frequency, the more rapid is the effect. These techniques were facilitated with the type of electron tube known as the magnetron, which was developed to a point where considerable power could be obtained up to frequencies of as much as 10,000 megacycles.

Dr. Richard B. Nelson, of the General Electric Research laboratory, announced a magnetron oscillator for heating these materials which delivers 5 kw. continuous output at 1,050 megacycles. (Later, to meet rules of the Federal Communications commission, this was modified to 915 megacycles.) A person standing near the dipole antenna radiating these microwaves feels warmth through his body and unconnected fluorescent lamps held nearby are lighted. Industrially the tube was used in the manufacture of plastics as well as for other applications.

The possibility of using radio waves to heat milk for pasteurization was indicated in experiments performed in the R.C.A. laboratories in co-operation with the Walker-Gordon company and the Borden company. In ordinary pasteurization milk is heated to 143° F. for 30 min., then cooled. The bacteria content was reduced to about 1% of the original value.

The new apparatus was developed in an experimental form by Dr. George H. Brown, C. N. Hoyler and R. A. Bierwirth. By allowing the milk to fall freely through a large tube, between two electrodes connected to the transmitting circuit, it could be heated to as much as 205° F. in 1/15 of a second. Then it was cooled to 135° F. in $\frac{1}{5}$ of a second by injection into a vacuum chamber. Despite the high temperature, there was no trace of a cooked flavour and the bacteria count was considerably lower than with conventionally pasteurized milk. Milk treated by the new process tends to keep longer, according to the report. This is attributed to the destruction of heat-resistant bacteria which cause souring.

Telephone Communication.—A new technique for long-distance telephone communication, called "pulse code modulation" (P.C.M.), was announced by the Bell Telephone laboratories. In ordinary telephony over short distances, variations in the current carried over the wires reproduce the complete sound waves of the original voice. With an earlier development, called pulse modulation, instead of transmitting the continuous speech wave, brief samples are taken at a rate of about 8,000 per second. At the receiving end these samples may be used to reconstruct the original wave with great fidelity. The total time occupied by the samples is very short, so many conversations can be carried simultaneously. First is carried a sample from one, then another, then a third, and so on, all of which are sorted out and reconstructed at the receiver.

P.C.M. differs from earlier pulse techniques. For each sample there is sent a series of six or seven on or off signals which, in combination, convey the information from which the entire wave form is reconstructed. Coding is accomplished by a new vacuum tube, within which is a special perforated plate. A moving beam of electrons sweeps across it, producing an "on" pulse when it goes through a hole and an "off" when it is stopped. Ordinary sources of interference produce little effect because the receiver merely has to detect the presence or absence of a signal and not its strength, which is more apt to be affected by extraneous causes.

Electron Tubes.—Another new electron tube announced in 1947 was the caesium rectifier developed by Dr. Albert W. Hull, assistant director of the General Electric Research laboratory, in collaboration with E. E. Burger and R. E. Turrentine. Since most electricity is generated and transmitted as alternating current, while electrolytic processes, such as those used to free aluminum from its ores, require direct current, rectifiers are important industrial devices. The new tube contains vapour of the metal caesium, while the cathode surface, from which electrons are emitted, is also of caesium, coated on nickel. These electrons make the tube work, since they provide a one-way street over which the current is carried. Even at a relatively low temperature, their emission from caesium is one of the most copious known. Thus it can be operated at about 1,300° F., which causes no appreciable evaporation of the nickel base, while the caesium coating is continually renewed from the vapour.

Two electronic "memory" tubes were announced, one by Andrew V. Haeff, of the Naval Research laboratory, the other by Dr. Jan Rajchman, of R.C.A. laboratories. One use for tubes of this type may be found in electronic computing machines, where numbers computed in one operation may be stored until needed later, when they are automatically read and used.

Both tubes accomplish the memory by a series of electrical charges on the surface of a material that is a good insulator. (If it were not an insulator, the charges would leak away.) The common type of television camera tube, the iconoscope, operates similarly, charges being produced in proportion to the brightness of the picture focused upon it. An electron beam sweeping across the surface can also produce the pattern of charges, and

this is done in the memory tube. Then the pattern has to be read, and this is accomplished in the Haeff tube with a second beam of focused electrons sweeping across the surface. A similar method is used in the iconoscope. However, this results in an erasure of the pattern of stored electrons after a few such scans. To overcome this erasure, a third beam of electrons is sprayed over the surface and this is of such an energy that it maintains the image, even though the other beam is scanning it. If the screen is also coated with a phosphor, which fluoresces in visible light when electrons strike, the pattern may be made visible, either as bright lines on a dark background, or dark lines on a bright background. This is determined by the choice of relative tube voltages. In addition, the scanning beam may be connected to an oscillograph tube, like that used in a television receiver, and the pattern made visible there. (*See* also ATOMIC ENERGY; CHEMISTRY; PHYSICS.)

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Elementary Education: *see* EDUCATION.

Elizabeth, PRINCESS, DUCHESS OF EDINBURGH (1926–), the heiress-presumptive to the British throne, was born on April 21, at London, and until Nov. 1947, when she married the duke of Edinburgh (*q.v.*), was known as Princess Elizabeth. She was 11 when her father was crowned king.



PRINCESS ELIZABETH of England and Prince Philip, duke of Edinburgh, leaving Westminster abbey after they were married by the archbishop of Canterbury on Nov. 20, 1947

In 1943, in order that Princess Elizabeth "should have every opportunity of gaining experience in the duties which would fall upon her in the event of her succession to the throne," the Regency act was amended to provide for her appointment as counsellor of state any time after her 18th birthday instead of after her 21st birthday. The first occasion when she was appointed a counsellor of state was in July 1944, when the king visited the forces in Italy. She enrolled in the auxiliary territorial service in 1944, and was commissioned with the rank of junior commander.

In the early months of 1947 she accompanied the king, queen and Princess Margaret on a state visit to the Union of South Africa. She celebrated her 21st birthday in Capetown, and in a broadcast to the empire she declared, "My whole life shall be devoted to your service."

A court circular from Buckingham palace on July 9 announced her betrothal to Lt. Philip Mountbatten, R.N., and the marriage was solemnized in Westminster abbey on Nov. 20. Philip Mountbatten was created duke of Edinburgh, and after the wedding she was known officially as H.R.H. Princess Elizabeth, the Duchess of Edinburgh. The wedding service was conducted by the archbishop of Canterbury, assisted by the archbishop of York and the dean of Westminster.

During the summer Princess Elizabeth opened the royal Welsh agricultural show at Carmarthen, addressed the Church of England Youth council at Canterbury, launched the liner "Caronia" on Clydebank, was elected president of the Royal Society of Arts, and on July 16 created a burgess of Edinburgh. On the occasion of the king's birthday honours she was awarded the Imperial Order of the Crown of India and on the eve of her wedding appointed a lady of the Order of the Garter.

Elks, Benevolent and Protective Order of: *see* SOCIETIES AND ASSOCIATIONS.
Ellice Islands: *see* PACIFIC ISLANDS, BRITISH.
El Salvador: *see* SALVADOR, EL.
Embassies, Great Britain and the United States: *see* AMBASSADORS AND ENVOYS.
Emery: *see* ABRASIVES.
Emigration: *see* IMMIGRATION AND EMIGRATION.

Employment. United States.—The civilian labour force (people available for gainful employment) numbered 62,130,000 in Sept. 1947, 790,000 more than in Sept. 1946. The maximum available labour force during the year was in June and July, when students and other seasonal workers available only during the summer months swelled the labour supply to slightly more than 64,000,000. The unemployed numbered 1,912,000 in Sept. 1947, compared with 2,070,000 in Sept. 1946.

Males in the labour force in Sept. 1947 numbered 44,881,000, compared with 44,040,000 in Sept. 1946. Females numbered 17,249,000 as against 17,300,000 in Sept. 1946. They constituted 27.7% of the labour supply, a decline from 29.4% in Aug. 1946. The male labour force increased more rapidly than the female in the intervening year.

Employees in nonagricultural establishments numbered 43,033,000 in Sept. 1947, an increase of 1,185,000 from Sept. 1946. From Sept. 1946 to Sept. 1947 there was an increase of 762,000 in the number of people working in manufacturing establishments and smaller increases in all of the other major areas of employment (*see* Table I) except public employment (civilian) which decreased from 5,605,000 in Sept. 1946 to 5,425,000 in

Table I.—*Number of Wage and Salary Workers* in Nonagricultural Establishments, by Industry Division, United States (estimated), Sept., Aug. and July 1947 and Sept. 1946*

(In thousands)

Industry division	Sept. 1947	Aug. 1947	July 1947	Sept. 1946
Total estimated employment	43,033	42,547	42,175	41,848
Manufacturing	15,797	15,537	15,209	15,035
Mining	895	895	864	884
Contract construction†	1,900	1,890	1,847	1,747
Transportation and public utilities	4,115	4,145	4,140	4,064
Trade	8,684	8,571	8,558	8,523
Finance	1,583	1,602	1,590	1,534
Service	4,634	4,619	4,686	4,456
Federal, state and local government	5,425	5,288	5,281	5,605

*Estimates include all full- and part-time wage and salaried workers in nonagricultural establishments who worked or received pay during the pay period ending nearest the 15th of the month. Proprietors, self-employed persons, domestic servants and personnel of the armed forces are excluded. These estimates have been adjusted to levels indicated by final 1945 data made available by the bureau of employment security of the Federal Security agency. Data for the months of September and August are subject to later revision.

†These figures cover all employees of private firms whose major activity is construction.

Sept. 1947. In all but 6 industries, employment increased during the year (Table II). Transportation equipment, nonferrous metals, stone, clay and glass and the textile industries were the only areas where employment declined. The United States enjoyed "full employment," with but moderate "frictional unemployment" and some decline in activity in the industries mentioned.

Table II.—*Number of Production Workers and Indexes of Production-Worker Employment in Manufacturing Industries, by Major Industry Group, United States**

(Sept. 1947 and Sept 1946)

Industry group	Number of production workers Estimated in thousands		Production-worker indexes, (1939=100)	
	Sept. 1947	Sept. 1946	Sept. 1947	Sept. 1946
All manufacturing	12,833	12,244	156.7	149.5
Durable goods	6,481	6,249	179.5	173.1
Nondurable goods	6,352	5,995	138.7	130.9
Iron and steel and their products	1,580	1,514	159.3	152.7
Electrical machinery	567	563	218.9	217.3
Machinery, except electrical	1,185	1,112	224.3	210.3
Transportation equipment, except automobiles	409	455	257.4	286.8
Automobiles	801	788	199.2	196.0
Nonferrous metals and products	395	411	172.1	179.5
Lumber and timber basic products	679	583	161.6	138.6
Furniture and finished lumber products	438	405	133.5	123.5
Stone, clay, glass products	427	518	145.5	142.5
Textile-mill products and other fibre	1,191	1,204	104.2	105.2
Apparel and other finished textiles	1,149	1,049	145.6	132.9
Leather and leather products	364	358	104.8	103.1
Food	1,376	1,175	161.1	137.5
Tobacco manufactures	86	87	92.3	93.5
Paper and allied products	381	372	143.5	140.0
Printing, publishing and allied industries	429	401	130.7	122.3
Chemicals and allied products	563	530	195.2	184.0
Products of petroleum and coal	162	157	153.4	147.8
Rubber products	216	229	178.5	189.1
Miscellaneous industries	435	433	177.8	176.9

*The estimates and indexes presented in this table have been adjusted to levels indicated by the final 1944 data made available by the bureau of employment security of the Federal Security agency.

In durable goods the index of employment rose from 173.1 in Sept. 1946 to 179.5 in Sept. 1947; in nondurable goods there was a rise from 130.9 to 138.7 (1939=100). The number and indexes of manufacturing employment in Sept. 1946 and Sept. 1947 are shown in Table II.

Employment on construction work, including both private and public construction work done by private contractors, increased from 1,747,000 men in Sept. 1946 to 1,900,000 men in Sept. 1947 (Table I).

Table III gives indexes of employment and pay rolls of selected nonmanufacturing industries in Sept., Aug., July 1947 and Sept. 1946.

Table III.—*Indexes of Employment and Pay Rolls in Selected Nonmanufacturing Industries, United States, Sept., Aug., July 1947 and Sept. 1946*

(1939 average=100)

Industry group and industry	Employment Indexes				Pay Roll Indexes			
	Sept. 1947	Aug. 1947	July 1947	Sept. 1946	Sept. 1947	Aug. 1947	July 1947	Sept. 1946
Mining:								
Anthracite	80.7	81.4	78.7	82.2	211.1	209.3	171.8	194.0
Bituminous	89.2	88.1	81.8	90.5	270.2	267.0	194.9	234.0
Metal	88.3	89.5	89.1	83.5	179.0	179.4	171.9	147.0
Iron	147.3	148.3	148.0	138.1	298.7	305.3	295.4	253.3
Copper	101.8	101.7	101.8	90.0	223.2	217.0	209.6	163.1
Lead and zinc	89.6	95.1	93.8	95.6	203.6	207.8	198.0	188.0
Gold and silver	31.4	31.6	31.1	29.0	52.0	51.7	46.8	42.5
Miscellaneous	56.6	58.3	67.6	60.4	102.5	105.3	99.1	98.0
Quarrying and nonmetallic	105.4	106.3	106.0	102.5	258.5	259.6	251.2	227.9
Crude petroleum production	95.6	97.3	97.2	93.9	175.6	173.3	173.9	149.5
Transportation and public utilities:								
Class I steam railways	138.1	140.0	140.0	138.0	....	....	....	....
Street railways and buses	129.6	130.7	130.9	129.9	224.1	225.2	222.1	207.9
Telephone	191.1	193.8	193.3	181.0	309.6	306.2	302.2	265.0
Telegraph	99.8	100.5	101.5	112.0	211.8	213.5	215.2	177.3
Electric light and power	109.9	110.2	109.3	101.9	183.1	182.9	178.4	153.3
Trade:								
Wholesale	113.3	112.2	111.1	109.4	203.3	198.2	196.5	182.8
Retail	112.3	109.3	110.2	109.8	202.5	197.7	198.6	180.8
Food	112.6	111.5	113.0	103.5	209.3	212.2	213.8	173.6
General merchandise	122.6	115.7	116.7	125.4	219.8	212.0	214.1	199.0
Apparel	113.4	103.4	106.8	116.7	203.4	183.4	192.5	197.8
Furniture and house furnishings	87.5	85.8	86.0	81.5	159.8	155.4	156.1	139.1
Automotive	104.8	105.1	104.2	95.5	188.5	188.5	184.8	154.8
Lumber and building materials	124.6	123.1	121.4	113.8	232.5	229.0	218.8	190.0
Service:								
Hotels (year-round)	117.4	117.6	118.3	119.5	222.6	220.9	222.0	209.5
Power laundries	109.6	110.2	112.8	109.9	208.2	203.9	210.3	188.7
Cleaning and dyeing	118.6	117.4	123.4	125.6	220.7	208.9	228.2	225.6

Table IV.—*Total Working Population, Males and Females, Great Britain: Aug. 1947 and Sept. 1946*

	Aug. 1947	Sept. 1946
Total working population excluding indoor, private domestic service		
Males	14,426,000	14,596,000
Females	5,720,000	5,806,000
Total	20,146,000	20,402,000
Ex-members, His Majesty's forces, unemployed	135,000	490,000
Insured persons registered as unemployed	242,000	359,000
In His Majesty's forces, national fire service, police and industry		
Males	14,116,000	13,853,000
Females	5,653,000	5,700,000
Total	19,769,000	19,553,000

Great Britain.—The total working population of Great Britain increased from 19,750,000 in mid-1939 to 21,337,000 in Sept. 1945 and decreased to 20,402,000 by Sept. 1946, as indicated in Table IV.

Canada.—The general employment index (1947=100) averaged 151.8 for 1946 and 158.3 for the first quarter of 1947.

South Africa, Union of.—The South Africa general employment index (1937=100) averaged 124.5 for 1946 and 127.3 in March 1947.

Australia.—The employment index (1937=100) averaged 109.8 for 1946 and averaged 124.1 for the first quarter of 1947.

South America.—Argentina's statistics of industrial employment (1937=100) averaged 136.9 in 1946 and 142.9 the first 2 months of 1947. Little change occurred in the index of Argentine employment throughout 1942–46. The index for Chile

Table V.—*Supply, Distribution by Industries of Labour, Great Britain: Aug. 1947, March 1947, Sept. 1946*

Number employed in industry	Aug. 1947	March 1947	Sept. 1946
Manufacturing of equipment and supplies for armed forces	5,486,000	440,000	530,000
Manufacturing for home market		5,066,000	4,905,000
Manufacturing for export	1,580,000	1,468,000	1,410,000
Total manufacturing industries	7,066,000	6,974,000	6,845,000
Basic industries and services	5,622,000	5,583,000	5,531,000
Building and civil engineering	1,321,000	1,210,000	1,240,000
Distributive trades	2,333,000	2,297,000	2,254,000
Other services	2,094,000	1,979,000	1,938,000
Total in industry	18,436,000	18,043,000	17,808,000
Civil defense, national fire service and police	91,000	91,000	88,000
Armed forces and auxiliary services	1,242,000	1,401,000	1,657,000
Total (of above)	19,769,000	19,535,000	19,553,000
Ex-members, His Majesty's forces, unemployed	135,000	105,000	490,000
Insured persons registered as unemployed	242,000	560,000	359,000
Total working population (exclusive of indoor, private domestic service)	20,146,000	20,200,000	20,402,000

(1937=100) was 134.8 for 1946 and 137.6 the first two months of 1947.

Norway.—Norway's industrial employment index for 1946 was 111.0 (1937=100) and during the first 5 months of 1947 averaged 120.8, with a high in May 1947 of 123.0.

Sweden.—The Swedish index of industrial employment (1937=100) was 117.4 in 1946 and 119.4 the first four months of 1947.

Switzerland.—The Swiss index (1937=100) was 122.9 in 1946, the highest level of employment in Switzerland after 1938. It was 130.0 in March 1947.

None of the other countries in Europe published employment statistics in 1946–47. (D. D. L.)

Endocrinology. During 1947 evidence accumulated which shook the foundations of two well-established concepts in endocrinology. The first postulated that the hormone elaborated by a gland, while it influences the maintenance, growth and function of other organs, does not directly affect the gland from which it originates. Indirect effects are, of course, possible in the case of those glands under the control of the anterior pituitary, by "suppression" of the corresponding trophic hormone of the latter. The second concept was that the intermediation of an endocrine gland in a given physiological mechanism, may be adduced from the fact that the mechanism no longer operates after the gland is removed.

In the laboratories of P. E. Smith and H. M. Evans in the United States, and of S. E. de Jongh in the Netherlands, it was shown that the sex steroids have some direct influence on the structure and function of their parent glands, the gonads. Testosterone completely prevented testicular atrophy and preserved normal spermatogenesis in rats from which the hypophysis was removed. In combination with gonadotrophic hormones, in amounts which were without effect by themselves, testosterone actually stimulated growth of the testis. Implantation of testosterone pellets into the testis of a monkey from which the hypophysis was removed resulted in tubular development with sperm formation, in a circular area surrounding each pellet. The anterior pituitary gland therefore initiates testicular development and testosterone secretion; testosterone itself acts locally to further growth and spermatogenesis.

A similar, though somewhat more complicated, picture emerged from the work on the relation of the sex steroids to the structure and function of the ovary. The estrone elaborated by the growing ovarian follicle was shown to cause further growth and maturation of the theca and granulosa cells of the follicle. But in addition it was demonstrated that the so-called male sex hormone, testosterone, exerted a specific effect by leading to the development of a small blood vessel at the point where rupture of the follicle occurs at the time of ovulation. From these observations, and from those on the testis, it seemed probable that the sex steroids secreted by the gonads act locally to link the primary effects of the gonadotrophic hormones with certain secondary effects in the gonads themselves.

With regard to the conclusions drawn from the results of gland removal, a number of different lines of evidence were reported, all pointing to the same reservation. Thus, the administration to normal rats of large doses of a synthetic estrogen, stilbestrol, had been shown to result in the diabetic syndrome. This did not occur in adrenalectomized rats, from which it had been concluded that the effect depended on a stimulation of the adrenal cortex by the stilbestrol. However, D. J. Ingle showed that adrenalectomized rats given maintenance doses of adrenal cortical extract, still responded to stilbestrol administration as did normal rats. Obviously, therefore, the diabetogenic effect of stilbestrol could not be mediated by the adrenal cortex.

One of the consequences of general bodily injury such as burns and fractures is an accelerated breakdown of tissues and therefore an increased nitrogen excretion in the urine. This is a feature of the so-called "alarm reaction" which does not occur in the absence of the adrenal glands. From this it had been concluded that the increased protein breakdown which accompanied the alarm reaction was a consequence of excess activity of the adrenal cortex. However, Ingle demonstrated that adrenalectomized animals maintained on adrenal cortical extracts did respond to a fracture with an increased breakdown of tissue protein in a manner similar to intact normal animals, despite absence of the adrenal glands.

Similarly, it was shown that adrenaline did not affect the blood pressure in the absence of the thyroid gland. But when thyroidectomized animals were maintained on thyroid extract, adrenaline exerted its usual pressor effect. Apparently, therefore, it is necessary to distinguish between physiological mechanisms which are mediated by an endocrine gland, and others which are not so mediated but require the presence of the hormone of that gland. Much previous work would have to be re-evaluated with this distinction in mind.

Thyroid.—Studies on the action of the thiouracil group of drugs, and of the uptake of labelled iodine by the thyroid, led to a clearer understanding of thyroxine synthesis and pituitary activity. The work of R. W. Rawson, A. Albert and associates, and of S. Dvoskin and others showed that the thyrotrophic hormone of the pituitary is a protein which is hormonally active when its sulphur groups are in the reduced state. It can be inactivated by oxidizing these -SH groups. Iodine owes part of its antithyroid activity to its property as an oxidizing agent causing partial inactivation of the thyrotrophic hormone. Thiouracil reactivates this factor and was shown to enhance the activity of the thyrotrophic hormone.

The thyroid gland had of course been shown to have the ability to concentrate iodine. Iodine in the form of iodide (I^-) is taken up by the thyroid and is there converted to elemental iodine (I_2). This is the first step in the elaboration of the hormone and is the step which is blocked by thiouracil. On the other hand thiocynate was found to produce goitre by blocking the ability of the gland to concentrate the iodide. Since it had been known for some time that the reactions of tyrosine with iodine to form thyroxine occur nonenzymatically in vitro, it had to be concluded that the oxidation of iodide to iodine ($I^- \rightarrow I_2$) is the essential and specific function of the thyroid gland. In line with this conclusion Dvoskin showed that the injection of elemental iodine into normal and thyroidectomized rats and chicks gave effects similar to those produced by thyroxine while sodium iodide gave only slight evidence of such activity.

Adrenal Cortex.—The increased metabolism of protein caused by the administration of the thyroid hormone had been known for many years. Later it had been established that some of the steroid hormones of the adrenal cortex caused an increased breakdown of protein from the tissues. The relation between the actions of these two glands was studied by A. White and T. F. Dougherty. They demonstrated that the adrenal cortex controlled the loss of protein from the lymphoid tissue throughout the body. In the absence of the adrenals no loss of nitrogen from the lymph tissues occurred even on prolonged starvation. The liver nitrogen loss was diminished but the loss from the rest of the body was not inhibited by adrenalectomy. On the other hand the thyroid gland seemed to control, in the main, protein mobilization from muscle and had no influence on the loss of nitrogen from the lymphoid tissues.

These findings served to emphasize the fact that hormonal action may be tissue specific, and that the final result of the action of two glands may appear to be similar (increased pro-

tein breakdown) even though the specific actions are on different tissues.

It had been known for some years that the adrenal cortex secretes a large variety of steroids possessing different types of activity. These actions may be grouped into three categories; the metabolic, the salt and water retaining and the sex-active. When the pituitary is removed from an animal the adrenal cortex atrophies but this atrophy does not affect all the cell layers of the cortex equally. The outermost or glomerular layer does not shrink. Such an animal also does not show the disturbances of salt and water balance exhibited by the adrenalectomized animal. It was postulated therefore that this outer zone of the cortex elaborates the salt retaining steroid hormones. R. O. Greep and H. W. Deane added further proof that the separate zones of the adrenal cortex probably subserve the different functions. From their work and that of others it could be deduced that the outer zone produces the salt retaining hormones, the middle zone the metabolically active steroids and the innermost zone the sex-active principles of the adrenal. (*See* also PHYSIOLOGY; ZOOLOGY.)

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England: *see* GREAT BRITAIN & NORTHERN IRELAND, UNITED KINGDOM OF.

English Literature.

The year 1947 was one of rediscovery and reassessment in which new work tended to be overshadowed by new editions not only of standard authors but also of such Victorian and Edwardian writers as Mrs. Elizabeth Gaskell, George Gissing, Henry James, Arthur Morrison, W. W. Jacobs and Joseph Conrad. Nevertheless, despite the various production difficulties that hampered publishers, a number of noteworthy new books appeared.

Fiction.—Of the better known novelists only Charles Morgan, whose *The Judge's Story* was received with the usual mixed opinions, John Masefield, with *Badon Parchments,* and Michael Sadleir, with *Forlorn Sunset,* were represented. The most important novel of the year was perhaps L. P. Hartley's *Eustace and Hilda,* the concluding book of his Eustachian trilogy. I. Compton-Burnett produced a characteristic novel in *Manservants and Maidservants,* and Hester Chapman showed her customary wit and insight into character in *World's Apart.* Evelyn Waugh published a short novel, *Scott-King's Modern Europe.* Nigel Balchin's experiment in technique, *Lord, I was Afraid,* was generally considered unsuccessful. T. H. White, Patrick Hamilton, H. E. Bates and Bruce Marshall enhanced their reputations with *Mistress Masham's Repose, The Slaves of Solitude, The Purple Plain* and *The Red Danube,* respectively. Outstanding among the work of the younger novelists were P. H. Newby's *Agents and Witnesses,* though it was thought scarcely to live up to his earlier promise, J. Maclaren-Ross's *Of Love and Hunger,* Dan Davin's novel of the war in the western desert, *For the Rest of Our Lives,* Chun-Chan Yeh's *A Mountain Village,* Elizabeth Taylor's *A View of the Harbour* and Jon Godden's *The House by the Sea.* Philip Toynbee's *Tea With Mrs. Goodman,* a symbolic .work with affinities to *The Waves* and *The Waste Land,* was probably the year's most ambitious novel.

Several very good volumes of short stories appeared, in particular Somerset Maugham's *Creatures of Circumstance,* Seán O'Faoláin's *Teresa,* Frank O'Connor's *The Common Chord,* A. E. Coppard's *The Dark-Eyed Lady,* Graham Greene's *Nineteen Stories,* Viola Meynell's *First Love* and R. K. Narayan's *An Astrologer's Day. Innocents,* by a new writer, A. L. Barker, was very highly praised.

Poetry.—Again the older poets produced the most distinguished work: Walter de la Mare with *The Traveller,* W. J. Turner (died Nov. 1946), with *Fossils of a Future Time?,* Andrew Young with *The Green Man* and Edith Sitwell with *The Shadow of Cain.* Siegfried Sassoon and Herbert Read published collected volumes of their verse. Of the middle generation of poets, Louis MacNeice published his verse play for radio *The Dark Tower,* Stephen Spender *Poems of Dedication,* Kathleen Raine *Living in Time* and A. J. S. Tessimond *Voices in a Giant City;* while Rayner Heppenstall assembled the work of a decade in *Poems, 1933–1945.* The work of younger writers that attracted notice included Bernard Gutteridge's *The Traveller's Eye,* Bernard Spencer's *The Aegean Isles,* John Heath-Stubbs's *The Divided Ways,* John Short's *The Oak and the Ash,* Hal Summers' *The Hinterland,* Anthony Rye's *The Inn of Birds* and Alan Ross's *The Derelict Day.*

Literary Criticism.—The outstanding books were probably C. Day Lewis' *The Poetic Image* and A. M. D. Hughes' *The Nascent Mind of Shelley.* Wilson Knight continued his Shakespearean studies with *The Crown of Life,* and valuable work on Milton was done by T. S. Eliot in his British academy lecture, B. Rajan in *"Paradise Lost" and the Seventeenth Century Reader* and A. J. A. Waldock in *"Paradise Lost" and Its Critics.* The author's name was enough to testify to the importance of Ernest de Selincourt's *Wordsworthian and Other Studies.* Robert Liddell's *A Treatise on the Novel* aroused much controversy among critics of fiction. W. P. Witcutt's *Blake, A Psychological Study,* pointed the way to a new interpretation of the poet.

Important works of literary scholarship published included the final volumes of Gordon N. Ray's *Thackeray's Letters and Private Papers* and Newman Ivy Peck's *Shelley,* both from the U.S., and F. E. Hutchinson's *Henry Vaughan.* George Woodcock's *Godwin* was widely praised, as was Gerald Bullett's *George Eliot.* Malcolm Elwin's *The First Romantics* was considered by many critics unjust to Wordsworth. Two much admired biographical studies of later writers were F. Brittain's *Arthur Quiller-Couch* and Percy Lubbock's *Portrait of Edith Wharton.*

Biography and War Books.—The leading historical biography of the year was Carola Oman's *Nelson;* other works in this genre were Maurice Ashley's *John Wildman* and H. C. Foxcroft's *A Character of the Trimmer. The Diary of Henry Hobhouse* edited by A. Aspinall interested students of early 19th century affairs; while Sir Arthur Salter's *Personality in Politics* was a valuable study of figures in modern politics.

Two memorable autobiographies were *But To What Purpose?* by the veteran novelist and naturalist E. L. Grant Watson and *Autobiography* by Neville Cardus, containing reminiscences of cricket, the *Manchester Guardian* and music. In a different vein was a quietly attractive autobiography *An Innocent Grows Up,* the life story of a country draper, Norman Hancock.

War books continued to be published in considerable numbers. Few possessed literary merit. Among those that did were H. R. Trevor-Roper's *The Last Days of Hitler;* the journals and poems of Keith Douglas, a promising young poet killed in

Tunisia, entitled *Alamein to Zem Zem;* Basil Davidson's *Partisan Picture;* Christie Lawrence's *Irregular Adventure;* and Geoffrey Cox's account of the exploits of the 2nd New Zealand division, *The Road to Trieste.* Among the year's travel books, James Pope-Hennessy's *America Is An Atmosphere* and Arthur Calder-Marshall's account of Yugoslavia under Tito, *The Watershed,* must be mentioned.

Two books not easily classifiable must not be forgotten: *A Free House,* the collected art criticism of Walter Richard Sickert edited by Sir Osbert Sitwell, who also contributed a characteristically graceful memoir of the painter, and Sacheverell Sitwell's evocation of a number of subjects of ancient and modern art, *The Hunters and the Hunted.*

(*See* also AMERICAN LITERATURE; BOOK PUBLISHING.)

(W. E. AN.)

Entomology.

The chief emphasis in entomology during 1947 was still on insecticides. The impetus of war research for new and more effective means of controlling noxious insects continued unabated, and many new and promising insecticides continued to appear. There had been so many of these that complete experimental testing and proving could not be accomplished by all available resources of manufacturers, federal government, state, county, city and privately-trained entomologists, toxicologists, parasitologists and all others charged with insect control relating to agriculture, forestry and public health. Although many believed that DDT would solve all entomological problems, it was soon discovered that many insects, as well as mites, were neither killed nor injured by this chemical. In fact, mites and certain scale insects and aphids even appeared to increase following application of DDT wettable and dry powders. In the case of sprays prepared from DDT, it appeared that the oil solvents afforded the only control factor for some species of aphids and scale insects.

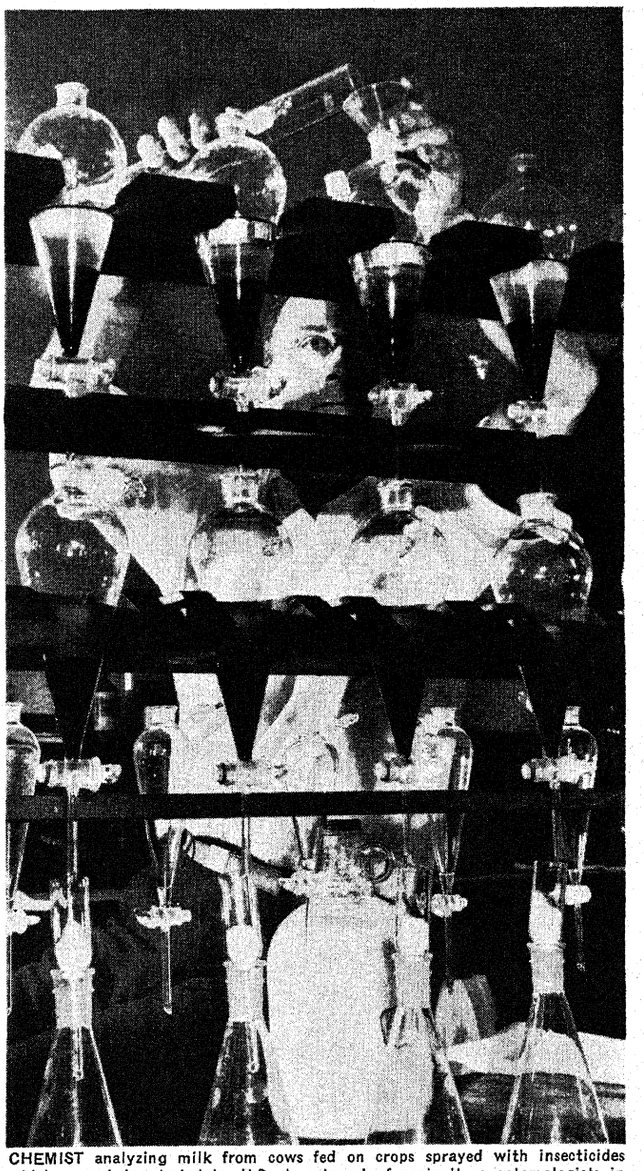
Supply and Research.—During 1947 the dominant insecticide, DDT, was available in sufficient quantities to supply all needs. There was accordingly a noticeable diminution in the use of arsenate of lead, calcium arsenate, cryolite and other normally basic poisons. Nicotine products were not wholly adequate, and there were shortages in some other commodities. In the main, insect control was not greatly hampered by lack of suitable and efficient insecticides.

The manufacture of DDT had developed so rapidly that by 1947 the 16 important manufacturers were capable of supplying 100,000,000 lb. a year. It was generally believed that this large amount could not be absorbed in the domestic market and that export demand was not sufficient to utilize it. Manufacture, therefore, was likely to be curtailed. Newer and more effective insecticides might also cause a rapid decline in production. According to the U.S. department of agriculture, bureau of entomology and plant quarantine, more than 1,000 separate publications on DDT had appeared since 1943.

The effects of DDT dusts on alfalfa-pollinating bees was an important research problem in a number of western states. Many beekeepers believed that the application of DDT dusts had killed excessive numbers of honeybees, whereas others claimed that there had been no serious damage and that the effectiveness of the dusts in controlling lygus bugs (thereby prolonging the blooming season of alfalfa) had greatly increased the honey flow.

Calcium arsenate to the amount of 36,400,000 lb. was made available for the control of insects during 1947. This amount was less than normally used in past years.

Other New Insecticides.—Benzene hexachloride (BHC): 4 lb. of 50% BHC to 100 gal. of water for cattle lice, hog mange, hog lice, chicken lice, stable flies, houseflies; ½ lb. of 50% BHC to 1 gal. water for spraying horses and mules.



CHEMIST analyzing milk from cows fed on crops sprayed with insecticides which were being tested by U.S. department of agriculture entomologists in 1947

Marlate methoxychlor: $\frac{1}{40}$ as toxic to animals as DDT; for insects on fruits and vegetables.

Piperonyl butoxide: for household and field use (flies, cockroaches, Mexican bean beetle, aphids, leaf hoppers, fruit flies [adults]). In fly sprays with aerosols. Residual effectiveness—several months. Spray or dusts with pyrethrins.

3422—o,o-diethylo-p-nitrophenol thiophosphate: another German insecticide developed before or during World War II, first manufactured in the U.S. and offered for experimental purposes by the American Cyanamid company as 3422. It is a yellow liquid; boiling point 375° C., at 760 mm.; refractive index at 25° C. of 1.5360; specific gravity 1.26; soluble in water only to the extent of 20 p.p.m.; completely miscible with esters, alcohols, ketones, ethers, aromatic and alkylated aromatic hydrocarbons; practically insoluble in such petroleum hydrocarbons as petroleum ether, kerosene and refined spray oils. Combatable with wettable sulphurs and "neutral coppers." Used to control (as dusts or sprays 0.05% to 0.1% to 0.25%) bean aphis, confused flour beetle, Mexican bean beetle, greenhouse red spider, German cockroach. Hazardous to warm-blooded animals (by oral administration).

Soil fumigants: DD for wireworms and other soil insects; ethylene dibromide for wireworms and other soil insects; ethylene dichloride for peach tree borer, larvae of Japanese beetle; propylene dichloride for peach tree borer; hexachlorocyclohexane for soil insects; DDT for larvae of Japanese beetle, wireworms, larvae of pear thrips; chlordane for wireworms and other soil insects and ants.

Spread and Control of Insects.—The Pacific mite, *Tetranychus pacificus* (McGregor), was more abundant on apples in the Yakima section of Washington than ever before. This increase was attributed, in part at least, to the general use of DDT for codling-moth control, although a mild winter may have benefitted overwintering populations of the mite.

The carrot weevil, *Listronotus oregonensis* (Lec.), a western insect, appeared to be a much more serious pest in Georgia, where it caused serious damage to parsnips during the fall.

The plum curculio, *Conotrachelus nenuphar* (Herbst), was unusually abundant in the peach belts in a number of the U.S. southern states during May.

DDT provided excellent control over codling moths on apples, pears and walnuts. In many instances, however, there was a marked build-up of aphids, scale insects and mites. The control of the gypsy and browntail moths with very small quantities of DDT had been so phenomenal and so inexpensive that it was found cheaper to apply the dust than to make an inspection to determine the exact status of the insects in suspected infestations.

The control of the fir tussock moth, *Hemerocampa pseudotsuga* (McDunnough), in the Douglas fir forests of Idaho by aeroplane was very successful. Approximately 413,000 ac. were treated at a cost of $1.29 per acre.

The pecan nut casebearer, *Acrobasis caryae* (Grote), extremely injurious in Texas during 1946, was given various treatments of arsenate-nicotine sulphate-summer oil and DDT in an effort to secure effective control. About 200,000 trees were sprayed.

The corn ear worm, *Heliothis armigera* (Hbn.), was rapidly becoming the most destructive insect throughout the United States. It had become a pest of major importance on corn, sorghum, tomatoes, cotton, peanuts, soybeans, vetch, alfalfa, beans and other crops.

Spread of the European apple sawfly, *Hoplocampa testudinea* (Klug), from Long Island to Rockland county, N.Y., was reported in June 1947.

It was estimated in 1947 that the ox warble fly or common cattle grub, *Hypoderma lineata* (De Vill.), had caused an estimated $100,000,000 annual loss in the U.S.

Dr. E. T. Cotton, entomologist of the U.S. department of agriculture, bureau of entomology and plant quarantine reported to the United Nations Food and Agriculture organization in London that at least 5% of the cereal food produced in the world had been ruined each year in storage by insects.

Because of heavy losses of bees in Europe inflicted by the so-called Isle of Wight disease, the U.S. bureau of entomology and plant quarantine renewed quarantine restrictions to prevent the entry into the United States of queen and worker bees which might possibly carry the mite, *Acarapis woodi* (Renine), which inhabit the trachaea and thoracic muscles of the bees, causing death. The disease was first noted on the Isle of Wight, Eng., in 1904.

S. E. McGregor and C. T. Vorhies of Arizona reported that spraying of large cotton areas by plane with dust containing 10% DDT in pyrophyllite, at the ratio of 15 lb. per ac., 5% DDT in sulphur at 20 lb. per ac., or spray containing 1½ to 3 lb. of DDT dissolved in xylene per acre, was not damaging to commercial beekeeping.

Mosquito abatement districts were organized extensively in California and many other parts of the United States. The free use of DDT, applied mostly as an aerosol from the exhaust of an automobile or truck, seemed likely to cause some serious complications to wildlife and to insect control in general; *e.g.*, such methods might kill not only injurious but beneficial insects and other small forms of land and aquatic life.

A new federal insecticide, fungicide and rodenticide act was passed during 1947, and an open hearing on the act was held at Washington, D.C., on Aug. 25, 1947.

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(E. O. E.)

Entomology and Plant Quarantine, Bureau of: *see* AGRICULTURAL RESEARCH ADMINISTRATION.

Enzymes: *see* BIOCHEMISTRY.

Epidemics.

The great pandemic of diphtheria began to recede in 1947. This vast outbreak, which began in Germany in the mid-'30s spread to all Europe with the invasion of the German armies. The increase was also reflected in most parts of the temperate zones. England, because of greatly increased immunization against diphtheria, was spared entirely, and Canada also escaped. A definite but relatively slight increase in cases and deaths occurred in the United States in 1945 and 1946 but had also declined by early 1947.

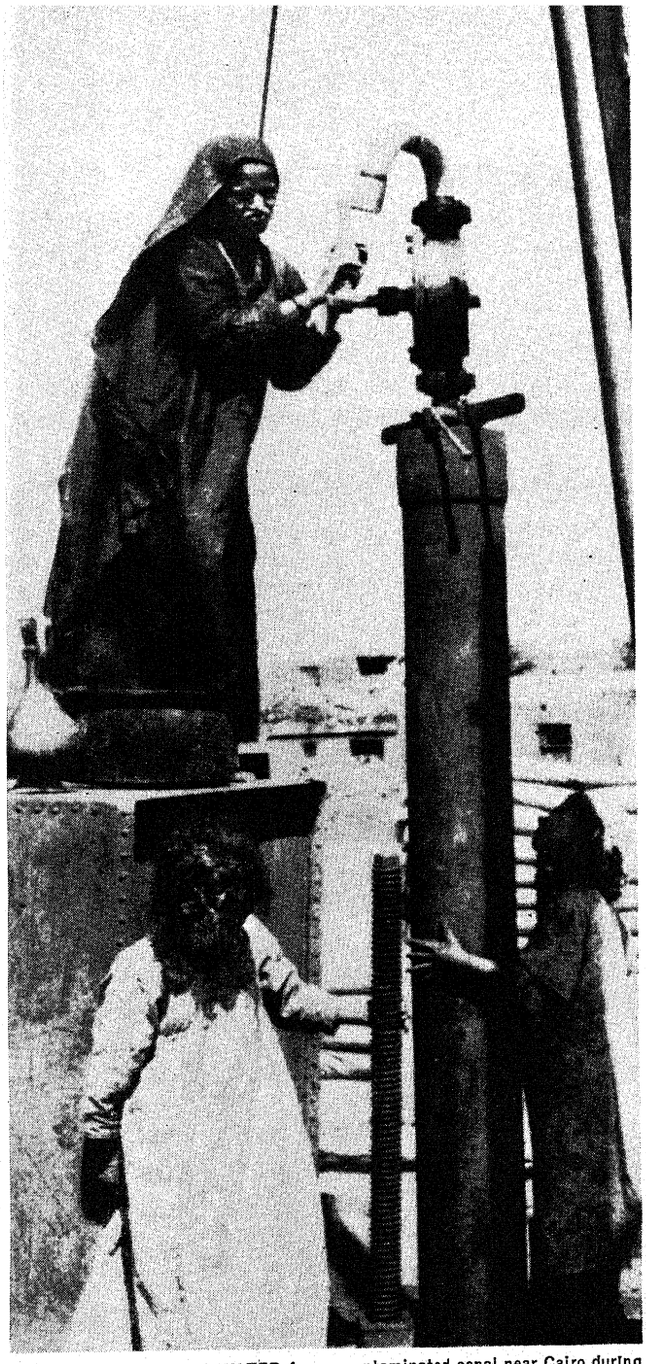
After an absence of nearly half a century, cholera reappeared in Egypt in 1947, being first noted in El Kurein in Sharkiya province in late September. The disease spread rapidly, and within two months had caused more than 10,000 deaths. By year's end, the disease seemed to be under control in Egypt, but had spread to Syria.

Infantile paralysis (*q.v.*) was highly prevalent throughout much of Europe. The intensity of the outbreak in England and Wales was far greater than any previously reported. Berlin also experienced a severe epidemic. The disease had reached a record high in the United States in 1946, but was of normal proportions during 1947, although the incidence was higher in Ohio than in any previous season. Poliomyelitis approached epidemic proportions in Illinois late in the year but appeared atypical as to age incidence, frequency of encephalitis and infrequency of permanent paralysis.

The outbreak of influenza A which had been predicted for the winter season, 1946–47, appeared in the late winter and spring of 1947. It was quickly found that immunization by available virus vaccines bestowed relatively little protection. Further investigation demonstrated that the prevailing virus, although related to the previously recognized strains of influenza A, was antigenically not identical and that cross protection was not afforded. The later strain was incorporated into virus vaccine.

Virulent smallpox was introduced into New York city from Mexico after a complete absence of all forms of the malady for seven years. Only 12 cases resulted. In the course of less than a month, approximately 7,000,000 persons of all ages were vaccinated. No deaths resulted from postvaccinal encephalitis or tetanus; however, five eczematous infants and children who had not themselves been vaccinated but who were familial contacts of vaccinated persons developed inoculation vaccinia and died. Numerous nonfatal instances of this same accident were observed. (*See* also BACTERIOLOGY; ENTOMOLOGY; FEDERAL SECURITY AGENCY; PUBLIC HEALTH SERVICES; VENEREAL DISEASES.)

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EGYPTIANS FILTERING WATER from a contaminated canal near Cairo during a widespread epidemic of cholera in 1947. Deaths totalled more than 6,000 for the months of September and October

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Episcopal Church: *see* PROTESTANT EPISCOPAL CHURCH.
Eritrea: *see* ITALIAN COLONIAL EMPIRE.

Estonia. One of the Baltic states of northeastern Europe, north of Latvia, south of Finland, 16th republic of the U.S.S.R. Area, 18,357 sq.mi.; pop. (est. 1939) 1,122,000.

Chief towns: Tallinn (capital, 146,400); Tartu (60,100); Narva (24,200); Nomme (19,700); Pärnu (21,500). Language, Estonian, a Finno-Ugrian tongue. Religion, Christian (Lutheran 78%, Greek Orthodox 19%). Chairman of the council of ministers: A. Veimer.

History.—Estonian independence was less than 20 years old when the U.S.S.R. demanded and obtained a privileged strategic position therein (Sept. 29, 1939). By June 1940, soviet forces had occupied the land, and in July a plebiscite approved annexation to the U.S.S.R. as the 16th constituent republic. From 1941 to 1944 the Germans held the country as a conquered province, but in the fall of 1944, the Russians reconquered Estonia and re-established the regime of 1940–41.

Through the whole period from 1939 to 1947 some Estonian diplomats remained at their posts abroad, and both Britain and the U.S. continued to recognize them, and to ignore the actual control established by the Russians. The United Nations closed its eyes and ears to the problem. In May 1947 the British took the first step in breaking the anomalous situation: they announced recognition *de facto* of the soviet administration. Great Britain still withheld recognition *de jure,* and the U.S. sat tight. The independently functioning International Postal union at its meeting in Paris in May maintained that the three Baltic countries were under Russian domination and therefore rejected the U.S.S.R. request for separate memberships for them.

Small refugee groups continued to escape out of Estonia across to Sweden and occasionally from there on to the United States where they received an illegal hospitality. Part of those who had arrived in 1946 were granted permanent visas, but the others had to wait for immigration quota vacancies. One group of 23 landed at Savannah, Ga., in September, just ahead of the hurricane. They had traversed the Atlantic in a 43-ft. sailboat. Another party of eight, including two babies, landed at Miami, Fla., on Oct. 1. They had a 40-ft. yacht in which they had come 5,000 mi. from Gothenburg, Sweden. Still others were reported on the way, sometimes stopping in England or Spain en route. About 1,400 Baltic refugees were still in Sweden.

Meantime, the soviet authorities were deporting large numbers of Estonians (and also Latvians and Lithuanians) into a vast Russian interior, and turning over their properties to Russians. Particularly were the political and intelligentsia elements transported. Thus, the Russians hoped to destroy the national spirit and create a more loyal communist society. Collectivization hardly affected Estonia during the war years. The small peasant proprietorships established by the land reforms of the 1920s had already broken up the great estates. But in 1947 conditions were at last felt to be favourable enough for more far-reaching measures, and the first collective farms were organized in Estonia. (F. D. S.)

Etching. In spite of unsettled political and social conditions existing throughout the civilized world in 1947, the second postwar year, those in the field of the graphic arts in general and of etching in particular much more nearly approached normal activity than at any time after the beginning of World War II.

After its beginnings and its first great period of achievement in Germany and the Low Countries in the 16th century, etching as a medium of creative art expression was centred in Italy in the 18th, in France in the 19th and in England and the United States in the 20th century. With the advent in the last named country of so many artists from other lands after World War II, and with the greater opportunities and better economic conditions existing there, it was natural that the U.S. should be the centre of productivity in 1947.

Because of the exacting and highly technical nature of the medium, etching was slower to be influenced by so-called modern art than were either painting or sculpture. In 1947 there was a marked increase in the number of etchers working in this idiom in the U.S., with the greatest activity among the followers of Stanley W. Hayter in the east, Mauricio Lasansky in the

west and Ernest Freed in the south. Interesting experiments were carried on by these artists in the combination of etching with other intaglio and relief forms of printmaking, in both monochrome and colour.

A number of new print societies were founded in the U.S. in 1947, and the long established ones maintained their usual exhibitions and other activities. Chief among the latter were the Society of American Etchers, Gravers, Lithographers, and Woodcutters (formerly the Society of American Etchers, now enlarged to include workers in the relief and planographic media) whose annual exhibition of 658 exhibits was the largest and most comprehensive print showing ever held in the U.S.; the Chicago Society of Etchers, the Print Makers Society of California, the Northwest Printmakers, the California Society of Etchers and the Prairie Print Makers. In all their exhibitions there was a general trend toward strictly traditional and purely abstract subject matter, with less emphasis than in immediately preceding years on social consciousness and war. Much was done by these societies toward developing a general interest in, and appreciation of, prints on the part of the public by travelling exhibitions, public demonstrations of print making and lectures. In addition, many of the most important museums throughout the country held frequent print exhibitions, both general and specialized, and the Library of Congress conducted its Fifth National Exhibition of Prints, one of the two most important of the year.

Among American etchers who published work in 1947 were Isabel Bishop, Hugh Botts, Paul Cadmus, Federico Castellon, John E. Costigan, Stephen Csoka, Ralph Fabri, Ernest Freed, Isac Friedlander, Sue Fuller, Douglas W. Gorsline, Joseph H. Heil, Arthur W. Heintzelman, Eugene Higgins, Irwin D. Hoffman, E. T. Hurley, Max Jaediker, Gene Kloss, Armin Landeck, Mauricio Lasansky, Luigi Lucioni, Roi Partridge, Martin Petersen, Louis C. Rosenberg, Carl M. Schultheiss, William Sharp and George H. Wright.

Least affected by the modern movement, the great traditions of the English school of etching were ably carried on in 1947 by W. D. Brokman Davis, R. Stanley G. Dent, H. Andrew Freeth, Anthony Gross, Martin Hardie, Jean Harper, Lawrence Josset, Sydney Lee, Gwen May, Malcolm Osborne, Russell Reeve, W. P. Robins, D. I. Smart, Robert Spence, C. H. Spencer, Sara Sproule, Robin Tanner, C. W. Taylor, Eric Taylor, E. Heber Thompson, Murray M. Tod and Leslie M. Ward. Principal exhibiting societies in which etchers took a prominent part were the Royal academy and the Royal Society of Painter-Etchers and Engravers.

The year 1947 marked a great renewal of activity among French etchers and etching societies. In spite of the turbulent postwar conditions prevailing there, the indomitable Gallic art spirit found free expression in the etched line on the part of a host of artists. Although no figure arose to challenge the stature of the 19th century masters and such as Théophile Alexandre Steinlen and Jean Louis Forain who bridged the gap between it and the 20th century, many etchers produced work of outstanding quality. Throughout history the French temperament has been sympathetic to the graphic media and some of the greatest artists of France have made etching completely their own. Among the older recognized leaders who continued to work in 1947 were Yves Alix, Maurice Asselin, Adolphe Beaufrère, Jacques Beurdeley, Robert Bonfils, Jacques Boullaire,

"FATHERLESS," by Stephen Csoka, one of the three prize-winning etchings of the second annual national print competition conducted by the Associated American Artists during the summer of 1947



Jean Frelaut, Demetrius Galanis, Pierre-Louis Moreau, Pablo-Ruiz Picasso, Alexandre Urbain, Henri Vergé-Sarrat, Jacques Villon and Henri de Waroquier, while of the more recent group significant contributions were made by Alain Bastien, Jean Bersier, Richard Brunck de Freundeck, Robert and Mme. Cami, Michel Ciry, Eugene Corneau, René Cottet, Pierre Dubreuil, Raoul Dufy, Marcel Gromaire, Andre Jacquemin and Pierre-Yves Tremois.

A small but active group of etchers upheld the traditions of the art under the aegis of the Society of Canadian Painter-Etchers and Engravers. Among them were David J. L. Anderson, Robert W. Annand, George di Carlo, Nicholas Hornyansky, I. Mackinnon-Pearson, W. K. Peacock, Harry D. Wallace and W. J. Wood.

Outside of the countries named above little of importance was produced in etching in 1947, although a few artists employed the medium in Sweden, Italy and the South American republics.

(J. T. AR.)

Ethical Culture Movement. A religious and educational movement emphasizing the centrality of ethics in human relations, started in New York city in 1876 by Felix Adler and established ten years later in London by Stanton Coit. In 1947 societies were active in New York city, Westchester, N.Y., Brooklyn, N.Y., Philadelphia, Pa., St. Louis, Mo., Chicago, Ill., and Washington, D.C., and groups were meeting regularly in Los Angeles, Calif., and New Jersey. There were four societies meeting in London and one in Birmingham, England.

The Ethical Culture societies conduct Sunday and weekday services and a variety of educational and community activities. University Settlement, in New York city, the first neighbourhood house in the United States, was an enterprise of the movement, as were Hudson Guild and Madison House in New York city and similar undertakings in other cities. The movement was also responsible for significant efforts in child labour reform, visiting nurse associations, legal aid societies, housing, race relations, child study and progressive education. Leaders of the various societies perform functions analogous to ministers in other religions, officiating at naming ceremonies, marriages and funerals.

The English and U.S. societies devoted themselves to training of youth for democratic citizenship, spearheaded in the U.S. by a six-weeks' Encampment for Citizenship. This encampment, held for the second successive year at the Fieldston school of the Ethical Culture schools in New York city, brought together young people of diverse religious, national, economic and educational backgrounds from all parts of the country, and was devoted to intensive study and discussion of key problems and techniques of democratic living. During the year, the societies expanded their programs in adult education. The movement co-operated with others in opposition to the teaching of religion in the public schools and to released time for religious education. It also was instrumental in clarifying and liberalizing procedures for the adoption of children. A week of institutes dealing with problems of segregation highlighted its continuing efforts in the field of intergroup and interracial relations.

Exposition of the movement's principles was to be found in Felix Adler's *An Ethical Philosophy of Life,* David Saville Muzzey's *Ethical Religion* and Horace J. Bridges' *Some Aspects of Ethical Religion. The Standard,* edited by Gideon Chagy, was published each month at 2 West 64th St., New York 23, N.Y. The American Ethical union, in whose presidency Robert D. Kohn was succeeded by James G. White in 1947, had offices at the same address. The offices of the English Ethical union, of which Sir Richard Gregory, F.R.S., is president, and H. J. Blackham executive secretary (1947), were at 4A Inverness Terrace, London W2.

(J. NN.)

Ethiopia. A kingdom of northeast Africa. Area: *c.* 350,000 sq.mi.; pop. (est. Dec. 31, 1939): 7,000,000; cap. Addis Ababa; religion: Christian (Alexandrine) and Mohammedan; languages: Amharic, also Arabic, Gueze, Tigre, Tigriña, Galla, Somali, etc.; ruler: Emperor Haile Selassie I.

History.—There was considerable economic progress in 1947. A merchant marine was inaugurated with "The Adulis," named after the ancient Ethiopian port. Ethiopian air lines (passenger, freight and mail) extended internally to all 12 provinces, externally to Asmara, Erit.; Djibouti, Fr.Somlnd.; Aden, Aden; Khartoum, A.-E.Sud.; Jidda, Saud.Arab.; Cairo, Egy.; Nairobi, Kenya. An aviation school, a motorboat service on Lake Tana and more long-distance motorbus services were inaugurated. New roads and bridges over the Takazze and Gogeb rivers were built, and restoration of the historic Gondar castles was undertaken. Work began on Sir Patrick Abercrombie's plan for Addis Ababa, and at the same time main sewerage was inaugurated, and the water mains extended.

The state bank opened eight additional branches in Addis Ababa, the provinces and Djibouti, Fr.Somlnd. The new currency reached a cumulative issue of Ethiopian $53,384,200 in January. (Exchange rate: 2.424 Eth.$=$1.00 U.S.; 10 Eth.$=£1).

The annual exhibition revealed advances in agriculture and industry. Silk manufacture and several new exports were undertaken, while prize cattle, sheep and poultry were imported from the U.S. to improve Ethiopian breeds. Trade with Great Britain during the first eight months of 1947 reached the following figures: imports, £654,508; exports, £66,128.

Revenue during 1946–47 was approximately £5,000,000. Not counting expenditure by government departments, post office, bank, army, etc., on education and foreign scholarships for their employees, or church-maintained schools (with 50,000 pupils), the board of education budget was £8,107,639 for government schools, with 35,763 boys, 4,180 girls and 13,078 teachers. Examination began for London university matriculation in Ethiopian schools, also preparatory training in law, public health, midwifery and nursing. Education was free, only 3% of scholars contributing toward tuition and board. Prefabricated schoolhouses were mass-produced in Addis Ababa for provincial villages.

Ethiopia was represented at all United Nations conferences and on subsidiary bodies. An U.N.R.R.A. mission worked in Ethiopia from Jan. 1946 to June 1947 and contributed £130,000 in educational and agricultural equipment. Ethiopia declined a U.N. field survey to facilitate reconstruction, in favour of more recently liberated countries.

Ethiopia proposed an Anglo-Ethiopian treaty of friendship and commerce, its terms to include the withdrawal of the British military administration from the reserved area and Ogaden.

The emperor formally lodged Ethiopia's claim to the former Italian colonies, Eritrea and Somalia. Two hundred thousand Eritreans and a large body of Somalis residing in Ethiopia petitioned the U.N. Council of Foreign Ministers for reunion of these provinces to Ethiopia.

The empress presented her crown to the Church of the Holy Sepulchre in Jerusalem as a thank offering for Ethiopia's liberation.

(E. S. PT.)

European Recovery Program. On June 5, 1947, in an address at the commencement exercises of Harvard university, Secretary of State George C. Marshall advanced the idea of a program of Euro-

pean self-help supported by U.S. assistance. His proposal of a comprehensive economic program proved to be a new starting-point in a large-scale effort of European reconstruction and in long-range U.S. policy towards postwar Europe.

After a further statement by Marshall on June 12 that both Great Britain and the U.S.S.R. were within the scope of the suggested program, the British and French governments announced their desire to co-operate, and separately invited the soviet government to consult with them. The soviet government accepted the invitation on June 22; its reply complained, however, of knowing nothing of the extent or terms of prospective U.S. aid.

The three-power conference of foreign ministers (Ernest Bevin of Britain, Georges Bidault of France and V. M. Molotov of the U.S.S.R.) held five sessions in Paris between June 27 and July 2. Molotov objected strongly to drafting a joint European program. Such a program, he asserted, would infringe upon the sovereignty of smaller states. Bidault's attempt to meet these objections was rejected by Molotov, who accused England and France of splitting Europe.

Upon soviet withdrawal from the still embryonic program Bevin and Bidault addressed an invitation to 22 European states, apart from Spain and the U.S.S.R., to consult on the formulation of a plan for European reconstruction. Almost until the conference assembled in Paris on July 12 there was uncertainty concerning the participation of the small states lying in the soviet sphere. On July 8 the Czechoslovak government formally accepted the invitation, then withdrew two days later. Poland, Finland, Hungary, Rumania, Yugoslavia, Bulgaria and Albania also declined. Fourteen countries accepted: Austria, Belgium, Denmark, Eire, Greece, Iceland, Italy, Luxembourg, The Netherlands, Norway, Portugal, Sweden, Switzerland and Turkey.

The conference, which met in Paris from July 12 to 15 with Bevin as chairman, appointed a 16-member Committee of Co-operation (later known as the Committee of European Economic Co-operation, or C.E.E.C.). In collating the various reports gathered during July and August, the Executive committee was dismayed to find that the total dollar deficit for 4 yrs. was estimated at $28,000,000,000, and that annual deficits in dollar exchange were expected to continue even after 1951. At a conference on Aug. 30, representatives of the U.S. department of state impressed upon the Executive committee the necessity for bridging the dollar deficit by the end of 1951, for promoting financial and monetary stability and freer trade, and for creating a continuing organ for supervision of the program.

These criticisms found their reflection in the final C.E.E.C. report of Sept. 22. As Europe's contribution to its reconstruction the two-volume report set forth elaborate goals of restored or increased production in all branches of the economy. It outlined steps necessary for financial and fiscal stability, and proposed means for promoting freer trade among the co-operating states. The report revised the estimate for the 4-yr. dollar deficit of the 16 countries, plus western Germany, to $19,330,000,000.

President Harry S. Truman on Oct. 23 summoned the U.S. congress to convene on Nov. 17 to consider the proposed plan. In a radio address of Oct. 24 he stressed the importance of providing both immediate and long-term aid, and asked $357,000,000 of interim aid for France, $285,000,000 for Italy, and additional provision for Austria's needs. On Nov. 8 the president's committee on foreign aid estimated the 4-yr. European dollar deficit at $17,000,000,000 to $23,000,000,000, and recommended year-to-year appropriations totalling between $12,000,000,000 and $17,000,000,000 to fill the gap.

In a statement to the senate foreign relations committee on Nov. 10, Sec. Marshall estimated that $7,500,000,000 would be required for the period between April 1, 1948 and June 30, 1949; an estimate of aid for China would be presented later. For interim aid, until March 31, 1948, he requested $42,000,000 for Austria, $328,000,000 for France, and $227,000,000 for Italy, a total of $597,000,000. Truman supported these requests in his message to congress on Nov. 17.

After lengthy discussions, a combined bill was passed on Dec. 15, by a voice vote in the senate and by a vote of 313–82 in the house of representatives, and signed on Dec. 17; the act authorized $597,000,000 in interim aid and omitted the allotment to China which had been voted previously by the house. In the appropriations bill, passed by both houses on Dec. 19, the total was cut to $540,000,000, of which $18,000,000 was allotted to China and the remainder to France, Italy and Austria.

On Dec. 19 Pres. Truman transmitted to congress his second message setting forth the long-range program of aid to European reconstruction. Designed to meet the needs of 16 countries and western Germany, the new program called for the allocation of $17,000,000,000 for the period 1948–51, in annual instalments. The first instalment, covering the period from April 1, 1948 to June 30, 1949, would require an appropriation of $6,800,000,000. (*See* also INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT.) (P. E. M.)

Evangelicals, National Association of: *see* NATIONAL ASSOCIATION OF EVANGELICALS.

Evatt, Herbert Vere

(1894–), Australian statesman, was born April 30, in East Maitland, New South Wales, and was educated at state schools; at St. Andrew's college, where he obtained his degree as doctor of laws; and at Sydney university, where he obtained his degree as doctor of letters. Dr. Evatt was admitted to the New South Wales bar and in 1925 was elected to the state parliament. He held the seat until 1929, and in the following year was appointed a justice of the high court of Australia.

In 1940 Dr. Evatt took the unprecedented step of resigning from the high court bench to contest Barton seat in the federal parliament. When the Labour party took office in Oct. 1941 he was appointed attorney-general and minister for external affairs.

Dr. Evatt visited London and Washington during World War II, represented Australia at the San Francisco conference, 1945; at the United Nations general assemblies in London and New York, 1946; at the Paris peace conference, 1946; and on the Far Eastern commission of which he was chairman of the policy committee. He led the Australian delegation at the United Nations general assembly, 1947, where he was elected chairman of the special committee on Palestine.

Events of the Year: *see* CALENDAR OF EVENTS, 1947, pages 1–16.

Exchange Control and Exchange Rates.

The expectations that economic recovery and monetary stabilization would make substantial progress in 1947 and that international trade and payments restrictions would be relaxed were not fulfilled. The dollar shortage proved to be the central problem; it was reflected in a huge surplus of about $9,000,000,000 in the U.S. balance of payments on current account and also in Great Britain's inability to maintain convertibility of sterling after it was introduced on July 15.

For those who thought that important steps would be taken toward convertibility of currencies and freer multilateral trade

in 1947, Great Britain's experience was a great disappointment.

In spite of political disturbances, economic difficulties and obstacles to international trade, however, official foreign-exchange rates of most countries remained remarkably stable. This was possible only because most countries maintained or tightened foreign-exchange and import restrictions.

United States.—The monetary position of the U.S. dollar remained extremely strong in spite of a continuous rise in prices which, although offset by inflationary conditions in a great many other countries, aggravated the dollar shortage. The great surplus in U.S. balance of payments was covered from the following sources: reduction of foreign-held dollar balances, sales of foreign-held dollar securities, import of gold, credits and grants given by the U.S. government and other credits and investments.

Dollar balances held by foreign countries fell from $6,467,500,000 on Aug. 31, 1946, and $6,006,500,000 at the end of 1946 to $5,437,300,000 on July 31, 1947. The greatest decline occurred in Canada's balances, from $931,800,000 at the end of 1946 to $563,700,000 on July 31, 1947. Several European countries, especially the Netherlands and France, sold substantial amounts of dollar securities in order to obtain dollar exchange.

Gold reserves of the United States increased from $20,529,000,000 at the end of 1946 to $22,747,000,000 on Dec. 20, 1947, or by $2,218,000,000. Since the United States paid $687,500,000 in gold as part of its subscription to the International Monetary fund the actual increase in gold sales to the treasury reached about $2,700,000,000—nearly double the value of gold produced in the same year.

But the main source from which the dollar deficit of many countries was met was U.S. aid, which in 1947 reached nearly $6,700,000,000. The total consisted of $2,850,000,000 disbursed from the United Kingdom loan, $1,000,000,000 of supplies for areas under military occupation, more than $860,000,000 disbursed from Export-Import loans, $430,000,000 of property transferred on credit terms, $390,000,000 of U.S. aid through the United Nations Relief and Rehabilitation administration (U.N.R.R.A.), $255,000,000 of special aid for Greece and Turkey, $190,000,000 of special grants and loans for the Philippines and nearly $500,000,000 from miscellaneous aid programs. In Dec. 1947 congress voted $597,000,000 as stop-gap aid to France, Italy, Austria and China; $522,000,000 of it to be allocated to the first 3 nations. (*See* EUROPEAN RECOVERY PROGRAM.)

The International Bank for Reconstruction and Development (*q.v.*) granted in 1947 loans totalling $497,000,000, to France, the Netherlands, Denmark and Luxembourg. At the end of October $252,000,000 remained as unused balance. Resources of neither the International bank nor the International Monetary fund, however, could be used or would be ample to overcome the great shortage of hard currency of many countries, especially in Europe.

Canada.—Canada, which appreciated the rate of its currency as of July 6, 1946, to bring it to parity with the United States dollar, and which emerged from World War II as an important lending country, also felt the dollar shortage, especially in the second half of 1947. The free rate of the Canadian dollar in New York was around 89 cents at the end of the year (or 11% less than parity).

In its current account with the United States prior to World War II, Canada customarily had deficits which were offset by freely convertible favourable balances with other countries, especially with the United Kingdom. In 1947 Canada's deficit in trade with the United States and other current items was estimated at about $1,200,000,000. Current account surplus with all other countries was estimated to be a little higher than the dollar deficit, but only a part of the former was paid in



EXCHANGE WINDOW for the sale of U.S. dollars in Shanghai. Speculation on the inflationary Chinese dollar hit panic proportions early in 1947. Its value was officially set at 12,000 to 1 U.S. dollar on Feb. 16

dollars, so that Canada was faced with the problem of paying its dollar deficit in spite of an over-all favourable balance of payments. It obtained around $550,000,000 in convertible exchange from countries other than the United States, a large part of it from the United Kingdom; but for the rest of the deficit Canada had to use its official and private reserves of U.S. dollars and gold to the amount of about $750,000,000. Canada's official dollar holdings declined to $480,000,000 on Nov. 13, 1947, at an annual rate of about $800,000,000. Out of relatively large credits granted to various countries, the amount of $500,000,000 remained for disbursement in 1948.

Faced with this difficult problem, Canada on Nov. 17 introduced import restrictions to curtail imports from the United States by $200,000,000. Restrictions on tourist expenditures were also established.

A credit line of $300,000,000 was arranged with the Export-Import bank. In order to increase its supply of dollars, Canada decided to stimulate gold production by granting subsidies.

Latin America.—The foreign-exchange situation of a number of Latin-American countries had become more difficult in 1947. The actual gold reserve of these countries declined from about $2,800,000,000 in Sept. 1946 to less than $2,000,000,000 in the latter part of 1947. Argentina, Mexico, Colombia, Chile, Peru, Bolivia, Ecuador and also Brazil lost parts of their gold and a substantial part of their dollar holdings, which had been used to a large extent for purchases of various goods not available during World War II. Whereas these countries had a favourable balance of trade with Great Britain and the European continent, they had an import surplus with the United States expected to reach $1,800,000,000 in 1947. Only Cuba and Venezuela, whose gold reserves had increased, and possibly Argentina, Uruguay, Colombia and Panamá could expect to continue imports from the United States at 1947 rates for some time.

Cuba, Mexico, Panamá, Guatemala and the Dominican Republic alone did not introduce foreign-exchange controls, but Mexico was obliged to resort to import restrictions. Most countries continued to maintain exchange restrictions. Although the controls helped in maintaining stable exchange rates, the pressure of the balance of payments and the dollar shortage led to further extension of restrictions, a greater use of multiple rates of exchange and, in some cases, also to a decline in the exchange rates.

A system of multiple-exchange rates was newly established in Ecuador. In June 1947 the use of the official rate of 15.04 sucres per U.S. dollar was limited to essential imports; importers of semiessentials had to pay an additional exchange surcharge of 5 sucres per dollar. In addition a free market was made avail-

able for importers of luxury goods, also subject to the five-sucre surcharge.

In Bolivia a preferential rate of 55.50 bolivianos per U.S. dollar was established for tin exports over the quantities prescribed.

Brazil, which had not announced the initial par value of cruzeiros to the International Monetary fund, experienced a shortage of dollars which led to further import and exchange restrictions, and also to a black market of foreign exchange with rates up to 20% more than the official rates.

In Chile the free rate of pesos, which was 39.93 per U.S. dollar in Dec. 1946, went up to 53.09 in Aug. 1947. The uncontrolled selling rate for Costa Rica's colon went up from 6.01 per U.S. dollar in Dec. 1946 to 6.27 in Aug. 1947. Paraguay's free-market rate for guarani increased from 3.12 in Dec. 1946 to 3.43 in Aug. 1947. In Peru the free rate, constant at 6.80 soles until the middle of 1946, went up sharply and reached 14.90 in Aug. 1947.

Uruguay began to apply the rate of 1.90 pesos per U.S. dollar to all transactions in the free market after July 1947, whereas before that time there was also a lower rate of about 1.78. In September a new buying rate of 1.70 pesos was created for the purchase of textiles.

The Dominican Republic organized a central bank and in October started to convert dollars to the new Dominican gold pesos. Approximately U.S. $26,000,000 of the country's legal currency was in circulation at that time.

The Sterling Area.—*United Kingdom.*—The problem of convertibility of the pound was perhaps the most important single factor in the international-exchange market during 1947. According to the Anglo-U.S. financial agreement of Dec. 6, 1945, the United Kingdom undertook by July 15, 1947, to make sterling receipts from current transactions freely available for current transactions in any area without discrimination; any discrimination arising from the so-called sterling area dollar pool would be entirely removed and each member of the area would have its current sterling and dollar receipts at its free disposition for current transactions anywhere.

The British government made various preparatory steps throughout the first half of 1947 in order to make the introduction of convertibility easier and to soften its great impact on the British foreign-exchange position.

In payment agreements concluded during this period the British had been working toward a situation under which all countries would agree to accept sterling freely in current transactions, in order to make it freely transferable to all other currency areas. By July 15, 1947, a large number of countries, including Britain's important trading partners in Europe, Latin America and also Canada, had entered into agreements under which their monetary authorities agreed to accept sterling freely in their so-called "transferable accounts" in London in payment for current international transactions. Sterling in such accounts could be drawn upon freely to other currency areas including the United States. The system of transferable accounts applied by July 15, 1947, to the following countries: Argentina, the Belgian monetary area, British Canada and Newfoundland, Czechoslovakia, Egypt and Sudan, Ethiopia, Finland, Iran, Italy, the Netherlands monetary area, Norway, the Portuguese monetary area, Spain, Sweden and Uruguay. The operations of these accounts were free from the British exchange control but subject to conditions stipulated in agreements between the United Kingdom and the countries concerned.

The system of transferable accounts extended the area of convertible sterling which already existed in "American accounts," for which the unrestricted convertibility of balances on current accounts had been established. The American accounts (the United States registered accounts) applied to the United States, the Philippines and the majority of Latin-American countries with the exception of Argentina, Brazil and Uruguay.

The convertibility of sterling was introduced on July 15, 1947, according to the agreement, but on Aug. 20 the United Kingdom government already had to suspend the automatic right which it had granted to various foreign monetary authorities to exchange sterling into dollars. The short experience demonstrated that the technical position of the pound, chiefly as a result of the British balance of payments, was not strong enough to stand the heavy demand on dollars coming from holders of current sterling balances. To avoid further heavy losses of its gold and dollar holdings the British government had to suspend the convertibility of its currency.

Development of the British dollar position was reflected in the rapid use of the U.S. credit. In 1946 only $600,000,000 of the credit was drawn upon, but $2,350,000,000 was used from Jan. 1 to Aug. 20, 1947. The remaining amount of $400,000,000 was temporarily frozen, to be released in December. On Sept. 1, Great Britain had about $2,400,000,000 of gold and dollar reserves and $450,000,000 remaining of the Canadian credit of $1,250,000,000.

In spite of the suspension of convertibility Great Britain's shortage of dollars continued. Gold had to be shipped to the United States, a substantial amount of dollars was bought from the International Monetary fund and the Union of South Africa granted Great Britain a gold loan of £80,000,000.

In 1946 the deficit in the United Kingdom current balance of payments was $1,660,000,000; but it was $1,400,000,000 in the first half of 1947, reaching probably $2,500,000,000 for the whole year of 1947. This dollar deficit actually was greater than the total trade deficit, because while a much greater share of British imports came from the hard-currency countries than before World War II, exports were for several reasons not oriented in the same direction.

The United Kingdom had to use dollars for its payments deficit not only to the United States and Canada but also to other countries. In the first half of 1947 it paid the United States $705,000,000 on its own current account; and it paid $115,000,000 for food that had to be sent to Germany. The payments to other countries included $220,000,000 to Canada, $255,000,000 to Central and South American countries, $270,000,000 to sterling area countries and $55,000,000 to European countries. Such payments were made mostly for supplies of goods, but some of them were the result of the settlement of sterling balances (Egypt, India, Iraq) and others represented dollars converted from sterling during the short period of convertibility.

After Aug. 20 the United Kingdom began to revise its foreign-exchange policy. In addition to introducing severe import restrictions estimated to save several hundred million dollars yearly, and to intensifying its export drive, it re-negotiated various payments agreements, including those with the sterling area countries.

The Sterling Bloc.—At the end of 1947 the sterling bloc consisted of the United Kingdom, the British dominions (excluding Canada and Newfoundland), British dependent territories and protectorates, Iraq, Trans-Jordan, Iceland and the Faeroe Islands. In July Egypt had formally withdrawn, and payments from the United Kingdom to Egypt thereafter became subject to normal exchange authorizations. It was agreed that out of accumulated sterling balances amounting to about £400,000,000, £8,000,000 was to be released in the second half of 1947. In addition, £12,000,000 was made available as a nonrenewable release to provide working balances. A further amount of £14,000,000–£15,000,000 was to be released as the counterpart of confirmed credits opened in London to Egyptian firms to finance imports from Britain.

The sterling balances held by the Reserve Bank of India amounted as of July to £1,178,400,000. An interim agreement was signed in August according to which £35,000,000 was released from the accumulated balance to cover the period until the end of 1947, and in addition £30,000,000 was released to serve as a working balance.

In the same month an agreement was also reached with Iraq, whose sterling balances totalled about £60,000,000. Five million was released as a "once-for-all" payment and a further £2,000,000 provided as a working balance. The main releases were to be £15,000,000 over the 5-year period. There would be releases of £4,000,000–£5,000,000 also to be provided by July to meet outstanding credits opened by United Kingdom banks and a sum up to £4,200,000 to cover repayments of advances made to the Iraq government by oil companies. Negotiations were also conducted on the settlement of sterling balances with Argentina and Brazil.

The total of accumulated sterling balances had been reduced between July 1, 1946, and Aug. 31, 1947, by £230,000,000, of which India accounted for £135,000,000. The whole problem was still a major factor in the United Kingdom balance of payments. In June 1947 the total of sterling balances was £3,560,000,000; £1,700,000,000 was either under control or being brought under control by voluntary blocking agreements; £400,000,000 belonged to Australia, New Zealand and South Africa, with which no formal agreements were required; £760,000,000 belonged to the rest of the sterling area and £500,000,000 was sterling belonging to the rest of the world, including countries in Europe.

Within the sterling bloc (renamed the "scheduled territories") sterling acquired from or to be used for current transactions could be transferred freely. Sterling could also be transferred to the sterling area from other countries. The important feature of the bloc was the pooling of dollar and other hard currencies earned by members and the reallocation of these currencies.

After the suspension of convertibility, financial agreements were negotiated between the United Kingdom and South Africa, Eire and Iraq. Provision was made that the Union of South Africa would bear full responsibility for its own dollar expenditure. An immediate gold loan of £80,000,000 replaced the existing gold sales contract following which South Africa undertook to sell certain annual quotas of newly mined gold to Britain and in exchange for this had access to the sterling area dollar pool. (It used $50,000,000 in the first half-year of 1947.) South Africa would sever its link with the sterling area dollar pool.

In the agreement with Eire, that country agreed to reduce substantially its drawing of dollars from the dollar pool and would obtain £14,000,000 for the period Oct. 1, 1947, to June 30, 1948, plus Eire's dollar earnings. Iraq was given a hard-currency quota of £5,570,000 per annum, to include Iraq's own earnings of hard currencies.

Obviously, the dollar crisis was felt also in Australia, New Zealand and India. Practically all members of the sterling bloc took some measures to reduce their need of dollars, and at the same time some of them tried to aid Great Britain by increasing exports of goods to Britain which otherwise could be bought only for hard currencies. Under new circumstances it was to be expected that Great Britain would have to revise some of the agreements with the so-called transferable account countries.

Such an agreement was renegotiated with Belgium in Sept. 1947. Belgium agreed to hold sterling up to a new ceiling of £27,000,000, of which up to £12,000,000 would have a bilateral exchange guarantee attached. Contrary to expectations the new ceiling of £27,000,000 was reached in little more than a month, and thus Belgium was in a position to offer sterling for conversion with gold or dollars under the agreement. It was agreed further that sterling currency earned by Belgium could be used only in transactions with the United Kingdom and not as before with other countries of the sterling area also.

The transferable account established in 1947 permitted sterling currently earned by Belgium and certain other transferable-account countries to be transferred between the Belgian, on the one hand, and other transferable-account countries, and the American-account countries on the other hand, subject only to supervision by the exchange control authorities of the countries concerned. Developments in the summer of 1947, however, forced Great Britain to abandon its concept of the transferable account and to go back to what for all practical purposes were bilateral payments agreements. At the end of 1947 the transferable-account system was in a state of disintegration, and for the time being its place would probably be taken by bilateral payments agreements with mutual overdraft facilities and exchange guarantee to which the United Kingdom was obliged to consent.

Continental Europe.—No great progress toward monetary

Foreign-Exchange Rates

Note.—Includes only currencies regularly quoted in New York during 1947. Averages of certified noon buying rates for cable transfers in cents per unit of foreign currency. The rates listed are mostly official rates; they were managed and supported by a strict and often tightening exchange control. Therefore, they did not always reflect the true exchange rates; neither were these properly reflected in the black-market rates.

The following members of the International Monetary fund had not yet announced the initial par value of their currencies: Brazil, China, Dominican Republic, Greece, Italy, Poland, Uruguay and Yugoslavia.

Country	Unit quoted and type of exchange	Annual average rate 1938	1945	1946	Monthly average rates, 1947 March	June	Oct.
Argentina	Peso						
	Official	32.60	29.77	29.77	29.77	29.77	29.77
	Special export	—	25.12	25.12	25.12	25.12	25.12
Australia	Pound	389.55	321.17*	321.34	320.91	320.90	321.19
Austria	Schilling	18.916	—	—	—	10.14	10.14
Belgium	Franc	3.38	2.29*	2.28	2.28	2.28	2.28
Brazil	Cruzeiro†						
	Official	5.84	6.06	6.06*	5.44	5.44	5.44
	Free	—	5.18	5.28			
Bulgaria	Lev	1.2424	—	—	—	.352	.352
British India	Rupee	36.59	30.12	30.15	30.16	30.16	30.17
Canada	Dollar						
	Official	—	90.91	95.20	100.00	100.00	100.00
	Free	99.42	90.49	93.29	94.21	91.59	89.98
Chile	Peso						
	Official	4.0	3.28	3.27	3.28	3.28	3.28
	Special export	—	4.00	4.00	4.00	4.00	4.00
Colombia	Peso	55.95	57.01	57.02	56.98	56.98	56.98
Czechoslovakia	Koruna	3.47	—	2.01*	2.006	2.006	2.006
Denmark	Krone	21.83	—	20.88*	20.86	20.86	20.86
Finland	Markka	2.1567	—	—	—	.74	.74
France	Franc	2.88	1.97*	.84	0.84	0.84	0.84
Hungary	Florin‡	19.727	—	—	—	8.58	8.58
Italy	Lira	5.26	—	.44*	0.40	0.10	0.28
Mexico	Peso	22.12	20.58	20.58	20.57	20.57	20.57
Netherlands	Guilder	55.01	37.93*	37.81	37.78	37.76	37.76
New Zealand	Pound	392.35	323.46	322.63	322.2	322.18	322.48
Norway	Krone	24.57	—	20.18*	20.16	20.16	20.15
Portugal	Escudo	4.43	—	4.05*	4.04	4.02	4.02
South Africa	Pound	484.16	399.05	400.50	400.75	400.75	400.75
Spain	Peseta	5.60	—	9.13*	9.13	9.13	9.13
Sweden	Krona	25.197	—	25.86*	27.82	27.82	27.82
Switzerland	Franc	22.87	—	23.36*	23.36	23.36	23.36
Turkey	Lira	80.11	—	—	—	35.75	35.75
United Kingdom	Pound	488.94	403.02*	403.28	402.73	402.72	403.10
Uruguay	Peso						
	Controlled	64.37	65.83	65.83	65.83	65.83	65.83
	Noncontrolled	—	55.16	56.28	56.26	56.26	56.20

*Average of daily rates for that part of the year during which quotations were certified.
†Prior to Nov. 1, 1942, the official designation of the Brazilian currency unit was the milreis.
‡Prior to 1946 the official designation of the Hungarian currency was pengö.

reconstruction was made in Europe during 1947. Open inflation continued in Greece, France, Rumania and Italy. Official exchange rates of some other countries were considered as overvalued in spite of the fact that the degree of their overvaluation was somewhat reduced by the continued price rise in the United States.

Exchange control was maintained in all European countries with the exception of Switzerland, which retained restriction only on purchases of dollars from sources other than from export and services.

Trade between European countries was carried mostly through bilateral payments agreements providing usually for overdrafts and thus making possible a certain expansion of trade. At the end of the year, however, the overdraft limits were reached on most of these agreements, so that a restriction in the volume of intra-European trade had become a distinct possibility.

Practically all European countries except Switzerland also felt the shortage of dollars. In 1947 the Marshall-plan countries alone had an estimated trade deficit with the United States of $4,000,000,000. During 1947 the monetary gold reserve of France, Belgium, the Netherlands and Sweden declined substantially. In the second part of the year all countries, again except Switzerland, tightened import restrictions for goods to be paid in hard currency. Sweden, which granted huge foreign loans in the first postwar period, found itself in increasing balance-of-payments difficulties resulting from its trade deficit with the hard-currency countries. Similarly, Belgium began to feel its trade deficit with hard-currency countries in spite of a favourable balance of trade with other countries.

An attempt was made to arrest reduction of intra-European trade caused by payment difficulties, by organizing a multilateral monetary compensation. Belgium, France, the Netherlands and Italy joined this system providing for an automatic offset of balances-on-payments agreements which would lead to a reduction of balances. Great Britain, Sweden, Norway and Denmark also joined as occasional members so that a multilateral offset could be arranged with them from case to case.

The Bank for International Settlements (*q.v.*) in Basle, Switzerland, was entrusted with administering the new organization. Although this multilateral offsetting of balances could bring some encouragement to intra-European trade, it could not remedy the basic problem that Belgium, Sweden and Switzerland had been the chief creditors while France, Great Britain, Denmark and the Netherlands were on the debit side.

Several countries took various measures to check inflation and to bring their exchange rate more in line with the level of prices and the balance-of-payments situation. Italy moved on Nov. 28, 1947, toward establishing a freer exchange market. In March 1946 Italy had introduced the so-called 50% system permitting exporters to retain or sell one-half of their hard-currency earnings on condition that it was utilized within a short period for the purchase of licensed imports. These percentages of foreign exchange were sold on a free market so that the exporters had to calculate with an average rate obtained from the official rate for 50% of the surrendered proceeds and the other 50% sold on the free market. In Dec. 1946 the official rate was 225 lire to the dollar, free export rate 568, average rate 397. At the same time the black-market rate was 683. In Aug. 1947 the official rate was increased to 350, and the free-export rate was quoted at 733, so that the average rate was 542. According to the new provision the foreign-exchange office would buy the 50% at the average free rate of the previous month. When the new system was announced, a provisional official rate of 589 lire, based on free-rate quotations of the preceding five days, was maintained until the total November average could be computed. For December the official rate was fixed at 603, while the free-export rate was only 567 and the black-market rate 578. The step taken by Italy could be considered as preparation for the final stabilization of the lira.

On Dec. 10 a new monetary measure was proclaimed in Austria, according to which the amount of money in circulation was reduced by two-thirds; correspondingly, the volume of deposits was also deflated. It was expected that the money in circulation would be reduced from about 6,000,000,000 schillings to 3,000,000,000 schillings.

Rumania took drastic anti-inflationary measures. On Aug. 16 the currency was converted at a rate of 20,000 of the old leu equal to 1 new leu. The dollar rate was fixed at 150 leu (the old free-market rate was 4,200,000 leu). Holders of notes were allowed to exchange only limited amounts. The rest, as well as the deposits, was frozen so that it amounted to the sequestration by the state of the cash holdings of the entire population. A shortage of money developed in relation to available goods.

Bulgaria also carried out a drastic monetary reform in March. The old bank notes were exchanged against new ones at the rate of 1 to 1, but all sums of more than 2,000 leva were temporarily blocked. The total monetary circulation of 71,000,000,000 leva was reduced to 24,000,000,000 leva.

In Poland, the official rate remained at 400 zlotys to the pound, but a new rate of exchange of 1,600 zlotys to the pound was established, applying to such transactions as assistance from relatives abroad, inheritance, allowances, etc.

Inflation had not yet been checked in Greece where, in order to overcome the handicap of high prices for Greek exports resulting from the overvaluation of the drachma, exporters after the middle of October received in exchange for the foreign-exchange proceeds of their export drachmas calculated at the official rate of 20,000 to the pound plus foreign-exchange certificates equal to the amount of the foreign exchange surrendered by them. These certificates had a free market and had to be bought by Greek importers, who had not only to pay drachmas at the official rate for the foreign exchange but also hand in an equal amount of foreign-exchange certificates.

The Soviet Union carried out a monetary reform following a pattern established in many countries in similar circumstances in the 19th century. The rubles in circulation had to be exchanged at the ratio of ten rubles in old money to one ruble in new money; this measure reduced radically the excess money supply in the Soviet Union.

No efficient measures were taken throughout 1947 to check inflation in France in spite of the fact that prices were rising, that the effect of the French franc being overvalued was evident and that the black market in foreign exchange became common in France. Only toward the end of the year did the French government attempt to take measures to balance the budget and prepare for a possible monetary reform in France.

Germany made no progress in monetary reconstruction, but the number of trade and payments agreements arranged between the various occupation zones and European countries greatly increased.

The Near East.—While the process of readjustment to peacetime conditions was in progress, the decline of prices which started in 1946 in some near east countries did not continue and prices became more stabilized. There was also a great need for dollars in the whole area, especially in view of the desire to proceed with economic development and import capital goods.

In July 1947 Egypt had withdrawn from the sterling area; the exchange rate of the Egyptian pound, however, remained unchanged and was still practically pegged to the pound sterling. The sterling balances represented by far the greatest part of Egypt's monetary reserve.

In Iran, whose foreign-exchange position remained strong, the free rate in rials to the dollar did not fluctuate greatly, remaining around 51.5 as compared with the official rate of 32.5. The free rate represented an average premium of around 59%. Most transactions were carried out at the free rate.

India.—The Reserve Bank of India act was amended so that the pound sterling would not be the sole determinant of the external value of the rupee. According to this act the rupee could be linked to currencies of members of the International Monetary fund so that it should be considered as an independent currency in spite of the fact that India remained a member of the sterling area. There was no immediate effect on the rate of rupees as expressed in sterling. In March exchange control was formally established. In December a financial settlement was arranged between India and Pakistan, dividing cash balances and sterling assets of the former empire, estimated at a value of £1,200,000,000.

Burma.—In April a central treasury office was established, qualified to issue notes and to take up functions previously served by the Reserve Bank of India. Burma's currency thereafter was no longer linked with that of India.

China.—Chaotic monetary conditions continued in 1947. In February the official rate for yuan per U.S. dollar was increased from 3,350 to 12,000. To ensure imports of essential commodities the official rate was retained for use of importers of cotton, wheat, rice, flour, coal and coke. All other authorized transactions were conducted at the open market, buying and selling rates being fixed by the Exchange Equalization board. The free-market rate rose steadily, reaching 49,000 in June and 90,000 in November. By that time official transactions were made on the basis of 73,000 yuan per U.S. dollar. No stabilization of China's currency was yet in sight. At the end of December the free-market rate reached 150,000; the official open-market rate, periodically adjusted, was about 40% less.

The Philippines.—The new republic was one of the few countries which did not feel the dollar shortage, especially because of U.S. contributions for war losses; these payments were expected to reach $2,000,000,000 within 5 years.

Japan.—The conversion rate of yen to U.S. dollar was fixed at 50 in March 1947.

Exchange Stabilization Funds.—Activity of the still-existing exchange stabilization funds was limited in 1947 because the basic method of stabilization technique could not be restored. It was also expected that the International Monetary fund would reduce the importance of national exchange stabilization funds. The existing funds acted merely as agents holding part or all of the external monetary reserves of the countries concerned and possibly carrying out special gold and foreign-exchange transactions in a generally controlled market.

The United Kingdom's exchange equalization account continued to hold the bulk of Britain's monetary reserve, which was around £500,000,000 toward the end of 1947. The nature and extent of the operations of the account were kept secret.

The French and the Dutch stabilization funds were reported to have continued buying and selling foreign exchange, but nothing particular was known of their operations.

During 1947 the United States stabilization fund continued the usual transactions on a moderate scale. After payment of $1,800,000,000 as the subscription to the International Monetary fund, the total assets of the U.S. stabilization fund amounted to only $298,900,000 as of June 30, 1947, compared with $2,091,400,000 on June 30, 1946. Between these two dates the foreign exchange holdings increased from $3,930,000 to $101,600,000; the main increase occurred in item "all other" from $3,000,000 to $100,970,000. This increase resulted from a purchase of Brazilian cruzeiros amounting to $80,000,000, according to the agreement with Brazil in which the fund agreed to purchase cruzeiros up to $100,000,000. The rest of the increase in foreign-exchange holdings of the fund consisted of Indian rupees. Between June 30, 1946, and June 30, 1947, the

gold holdings of the fund went up from $71,000,000 to $151,000,000, while the dollar holdings declined from $196,000,000 to $25,800,000.

On May 13, 1947, a new $50,000,000 stabilization agreement was concluded between Mexico and the United States. Under terms of this agreement the United States stabilization fund undertook for a period of four years commencing July 1, 1947, to purchase Mexican pesos to an amount equal to $50,000,000 for the purpose of stabilizing the U.S. dollar and the Mexican peso rate of exchange. (*See* also GOLD; INTERNATIONAL TRADE; TARIFFS.)

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Exchange Rates: *see* EXCHANGE CONTROL AND EXCHANGE RATES.

Exhibitions, Livestock: *see* SHOWS, ANIMAL.

Existentialism: *see* PHILOSOPHY.

Expenditure, Government: *see* BUDGET, NATIONAL.

Exploration and Discovery.

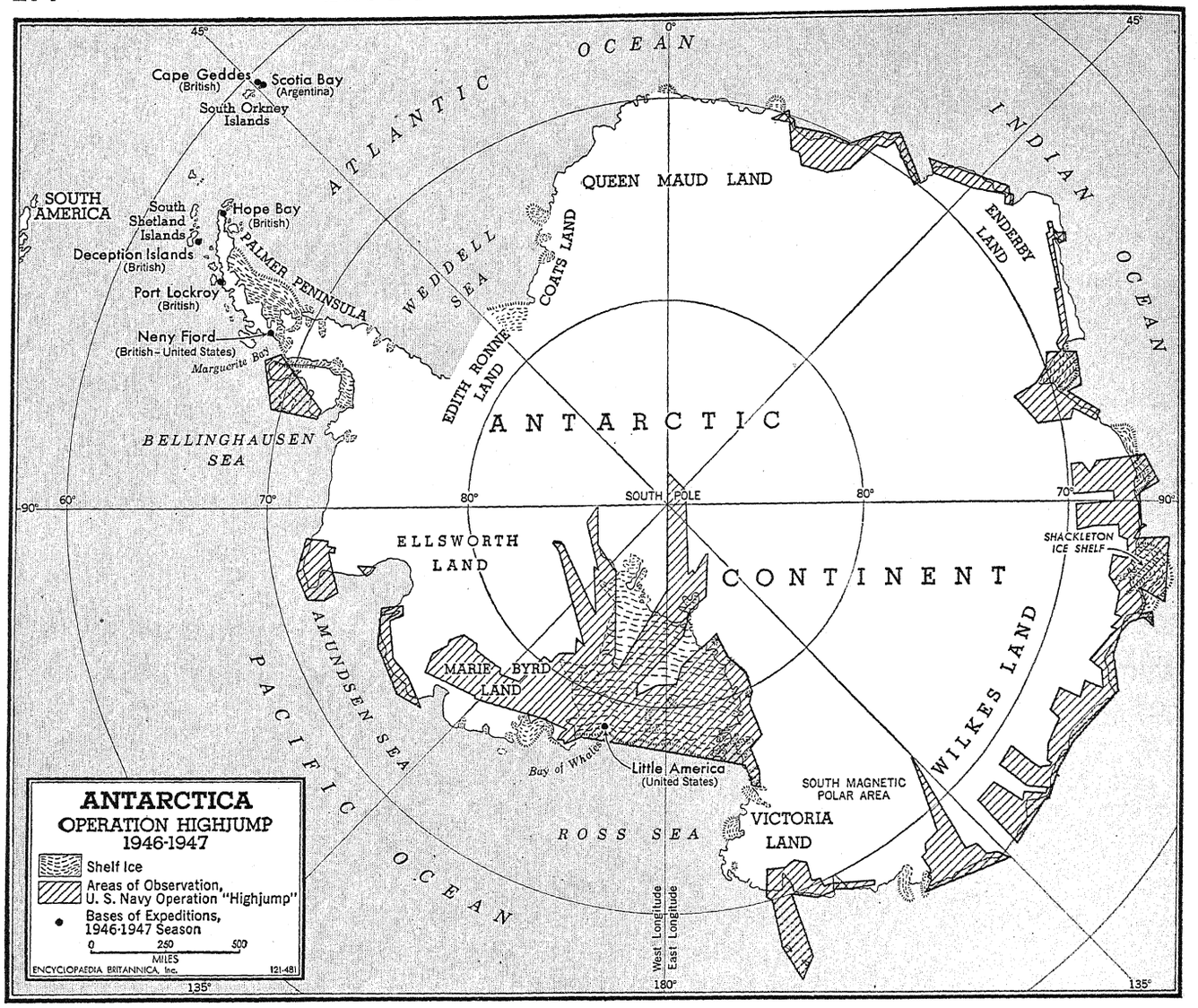
The major exploratory accomplishments of 1947 were made by expeditions in the antarctic.

Operation "Highjump."—This expedition of the U.S. navy which, from Dec. 1946 to March 1947, operated in three groups along the entire circumference of the antarctic continent, was reported by its leader, Rear Admiral Richard E. Byrd, to have discovered, relocated or confirmed 5,400 mi. of coast line, discovered ten new mountain ranges, including many large glaciers and individual peaks from 15,000 to 20,000 ft. high, and photomapped a vast area of which more than 340,000 sq.mi. had never before been seen.

Dr. Paul A. Siple, scientific aide to Admiral Byrd and senior U.S. army representative, had predicted, from his studies of ice movements in the Ross sea region during former expeditions to the antarctic, that a significant deformation in the outline of the Bay of Whales would occur in 1947 and might make the use of any large establishment there extremely hazardous. The Bay of Whales, destination of the central group under Rear Admiral Richard H. Cruzen, is a mere break in the face of the Ross shelf ice. It was created, Dr. Siple determined, by the shearing action of a submerged island overridden by the slowly moving Ross shelf ice about 20 mi. southeast of Little America. The northward streaming sheet of ice becomes fissured as it strikes the island, and a void or bight is formed in its lee. The eastern edge of the divided ice sheet, in curving around the obstruction, takes a westerly direction. As a result, although moving at the same rate, the sides of this bay are actually advancing at right angles to each other. In 1911 the shelf ice sides of the bay were 10 mi. apart; in 1929 they had narrowed the bay to 5 mi.; and upon arrival of the expedition early in 1947, the distance between the entrance capes was only 800 ft. The entrance was closing at the rate of 4.4 ft. per day.

MOUNTAINS believed to be part of the Andes range, as photographed in the antarctic from a U.S. plane in 1947. Glaciers are shown flowing through a mountain pass to the ice shelf below





To permit most expeditious use of the Bay of Whales by the ships of the central group, the U.S. coast guard cutter "Northwind" entered and broke out 15,000,000 tons of ice, or about 2 sq.mi. of bay ice, 5 to 20 ft. thick. An air strip was quickly established on the snow surface at Little America, and six R4D planes, launched from the deck of the carrier "Philippine Sea," flew in from its position outside the pack ice 800 mi. to the north. These planes, equipped with a combination of wheel and ski landing gear and using Jato (jet-assisted take-off) rocket propulsion tubes, were the largest planes ever to take off successfully from a carrier and subsequently from the improvised snow surface air strip. Their use permitted exploration of more than 800,000 sq.mi. of the continent, the discovery of three new major mountain ranges and, by means of air-borne magnetometers, the location of islands entirely hidden beneath the shelf ice.

The eastern group under command of Captain George J. Dufek, operating off the coast in the Amundsen sea, discovered and mapped extensive high mountain ranges and in 105° W. longitude reported a bay 20,000 sq.mi. in extent.

The western group under Captain Charles A. Bond found evidence that the actual position of the south magnetic pole was some 150 mi. northwest of its previously determined location. This group photomapped the coast line of Wilkes Land, and near the Shackelton shelf ice in 101° E. longitude made the spectacular discovery of a colourful area of snow and ice free land which was named the Bunger oasis. Described first as a series of blue and green fresh-water lakes of possible volcanic origin, analysis of the water revealed them to be arms of the sea which at favourable seasons were kept free from ice by reradiated solar heat from the blackened rock of the region. In 70° E. longitude, more ice free areas were found, including a bay 50 mi. deep which was stated to be potentially one of the continent's finest harbours.

Toward the end of March 1947, Operation "Highjump" returned to the United States where reports on the expedition's scientific projects were to be compiled.

Other Activities in the Antarctic.—By the end of Dec. 1947, a second U.S. navy expedition had returned to the antarctic, was operating off the Shackelton shelf ice in the region of the Bunger oasis and was transmitting daily radiophoto facsimile weather maps for a record distance of 10,580 mi. Under the leadership of Commander Gerald L. Ketchum, the expedition consisted of the ice breakers "Edisto" and "Burton Island" and was entirely ship based.

The general plan was to penetrate the ice pack and attempt what had been hitherto impossible; namely, to skirt the coast of the antarctic continent, keeping it in view from the region of 110° E. longitude to the Ross sea, and thence eastward to the Palmer peninsula. A stop was planned at the Bay of Whales to investigate conditions there, and the ships were going to attempt to reach the Ronne expedition base at Marguerite bay by March 1, 1948.

Pertinent scientific information would be collected in the regions visited in order to amplify observations made on Operation "Highjump." The primary objective of the expedition, however, was to establish ground control survey stations along the coast line in order to permit accurate interpretation of the vast number of aerial photographs taken on Operation "Highjump." The "Highjump" photographers, forced to fly over hundreds of miles of frozen sea and drifting floes before they saw land and confronted with other extremely difficult navigational problems, were often forced to leave gaps in an otherwise continuous coverage of the areas they were attempting to survey.

The Ronne Antarctic Research expedition, a small but highly competent U.S. group under Commander Finn Ronne (Rónn-uh), arrived on March 12, 1947, at Marguerite bay where the expedition ship was allowed to freeze in, and the base established on Stonington Island in buildings erected by Commander Ronne when he was leader of the east base of the U.S. antarctic service in 1940–41. Meanwhile, an 11-man base of the British Falkland Islands Dependencies survey was also established at Neny fjord on Stonington Island. Major K. S. Pierce-Butler and Commander Ronne immediately decided on a plan of co-operation and joint scientific work for the British and U.S. groups. Jointly operated outlying weather stations were established, and there was joint representation on the Weddell coast and other ground control parties of each group. On Sept. 15, three British fliers crashed off the Palmer peninsula in sudden foul weather. After nine days of intensive search by ground and air, they were rescued by a Ronne expedition plane.

Starting in late October, Commander Ronne made a series of highly successful trimetrogon photomapping flights in which, with the help of ground survey points established by his trail parties and by skilful plane landings, he delineated in its entirety all of the Palmer peninsula and the adjoining regions from 65° S. to 80° S. latitude and between 40° W. and 73° W. longitude. The facility with which the Ronne expedition completed its mapping schedule in a region hitherto regarded as one of the least accessible in the antarctic clearly indicates that accurate co-ordination with ground control is essential for mapping surveys even with the best of modern aerial photo equipment.

By the end of 1947, the Ronne expedition had mapped an area more than 460,000 sq.mi. in extent, had discovered and delineated the last remaining unknown coast line and had found evidence that the antarctic is a single continent undivided by any depression running between the Weddell and Ross seas. About 230,000 sq.mi. of the area surveyed consisted of newly discovered land. This new territory, extending south and west from the Weddell sea, was named Edith Ronne Land in honour of Commander Ronne's wife, who was also a valued member of the expedition and said to be the first woman to set foot on the antarctic continent.

British exploratory activities in the antarctic during the year 1947 were largely confined to the Falkland Island dependencies bases at Port Lockroy, Deception Island, Hope bay, Cape Geddes and Neny fjord. Long-range studies embracing the meteorology, geology, biology and other aspects of this sector were conducted from these observatories. Periodic relief and supply of them is often mistaken for new expeditions.

Early in 1947, an Australian survey flight was made to Macquarie Island where an observatory for research in cosmic rays, meteorology, terrestrial magnetism and radio-physics was set up. A similar station was later established on Heard Island in the Kerguelen region, and a third was planned for the antarctic continent in the vicinity of the south magnetic pole. The Union of South Africa also established a civil aviation and weather station on Prince Edward Island, 1,500 mi. southeast of Cape-town. Co-operative use of the network of stations so established was expected to facilitate long-range weather forecasting in the southern hemisphere.

Russia, Japan, the Netherlands, Great Britain and the Union of South Africa conducted whaling expeditions in the antarctic during 1947 and reported larger than average catches. British and Japanese news dispatches showed an increased interest in securing and freezing whale meat for direct human consumption, publishing recipes for its preparation and citing its high protein and vitamin value. (*See* also MARINE BIOLOGY.)

(D. CN.; P. A. SE.)

Explosions: *see* DISASTERS.

Export Controls: *see* INTERNATIONAL TRADE.

Export-Import Bank of Washington.

Created in 1934, the bank operates as an independent agency of the United States government under the Export-Import Bank Act of 1945, as amended. The bank has broad powers to do a general banking business and to make practically any type of loan in so far as the exercise of these powers is necessary to carry out its fundamental purpose of financing and facilitating the foreign trade of the United States. However, the policies of the bank restrict its operations to loans which offer reasonable assurance of repayment, which are for specific purposes, and which do not compete with private capital.

Following the termination at the middle of 1946 of its program of emergency reconstruction loans, the more normal operations of the bank in financing U.S. foreign trade came again to constitute its principal activities. The bank finances specific export and import transactions on application of United States exporters and importers where the nature of the risk involved is such that private credit cannot be obtained. It makes loans to assist in financing the export of United States materials and equipment required for development projects in foreign countries. It also arranges, in favour of foreign purchasers, credits which are available on equal terms to all qualified U.S. exporters for financing the sale of export staples such as raw cotton.

The total amount of loans authorized by the bank from the time of its establishment in 1934 increased from approximately $3,500,000,000 at the end of 1946 to $4,100,000,000 at the end of 1947. Disbursements during 1947 were approximately $864,000,000 and repayments were approximately $87,000,000. As a consequence, the outstanding loans of the bank increased from $1,242,000,000 at the end of 1946 to $2,019,000,000 at the end of 1947.

(A. MY.)

Exports: *see* AGRICULTURE; INTERNATIONAL TRADE; TARIFFS. *See* also under various countries.

Eye, Diseases of.

The threshold of response of the human eye to electric currents was investigated to determine the effect of adaption to the dark and to light upon it and to determine better electrosensitive structures. Exposure of the dark adapted eye to light caused an immediate definite increase in threshold but this fell in a few minutes as the dazzling effect of the light was lost. Sudden withdrawal of illumination from a light-adapted eye was followed by a rapid fall of electric threshold and then a slow rise as dark adaption occurred. This slow rise in threshold during dark adaptation indicated that the photochemical system at the back of the eye in the nerve is the point of excitation. A light intensity of about 0.004 foot-candle, which is so low that it only stimulates the rods, reduces the electric threshold of the eye.

When a person is at complete sensory and mental rest, a

rhythmic series of discharges is observed in the electroencephalogram. A light stimulus suppresses this rhythmic discharge after a latent period, and it was thought that this latent period —the blockage interval—includes the time taken by the nervous impulses initiated in the retina to reach the cerebral cortex. If the time elapsing between the incidence of light on the retina and the initiation of a discharge in the optic nerve were known, the time required for conduction through the optic pathways could be determined by subtraction from this blockage interval. The electroretinogram would probably provide this information, since the positive b-wave in this record was shown to be closely linked with the discharge in the optic nerve; the latent period of the b-wave—the time elapsing between the incidence of light on the retina and the beginning of the upward sweep of this wave—is thus a measure of the time consumed by the retinal events (photo-chemical reaction, etc.) leading to the optic nerve discharge—the retinal latency. Blockage interval minus retinal latency gives the conduction time in the optic pathways.

In a normal person the average blockage interval was 169 msec. (0.169 sec.) with a foveal light stimulus, a figure agreeing well with other values when allowance was made for the different conditions and strength of light stimuli. The average retinal latency, with a foveal stimulus, was 45 msec. The average conduction time in the normal person was thus 169 msec.−45 msec.=124 msec. The conduction time in an individual suffering from partial destruction of the optic nerve may be three times as variable as in the normal individual.

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Facsimile: *see* RADIO; TELEGRAPHY.
Falk Foundation, The Maurice and Laura: *see* SOCIETIES AND ASSOCIATIONS.
Falkland Islands: *see* BRITISH EMPIRE.

Famines. Food shortages caused by crop failures, droughts, floods, insect and plant disease were relatively few in 1947. Hunger and deaths in limited areas were held at a minimum by world-wide food distribution agencies, including U.N.R.R.A., the various occupation armies and the Red Cross, and by special government actions. Former famines were largely the result of difficulties of transportation and supply because of the lack of railroads and other transportation facilities. The quick emergency transport provided by the aeroplane now enabled supplies to be moved promptly in an emergency. More important was the realization by governments of their responsibility in anticipating and forestalling shortages. Much of this new attitude grew out of the world-wide activities of U.N.R.R.A. as well as the work of the Combined Food board, the International Emergency Food council and the rapidly expanding plans of the Food and Agriculture organization of the United Nations.

The actual number of deaths in 1947 from malnutrition was variously estimated at from 1,000,000 to 10,000,000. Mortality in India, China, southeastern Asia and Europe was believed to have doubled over the prewar average. Poverty rather than actual scarcity was often the primary factor. Many areas were supplied by U.N.R.R.A. in which a part of the needy population was unable to get an adequate share of the supplies.

World food production as a whole was recovering slowly, but with marked declines in some areas normally deficient in local production. The most severe shortage was in the rice crop of the far east, where exportable supplies were below 1946. Since diets were abnormally low even for this area, imports were essential to prevent widespread starvation. Steady increases of population added to the difficulty of maintaining even subnormal supplies. The emergency measures adopted by the United States government in December and the prospect that more might be done under the Marshall plan were believed by many to be the principal safeguard for Europe, but the political disturbances and the near revolutionary situations in India and China made it probable that large numbers of people would find themselves without adequate supplies. (J. C. Ms.)

Far Eastern Commission: *see* JAPAN; REPARATIONS.
Farm Co-operatives: *see* FARM CREDIT ADMINISTRATION.

Farm Credit Administration. Farmers and ranchers in the United States and Puerto Rico and their business co-operatives obtained loans totalling $1,625,615,000 in 1947 from the institutions and associations operating under the supervision of the Farm Credit administration. This compares with $1,320,077,000 in 1946. These loans were used to finance farm and ranch operations, to improve and purchase farm land, and to finance farm co-operatives through which farmers market their products and obtain farm supplies and farm business services.

In the year, the amount of credit needed in farm operations increased, largely because of higher costs, changes in types of farming, the construction of needed buildings and the buying of farm equipment. In general, farming was readjusting to the postwar period.

The Farm Credit administration operates through 12 district offices, and local co-operative credit associations. Farmers obtain production or operating credit from local production credit associations and long-term farm mortgage credit through local national farm loan associations. Farmers' business co-operatives deal directly with the bank for co-operatives of the district in which the co-operative is located or, if a co-operative of large regional scope, with the Central Bank for Cooperatives.

The production credit associations operating in all agricultural counties in the United States and in Puerto Rico provided credit in 1947 for 251,000 farmers, totalling $757,611,000 compared with $614,613,000 in 1946. Membership in the more than 500 local associations was 408,000 on Dec. 31, 1947, compared with 383,000 on the same date in 1946. The credit extended by the production credit associations was used to buy seed, feed, fertilizers, material for repairs and the many other items needed in farm operations, including labour.

Long-term or farm mortgage credit was obtained through about 1,000 national farm loan association offices operated co-operatively by farmers in the United States, and in Puerto Rico directly from the Baltimore Federal Land bank. Farm Mortgage loans amounting to $149,370,000 were closed in the year. The total included 30,609 federal land bank loans for $138,764,000, and 11,379 land bank commissioner loans for $10,606,000. The authority to make commissioner loans, authorized in the early 1930s when emergency farm mortgage credit was needed, expired on July 1, 1947. In the year, 49% of the land bank loans and of the commissioner loans closed in the first six months of the year were for purchasing farm land.

Farmers' co-operatives—marketing, purchasing and business service associations—obtained $590,197,000 from the 13 banks for co-operatives in the year compared with $458,151,000 the previous year, reflecting a high level of business activity. This financing included advances under the Commodity Credit corporation program.

The 12 federal intermediate credit banks extended credit to production credit associations, privately capitalized credit institutions, including commercial banks, and to banks for co-operatives and farmers' co-operative associations in the total amount of $1,253,123,000 in 1947, which was 22.6% more than in the previous year.

During the year, the system made notable progress toward member-ownership, with the federal land banks becoming completely borrower-owned through repayment of the last of the capital and paid-in surplus subscribed by the government in the depression days of the early 1930s. Further progress toward member-ownership was made by the production credit associations and 31 of these associations were borrower-owned. Capital stock owned by members of all production credit associations went from 45.3% of the total on Dec. 31, 1946, to 57.2% at the close of 1947. Farmers' co-operatives owned $13,017,000 in stock in the 13 banks for co-operatives on Dec. 31, 1947, compared with $8,472,000 a year earlier.

At the end of 1947, borrowers—farmers and farmer co-operatives—had a net investment in capital stock in production credit associations, national farm loan associations, federal land banks and banks for co-operatives of $116,460,000. (I. W. D.)

Farm Debt: *see* AGRICULTURE.

Farmers Home Administration.

The first farm-purchase loan under a new farm mortgage insurance program of this agency of the U.S. department of agriculture was made in Americus, Ga., in a public ceremony Oct. 3, 1947. A 49-year-old farmer who had never owned land of his own borrowed from a local bank 90% of the purchase price of a 150-ac. farm, and the Farmers Home administration insured the loan. He would have a maximum of 40 years to complete his payments, and his annual charge (interest and insurance) on the unpaid balance would be 3½%.

This event marked the opening to private lenders of the government's farm ownership program created by the Bankhead-Jones Farm Tenant act of 1937. Both direct loans from federal funds and mortgage insurance covering private loans are available to tenants, sharecroppers, farm labourers, and to qualified war veterans, for the purchase, enlargement or development of family-type farms. Veterans have preference over other applicants for real estate credit or insurance.

In the ten years after direct lending was begun under the farm tenant act, more than 47,000 families thus had become farm owners. Of them 16% had paid their loans in full from their income, 30 years or more ahead of payment schedules.

The Farmers Home administration began operations Nov. 1, 1946, as the successor of the Farm Security administration and of the emergency crop and feed loan division of the Farm Credit administration. In addition to making and insuring farm real estate loans, the agency extends operating credit for livestock, equipment, feed, seed, fertilizer and other essentials, and in the 17 western states lends for water facilities on family-type farms and ranches. It lends only to families who are not able to borrow elsewhere on reasonable terms, and furnishes individual, on-farm guidance to the borrowers in sound management and methods.

Demand for these services continued heavy in 1947, both from veterans getting established in agriculture and from other farm families. By Nov. 1, 3,260 direct farm ownership loans amounting to $25,522,664, and 158,432 operating loans amounting to $79,859,764 were made. In the water facilities program, 674 families and 10 associations borrowed $956,130. About 40% of all the money loaned during the ten months went to veterans.

The cumulative record of assistance to returned servicemen by this agency and by the Farm Security administration shows that by Nov. 1, 1947, more than 58,000 veterans had borrowed $75,800,000 for farm operating needs, while 5,293 had borrowed about $41,000,000 to buy, enlarge or develop farms.

(D. B. L.)

Farm Income: *see* AGRICULTURE; INCOME AND PRODUCT, U.S.

Farm Population: *see* AGRICULTURE; CENSUS DATA, 1947.

Farm Security Administration: *see* FARMERS HOME ADMINISTRATION.

Fascism.

In 1947 a slight revival of fascist forces was noted in Italy. While *Il Fronto del' Uòmo Qualunque* (The Front of the Common Man) movement under the leadership of Guglielmo Giannini which had rallied fascist sentiment in 1946 disintegrated, new men and movements came to the fore, like Emilio Patrissi, who published a paper *L'Ora d'Italia,* and the *Movimento Socialle Italiano,* a movement which stressed above all the proletarian and socialist revolutionary features inherent in fascism and published a paper called *La Rivolta Ideale.* The fascist groups in Italy were, however, so far too loosely organized and disunited without any central leadership to present a serious problem. They fed, like the communists, on the general dissatisfaction prevailing in Italy. On Oct. 28 Giannini resigned the presidency of the *Uòmo Qualunque* because his flirtations with communism had brought him into conflict with the majority of his group led by Enzo Selvaggi. The 25th anniversary of the march on Rome that put fascism into power passed without any major demonstrations. Even less organized, though undoubtedly persistent, was the surviving fascist sentiment in Germany, which remembered the "glorious days" of the Hitler regime when Germany aspired to world domination.

An outspoken fascist regime was in power in Spain under Gen. Francisco Franco. The United Nations maintained its strictly negative attitude to this regime, the representatives of which did not participate in any of the international activities and functions nor were they invited to participation in the Marshall plan. On July 6 the Spanish government held a referendum in which the men and women of Spain voted on Gen. Franco's regime. As in all other totalitarian systems, the vote resulted in an almost unanimous approval of the regime.

There was also some revival of fascist activities under Sir Oswald Mosley in Britain. The anti-Semitism which his followers propagated fed especially on the assassination of British soldiers by Zionist terrorists in Palestine. On Sept. 18 the London Trades council asked the British home secretary for legislation making all fascist organizations and activity illegal and for Mosley's arrest. The home secretary replied that expression of opinion in Britain was free but that it must not amount to sedition. The preaching of racial and religious hatreds could be sedition, and in that case appropriate action would be taken. He believed that the existing powers were sufficient. The pro-fascist organizations were most carefully watched. Should future developments show any defect in the law, the government would consider amendments.

The regime of President Juan Perón showed many elements of totalitarian regimes. President Perón on July 6 pledged his co-operation with other peace loving nations to aid the world toward a secure peace and asked for "the eradication of capitalistic and totalitarian extremism, whether of the right or of the left." He pleaded for a world in which "crude exploitation, destruction, hatred and social injustice shall be forever banished." This speech was broadcast throughout the world in many languages and was made a compulsory discussion subject



Above: SMOKY GRAY VELVETEEN skirt worn with a ruffled white blouse, a popular fashion note in 1947



Above: THE "CABARET" DRESS, featuring extreme decolletage, as introduced by Dior in 1947

Below: THE NEW LENGTH domino coat widely shown in 1947



Below: STRAPLESS CLOQUE TAFFETA evening dress



in Argentine schools. President Perón was especially popular with the workers for his Declaration of the Rights of the Worker and his many measures of social security and for raising wages. Colonialism for Argentina was being ended by the buying out of the foreign owners of public utilities. In this process of furthering economic democracy, political democracy suffered in Argentina. Outward manifestations resembled those of other totalitarian countries. The rhythmic shouts of "Tito!" in Yugoslavia were matched by "Perón!" in Argentina, and huge portraits of the president became as much used as similar portraits in the eastern European states. Attempts were also made to subject the universities to governmental control, but greater freedom of protest and counteraction remained than in totalitarian countries. (*See* also ANTI-SEMITISM; ARGENTINA; COMMUNISM; DEMOCRACY; GERMANY; ITALY; RUMANIA; SPAIN.)

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Fashion and Dress.

In 1947 fashion made headlines. Never, since the short-skirted era of the '20s, had there been so much discussion of women's dress. In the spring openings in Paris, a new couturier, Christian Dior, opened his dressmaking house and his designs sent an electric shock into the fashion picture. They crystallized and dramatized a trend that had started before World War II, but was interrupted by the exigencies of wartime conservation. Instead of the square-shouldered, flat-hipped, straight-skirted line that had been in fashion for a decade, the new silhouette called for natural, sloping shoulders, tiny waists, rounded hips, often padded to increase the natural curve. Day skirts were longer; evening skirts shorter. Suit skirts hit new lows—averaging about 12 in. from the floor. Many of the new evening dresses were cut ankle length or shorter. In U.S. summer sports fashions the silhouette was interpreted in full-skirted cotton dresses, made in various pale shades. But the new fashion did not become a general fashion until the autumn. In September the "New Look," as it was dubbed by the press, became front-page news. Autumn suits had fitted jackets, shoulders unpadded or lightly padded. Some of the jackets had peplums padded with buckram to emphasize the little waist and the rounded hip. Some skirts were cut straight, but the newest had fullness, created by unpressed pleats, sunburst bias pleats or by a circular cut, which sent the skirt spinning when in motion. The style was hotly debated. Advocates of the "New Look" compared the new suits with the Currier and Ives skating girls; opponents thought the shoulders droopy and mourned the disappearance of legs. But the "New Look" won out. Femininity had crept into fashion. Every natural curve in the woman's figure was accented. The shorter evening dress was built on the same lines. But whereas in past years, the informal dinner dress was almost invariably black, now black had a rival. Coloured slipper satins were widely used—pale blue, cat's-eye green, burgundy, cocoa, steel gray. Instead of black taffeta there was a wave of brown taffeta. Meanwhile, debutantes continued to wear full-length dresses for dancing—huge-skirted ball gowns in the romantic tradition, often strapless, and worn with long court gloves pulled well above the elbow and glittering rhinestone tiaras. In Europe fabric industries began to revive. French and Italian silks, and Swiss silks and embroidered organdies, again flowed to the United States. England, in a drive to step up exports for foreign exchange, contributed fine woollens.

Hats took many turns, but in general continued to be small, complementary to the silhouette. In the autumn these hats began to tip impudently over one ear; pill boxes and berets in bright red velvet, cocked well to one side, became a popular fashion. The desire for a tiny waist begot a new kind of undergarment—girdles specially shaped to accent the womanly curves, waist bands and boned bodice-brassieres to flatten the midriff and cinch in the waist.

The flat-heeled, ballet-type shoe did not disappear; but the season saw more high-heeled slippers, with closed toes and ankle straps built up and up to decorate the leg, now revealed by shorter evening dresses. Cultured pearls were sold in great numbers and once again women wore long chains of pearl beads, a revival of a fashion of the '20s. Dog collars and necklaces made of huge solitaire rhinestones were worn with evening dresses.

From the French Riviera came news of shocking bathing suits, reduced to the bare minima—a tiny brassiere and a diaper drape tied on either hip. But in America, bathing girls went back to an old beach fashion—the one-piece maillot made in white or in brilliant colours and dazzling California prints.

In the year of 1947, when a large part of the world was strictly rationed or wearing old clothes mended for the last time, it is curious to note that fashion did a loop-the-loop and decided to escape from reality. A *fin de siècle* elegance, extraordinary luxury and a determined romanticism characterized the year's creations, even those that came from the designers in Europe. (*See* also FURS.) (C. SN.)

FBI: *see* FEDERAL BUREAU OF INVESTIGATION.

FCA: *see* FARM CREDIT ADMINISTRATION.

FDIC: *see* FEDERAL DEPOSIT INSURANCE CORPORATION.

Federal Bureau of Investigation.

During the 1947 fiscal year ending June 30, there was a sharp increase in FBI activities aimed at protecting the internal security of the United States and safeguarding the rights and civil liberties of its citizens. The Atomic Energy act of 1946 placed upon the FBI responsibility for determining the character, associations and loyalty of employees of the Atomic Energy commission and of other persons having access to restricted atomic energy data.

Significantly increased activity in several major criminal categories was apparent during 1947. FBI investigations resulted in 11,812 convictions representing 96.8% of all cases brought to trial. In FBI cases, sentences totalling 27,210 years, 8 months, were meted out. Fines, savings, recoveries and claims adjusted in favour of the government amounted to $63,638,153.

Results of investigations in several of the specific categories during the fiscal year were as follows:

Bank Robbery.—There were 105 convictions for bank robberies, burglaries and larcenies in violation of the Federal Bank Robbery act resulting in sentences totalling 1,081 years, 5 months. Fines and recoveries amounted to $131,407 and 33 fugitives were located. During the year 96 bank robberies, 79 bank burglaries and 26 bank larcenies within FBI jurisdiction were reported.

Crime on the High Seas.—Investigating crimes committed on the high seas within the admiralty and maritime jurisdiction of the United States and outside the jurisdiction of a particular state, the FBI secured 440 convictions. Sentences totalled 320 years, 6 months; fines, savings and recoveries aggregated $10,344. Eighteen fugitives were located.

Extortion.—Sentences totalling 242 years, 2 months, were given and fines amounting to $1,200 were assessed for violations of the Federal Extortion statute. Twenty-one fugitives were apprehended.

Federal Reserve Act.—More than $4,250,000 was involved in the 398 cases of possible embezzlement reported by banks covered by the act. There were 114 convictions resulting in sentences totalling 369 years, 11 months. Fines of $86,301 were levied; savings and recoveries amounted to $553,525.

Fraud against the Government.—Cases in this category included primarily frauds perpetrated in connection with the war effort and those arising from the disposal of war surpluses. The number of investigations of the latter type had steadily increased since passage of the Surplus Property act in 1944. Prosecutions during the 1947 fiscal year resulted in 333 convictions with sentences of 370 years, 8 months. Fines, savings and recoveries amounted to $2,862,611, and 9 fugitives were located.

Kidnapping.—All 26 kidnappings reported during the year were solved. In the previous fiscal year there had been only 13 recorded. Cases brought to conclusion during the 1947 fiscal year resulted in 40 convictions with sentences of 386 years and 2 life terms.

Motor Vehicle Theft.—Recoveries of stolen motor vehicles transported interstate in connection with National Motor Vehicle Theft act investiga-



IDENTIFICATION division of the Federal Bureau of Investigation, where more than 104,000,000 fingerprints were on file in June 1947

tions far exceeded those for any prior year. There were 12,324 stolen vehicles valued at $11,336,642 recovered. Sentences totalling 12,991 years, 3 months, and fines amounting to $29,735 were assessed as a result of 4,668 convictions in this category. During the prior year only 3,614 had been convicted. There were 698 fugitives located in the 1947 fiscal period.

Renegotiation Act Claims.—Renegotiation act civil cases arose from suits by contractors for amounts refunded by them under protest as excessive profits when their war contracts were renegotiated by a War Contracts Price Adjustment board. Such claims investigated by the FBI during the 1947 fiscal year resulted in adjustments in favour of the government amounting to $38,876,100.

Selective Service.—During the 1947 fiscal year, convictions totalled 1,216, with sentences aggregating 1,861 years, 4 months. Fines amounted to $108,878, and 1,065 fugitives were located.

Theft from Interstate Shipments.—The high level of investigations and convictions experienced in the previous fiscal year was exceeded in 1947; 1,210 convictions resulted in sentences of 2,532 years, 6 months, and a total of $672,153 in fines, savings and recoveries. There were 108 fugitives located.

Theft of Government Property.—Prosecutions for violations of the several federal statutes covering theft, embezzlement or illegal possession of government property resulted in 1,263 convictions and sentences of 2,280 years, 3 months. Fines totalled $145,178 and recoveries $396,067; 72 fugitives were located.

Treason.—One conviction for treason was recorded. In July 1947 the defendant was sentenced to life imprisonment and a $10,000 fine was assessed.

White Slavery.—The 209 convictions constituted a marked increase over the 169 recorded in the preceding fiscal period. Sentences imposed totalled 614 years, 6 months, and fines aggregated $33,400. Ninety-five fugitives were located.

FBI Laboratory.—Scientific examinations in the FBI laboratory totalled 73,753. Specimens of evidence examined numbered 63,336, of which 46,293 were submitted in connection with FBI cases and 1,893 were received from other federal agencies. Nonfederal agencies, principally local and state police who received this service free of charge, submitted 15,150 specimens.

Identification Division.—On June 30, 1947, there were 104,696,999 fingerprint cards in the files of the Identification division, 3,329,937 of which were received during the 1947 fiscal period. Of the prints in file, 16,786,862 represented the arrest records of criminals and suspects.

Police Training.—At the request of local authorities, the FBI conducted and participated in 1,785 general police-training schools attended by approximately 89,250 officers. Specialized training was afforded to 8,850 other officers attending 157 strategically located schools. Twelve statewide administrative schools were attended by approximately 1,500 police executives and officials. During the year 449 law enforcement conferences sponsored by the FBI were attended by more than 31,000 officers. (*See* also CHILD WELFARE; CRIME; JUVENILE DELINQUENCY; KIDNAPPING; POLICE; SECRET SERVICE, U.S.) (J. E. H.)

Federal Communications Commission.

Radio developments in 1947 had particular international as well as domestic significance.

Of major importance were agreements reached by 78 nations represented at the International Telecommunications conferences held in the United States. In the first assembly of its kind after the beginning of World War II, these sessions rewrote the Madrid Convention of 1932 and the Cairo Regulations of 1938. The results were expected to ensure more economical and uniform use of frequencies, with due recognition of electronic and other developments.

The demand for domestic radio facilities continued unabated. Besides broadcast and other familiar services, radio was being used to supplement, even replace, telephone and telegraph wire lines. The public could converse to and from moving land, sea and air vehicles. Radar and other wartime devices, adapted for peacetime use, were proving invaluable to marine and aviation navigation. It had even become necessary to provide frequencies for medical diathermy and industrial heating equipment, whose emissions would otherwise interfere with communication services.

Licences and other authorizations outstanding with the Federal Communications commission approximated 575,000. This figure included 120,000 radio stations in 40 categories, including 4,000 broadcast, 40,000 nonbroadcast and 80,000 amateur stations. In addition, there were 340,000 commercial radio operators, 85,000 amateur operators and 35,000 special aircraft authorizations.

In the broadcast field, the number of licensed standard (amplitude modulation or AM) stations approximated 1,500, with about one-third that number additionally under construction. The situation in AM caused the commission to make an economic study of standard broadcasting, which was released Nov. 4.

Frequency modulation registered its greatest advance, with more than a thousand FM stations licensed or authorized, of which number more than 300 were on the air. Service to more than 500 communities throughout 47 states was in prospect. There was a spurt in FM receiver production, and devices were available to enable AM sets to receive FM broadcast.

Authorized television outlets exceeded 70, with service projected for 40 cities in 25 states. The commission, after extensive public hearings, concluded that further experimentation was necessary before colour television could be commercialized. More than 60 stations were engaged in this and other television experimentation.

Facsimile operation was still experimental pending agreement by broadcasters and manufacturers on standards of equipment and processes.

The nonbroadcast services grew in types of services as well as in number of stations. Most of these were devoted to the protection of life and property. The largest group comprised the amateurs. Next in numerical order came aeronautical, with 16,000 stations, followed by 11,000 ship and other marine stations; 3,500 police stations; 3,000 experimental stations; 2,000 public utility stations; 650 forestry stations; 340 provisional stations; 130 special emergency stations; more than 100 stations each for the railroad and geological services; also stations for fire departments, relay press, motion picture, state guard and various other purposes.

Authorizations for some of these services covered the use of many mobile units. For example, 25,000 radio-equipped vehicles

were testing two-way radiotelephone service. Short-distance communication for industries and citizens was contemplated.

Radio was also being utilized to connect isolated places with the telephone system. In some rural areas telephone messages were "hitch-hiked" over local electric power lines. Coaxial cable and microwave relay were supplementing wire systems between certain large cities, besides holding promise for FM and television network operation.

Radiotelephone contact was available with 63 countries, and 90 foreign points had direct radiotelegraph service. (*See* also RADIO.) (P. A. W.)

Federal Council of the Churches of Christ in America.

In 1947 two new areas of service were entered by the council, marked by the creation of the department of the church and economic life and the department of pastoral services. A national study conference on the role of the church in economic affairs was held in Pittsburgh, Pa., in February, attended by 300 delegated representatives drawn from the ranks of management, labour and agriculture as well as from the clergy. The department of pastoral services inaugurated a two years' survey and study of the ministry of the church to older people.

Overseas reconstruction and relief constituted a major interest, carried on through Church World Service, Inc. Food, clothing and other supplies were raised by the co-operating churches and distributed in Europe and Asia by the churches to the value of approximately $1,000,000 per month.

In the educational field, strong emphasis was placed on work in behalf of world order. A statement on "Soviet-American Relations" received wide attention. The Commission on a Just and Durable Peace, headed by John Foster Dulles (*q.v.*), was merged into a permanent department of international justice and goodwill.

The problems of the rural community received attention in a National Convocation of the Rural Church held in Rochester, N.Y., in November. Local conferences on problems of family life were held widely. Interracial "clinics" were a feature of the council's social work program, designed to bring about co-operation between white and Negro groups in community life.

At least one religious program was broadcast over a national network throughout the year. The department of evangelism gave leadership to a series of Christian missions in college and university centres.

An office was maintained in Washington, D.C., for the purposes of providing the churches with fortnightly information about governmental and legislative matters of interest to religious workers.

A new office was opened in Atlanta, Ga., concentrating its efforts on assisting southern communities to form councils of churches for co-operative service.

Co-operating with the Federal council were 600 local and state councils of churches in all parts of the country. The council was also closely, though unofficially, linked with the World Council of Churches, in process of formation. The Federal council was host to several distinguished church leaders from other lands, including Pastor Martin Niemoeller and Bishop Otto Dibelius of Germany.

In Washington, D.C., a building was acquired, through the work of the General Commission on Chaplains, as a memorial to the Protestant chaplains in the army and navy who lost their lives in World War II and also as a permanent office for the activities of the churches in behalf of the chaplains.

The council in 1947 was made up of 25 national denominations—22 from the Protestant, 3 from the Eastern Orthodox family. Their combined membership was 28,000,000.

Information Service was published weekly and the *Federal Council Bulletin* monthly.

Headquarters were at 297 Fourth avenue, New York city, N.Y. The officers during the year were: president, Charles P. Taft; vice-president, Bishop John S. Stamm; treasurer, Harper Sibley; general secretary, Rev. Samuel McCrea Cavert.

(S. McC. C.)

Federal Deposit Insurance Corporation.

During the calendar year 1947, as during the two preceding years, no bank depositor in the United States experienced a loss as the result of banking difficulties. No insured bank had been placed in receivership from May 1944. During the calendar year five banks received an advance from the Federal Deposit Insurance corporation which facilitated the merger of each bank with an insured solvent bank.

During the year the corporation began retiring its original capital stock under provisions of public law 363 from the surplus of the corporation in excess of $1,000,000,000. On Sept. 9, 1947, the original subscription of the federal reserve banks, amounting to $139,000,000, was retired in full. By the end of the year nearly $50,000,000 of the $150,000,000 of stock held by the U.S. treasury had been repaid.

The contingent liabilities of the corporation as an insurer of deposits continued to increase during the year 1947 as total deposits in the 13,600 insured banks increased moderately. Both demand and time deposits of individuals and businesses expanded although at a less rapid rate than in the previous year. There was a further decline in deposits of the U.S. government, which by the end of the year had been reduced to approximately their prewar total.

During 1947 the corporation granted charters to 207 new federal credit unions, cancelled 159 charters and examined the majority of the 3,900 credit unions in operation.

The chairman of the board of directors of the Federal Deposit Insurance corporation was Maple T. Harl, and Preston Delano, comptroller of the currency, was vice-chairman. On April 9, 1947, H. E. Cook became a member of the board, succeeding Phillips Lee Goldsborough, who died on Oct. 22, 1946. (*See* also BANKING.) (M. T. H.)

Federal Home Loan Bank: *see* HOUSING.
Federal Housing Administration: *see* HOUSING.
Federal Income Tax: *see* TAXATION.
Federal Land Banks: *see* FARM CREDIT ADMINISTRATION.

Federal Mediation and Conciliation Service.

The Labor Management Relations act, 1947, created an independent agency known as the Federal Mediation and Conciliation service, and transferred to the new agency all mediation and conciliation functions previously delegated to the secretary of labour or the U.S. conciliation service.

The act stresses the desirability of labour and management and the states and communities in which they operate assuming increased responsibility in the maintenance of industrial peace.

For the first time, in the industrial field outside the application of the Railway Labor act, federal legislation had defined the jurisdiction and the scope of operations of a conciliation and mediation service.

The new agency was to offer its services in any labour dispute in industries affecting commerce, either upon its own motion or upon the request of one or more of the parties to a dispute, provided: (1) it would not enter into any dispute affecting an

establishment engaged wholly in intrastate commerce; (2) the service is directed to avoid attempting to mediate disputes which would have only a minor effect on interstate commerce if state or other conciliation services are available to the parties.

The service, under the act, is directed to make its facilities available in the settlement of grievance disputes only as a last resort and in exceptional cases. The service was to continue, however, to assist the parties to agree on voluntary procedures to settle grievance and other disputes.

The act also provides that the voluntary methods of resolving disputes, without resort to strikes, lockouts, or other coercion, to be suggested by the service should include agreed upon submission of the employer's last offer to a secret ballot of employees in the bargaining unit affected.

Although the parties to labour disputes are not obliged by law to accept suggestions of the service, for the first time in federal legislation, the act requires them to participate fully and promptly in such meetings as may be called by the service for the purpose of aiding in the settlement of disputes.

The service was to continue to suggest the names of arbitrators in labour disputes at the request of the parties. The service was also to continue to maintain a staff of qualified technicians who would be available to commissioners of the service for rendition of technical advice in the settlement of disputes.

The service was to handle its work through seven regional offices located in Boston, New York, Cleveland, Atlanta, Kansas City, Chicago and San Francisco. Assignments of commissioners to dispute cases were to be made by the regional directors, who would co-ordinate their operations with state and other local mediation agencies. (C. S. C.)

Federal Power Commission. Natural gas expansion was the outstanding public utility development of 1947. New interstate facilities proposed aggregated $666,700,000 as compared with $480,000,000 in fiscal 1946 and $164,100,000 in 1945. During the fiscal year ending June 30, 1947, the Federal Power commission issued 132 certificates authorizing new facilities valued at $271,500,000. This included the new Michigan-Wisconsin pipe line (total cost estimated at $130,000,000) to transport natural gas from Texas 1,500 mi. to certain Wisconsin and Michigan markets. Natural gas extension as far east as Philadelphia, Pa., was assured by purchase of the "Big Inch" and "Little Big Inch" pipe lines, built and operated during World War II for oil and gasoline transportation by the Texas Eastern Transmission corporation for $143,127,000, and their conversion to gas transportation. Hearings on the application of Trans-Continental Natural Gas company to construct a 1,300-mi. pipe line from south Texas via Atlanta, Ga., Washington, D.C., and Baltimore, Md., to the eastern seaboard, to supply natural gas to New York city were in progress. Tennessee Gas Transmission company, which during the war built and operated the 1,265-mi. pipe line from the Gulf coast of Texas to West Virginia, planned to build an extension via Albany, N.Y., to Boston, Mass., to supply natural gas to New England. Largest of all the projects completed in 1947 was the "Biggest Inch" pipe line, originating in the west Texas Permian basin, laid 1,300 mi. to California, constructed jointly by El Paso Natural Gas company and the Southern California Gas company and Southern Counties Gas company. Interstate Natural Gas completed a new line to Denver, Colo., while Panhandle Eastern Pipe Line company, Natural Gas Company of America, Cities Service Gas company, Northern Natural Gas company and Mississippi River Fuel corporation were greatly enlarging their facilities to increase the gas supplies of Detroit, Chicago, Kansas City, Minneapolis, St. Louis and other areas in Illinois, Indiana, Michigan, Iowa, Kansas and Missouri. Southern systems planned large expansions with new pipe lines extending as far as Tennessee, Georgia and Florida. In 18 months the commission authorized gas projects to serve 80 cities and many smaller communities in 20 states.

Demand far exceeded supply in many areas, causing shortages that required severe restrictions and allocations of available supply.

Power production reached an all-time high, rising to a total of more than 300,000,000,000 kw.hr. Utility production of electric energy for public use in the 12 months ending Nov. 30, the FPC reported, was 253,060,099,000 kw.hr., an increase of 14.8% over the 1946 period; and industrial output was 50,611,858,000 kw.hr., making a total production of 303,671,957,000 kw.hr. Generating capacity was taxed to the utmost, reserve capacity in many areas fell to 5%, power supply was "tight" in some areas but few curtailments were reported and the industry as a whole met successfully the highest peak loads ever imposed. Public utility generating capacity at the end of the year reached approximately 52,000,000 kw. On Nov. 30 the FPC reported that installed capacity of generating plants in utility service totalled 51,823,922 kw., and industrial generating capacity, including railroad and railway plants, was 12,822,465 kw., making the nation's total generating capacity 64,646,387 kw.

To aid in augmenting power supply where shortages were threatened, the commission announced that it would authorize emergency interconnections between electric systems where surplus power could be supplied or interchanged without subjecting participating utilities to commission jurisdiction; and such interconnections were authorized in a number of areas, including New England, Texas and the Pacific northwest.

Spurred by the growth in power requirements, the commission received 111 new applications for licences authorizing water-power developments on streams under jurisdiction of congress, or upon federally owned land. During the year 105 applications were granted, making a total of 662 outstanding federal licences covering plants with installed capacity of 5,634,000 horsepower, having a total cost of about $900,000,000. From the time congress first assigned the commission responsibility for determining the power possibilities of river basins, 749 investigations had been made involving rivers in 44 states, indicating that more than 80,000,000 kw. of additional generating capacity were potentially available at water-power sites which were capable of economic development when power market conditions would warrant. (J. W. JE.)

Federal Public Housing Authority: *see* HOUSING.

Federal Reserve System. Monetary expansion and inflationary pressures continued to be the primary problems confronting the federal reserve system during 1947.

Late in the year the board of governors recommended to congress that consideration be given to legislation which would require all commercial banks, member and nonmember, to hold as a temporary measure some percentage of their demand and time deposits, in a special reserve in the form of treasury bills, certificates and notes, or cash, cash items, interbank balances, or balances with federal reserve banks. It was proposed that the special reserve requirement be limited by law to a maximum of 25% on demand and 10% on time deposits. The proposal was presented as an alternative to higher interest rates in restricting further bank credit expansion.

Major factors influencing the reserve position of member banks during 1947 included the gold inflow, retirement of federal reserve holdings of government securities from the treasury

surplus, and federal reserve purchases of government securities in order to maintain an orderly market. During most of the year excess reserves of all member banks ranged between $600,000,000 and $1,100,000,000 with a sharp increase to $1,590,000,000 on Dec. 30, resulting from large federal reserve support purchases in the last week of the year. The gold stock increased during 1947 by $2,230,000,000, permitting a lower level of total reserve bank credit during 1947 than in 1946. Money in circulation showed a slight decline. Retirement of federal reserve holdings of short-term securities by the treasury from a cash surplus had the effect of lowering member bank reserve balances, but this was offset by open market purchases of government securities by the federal reserve system as banks made adjustments in their reserve position.

The decline in government bond prices which began early in the fall was met during November and December by large support purchases of government bonds by both the federal reserve and the treasury. Treasury purchases for investment accounts in the two months amounted to $917,000,000 and federal reserve purchases of bonds maturing over 5 years amounted to $1,845,000,000 between Nov. 12 and Dec. 30. The effect of federal reserve support purchases on reserves was partially offset by retirement of federal reserve holdings of bills and certificates by the treasury and by net market sales of bills from the federal reserve portfolio. On Dec. 24 there was a sudden reduction in support prices at which federal reserve purchases of government bonds were made from premium prices to prices slightly above par for medium- and longer-term fully taxable treasury bonds.

Vigorous purchases in the market were made by the reserve system at the new support prices.

Important actions took place during the year in connection with federal reserve holdings of treasury bills. Effective May 1, the treasury adopted the procedure of accepting exchange as well as cash tenders in payment for new bills. The purpose of the changed procedure was to facilitate weekly refunding operations in bills, the reserve banks having held about $15,000,000,000 out of a total of $17,000,000,000 outstanding of treasury bills.

In July the federal open market committee of the reserve system directed the reserve banks to terminate the policy, which had been in effect from 1942, of buying all treasury bills offered to them at a fixed rate of $\frac{3}{8}$ of 1% per annum and to terminate the repurchase option privilege on treasury bills. This action was designed to restore the bill as a market instrument and give added flexibility to the treasury's debt management program.

The board of governors of the federal reserve system levied an interest charge on the federal reserve banks against the amount of federal reserve notes outstanding less the amount of gold certificates held as collateral security. The purpose of this interest charge was to pay into the treasury about 90% of the net earnings of the reserve banks, after providing for necessary expenses and statutory dividends. Payments to the treasury during 1947 were $75,000,000.

Instalment credit controls exercised by the federal reserve system ceased to be operative after Nov. 1, 1947, in accordance with a resolution of congress approved on Aug. 8, 1947. Instalment credit control had been in effect, under executive order of the president, from late in 1941. Later in the year, however, congress gave consideration to legislation again authorizing the board to regulate consumer instalment credit. The president had listed such legislation in his anti-inflation program. (*See* also BANKING; CONSUMER CREDIT.) (J. K. L.)

Federal Savings and Loan Insurance Corporation: *see* HOUSING.

Federal Security Agency. Significant developments during the year 1947 in the work of the Federal Security agency were expansion of its activities due to congressional approval of Reorganization plan No. 2 of 1946, progress made in the development of new programs established by congress, and significant legislative amendments affecting existing programs.

Reorganization plan No. 2 of 1946, which went into effect on July 16, 1946, abolished the three-member Social Security board, and transferred its functions and responsibilities to the Federal Security administrator. Administration of the social security program was delegated to a newly created officer, the commissioner for social security.

Under the plan, the children's bureau, exclusive of its industrial division, was transferred to the agency from the department of labour. The inclusion of this bureau's programs—research in problems of child life, maternal and child-health services, services for crippled children and child-welfare services—in the agency did much to simplify the co-ordination of these functions with the related health, welfare and educational activities of the other bureaus of the agency. It greatly facilitated steps being taken in the interest of improving federal-state relations.

Another transfer provided under the plan was that of the division of vital statistics from the bureau of the census. As the state statistics units were partially financed by the agency, the change simplified the administrative process in that the state vital statistics units thereafter dealt with one agency of the federal government. More important from a technical point of view is the progress which was made in correlating vital statistics with the public health services' morbidity statistics.

Progress was made in developing the new programs which were provided for in the closing days of the 2nd session, 79th congress. The Hospital Survey and Construction act of Aug. 13, 1946, provided the basis for securing basic information on U.S. requirements for additional hospital facilities, through grants of federal funds to the states for surveys of their needs and resources. With a growing body of information regarding need for facilities, it was anticipated that construction programs would soon be under way to expand the facilities badly needed for the care of the sick and injured.

Congress also recognized the need for greater federal support to research in mental health by passage of the National Mental Health act of July 3, 1946. Funds were provided for expanding mental health activities in the states. Congress also immediately provided funds for the preparation of plans and the acquisition of a site for the construction of research laboratories and a clinical research hospital.

The 1946 amendments to the Social Security act, approved Aug. 10, 1946, provided benefits to survivors of deceased World War II veterans and reconversion benefits to wartime seamen. They also enabled the states to provide unemployment compensation to maritime workers, and authorized increased grants to states for programs administered by the children's bureau and the bureau of public assistance. Increases in public welfare and other grants tended to offset increased living costs.

The states made strenuous efforts to improve their public school systems and in some cases made favourable adjustment in the wages of teachers. There were, however, many sections of the United States where schools remained closed because of the unavailability of teachers. In addition, all too frequently school facilities were either inadequate, obsolete or entirely lacking. The enrolment of veterans at schools and colleges continued to rise, with the result that the country's educational facilities were strained to the limit. Although congress provided for increased grants to states for vocational education, there

remained much to be done to equalize educational opportunity for children throughout the nation.

The very substantial increases which congress provided for the various grant programs were expected to do much to offset cost of living increases to assistance beneficiaries, assist the states in improving child health and welfare, and increase the rehabilitation of injured persons into economic productivity. (*See* also PUBLIC HEALTH SERVICES.)

(O. R. E.)

Federal Trade Commission. The broad objective of the Federal Trade commission in enforcing the laws committed to its jurisdiction by congress is protection of both the public and industry against monopolistic, unfair and other harmful business practices.

The commission administers the Federal Trade Commission act, portions of the Clayton Antitrust act, the Wool Products Labeling act and the Webb-Pomerene act, and makes general investigations of economic conditions at the request of the president, the congress or upon its own motion. On July 5, 1947, it also began administering those sections of a new statute, the Lanham Trade-Mark act, which authorize it to apply to the commissioner of patents for cancellation of the registration of trade-marks which are deceptive, immoral or scandalous, or which have been obtained fraudulently or are in violation of other stated provisions of the act.

The commission in 1947 issued 48 complaints alleging violation of laws it administers and entered 55 orders to cease and desist from proved violations. These adversary proceedings were directed to preventing price-fixing agreements and restraint-of-trade combinations, illegal discriminations in price and otherwise, misbranding of wool products, and other unfair methods of competition and deceptive acts or practices in interstate commerce; and to safeguarding consumers by prohibiting false advertisements of food, drugs, cosmetics and curative devices, particularly those which might be injurious.

Where circumstances permit, industry members are given opportunity to eliminate certain unfair competitive methods or deceptive practices through voluntary stipulations to cease and desist or through establishment of trade practice rules. Under this co-operative procedure, the commission accepted 97 stipulations and promulgated trade practice rules for the household fabric dye, vertical turbine pump, doll and stuffed toy, and watch industries. Trade practice conference proceedings progressed for the establishment of rules for the following industries: cosmetic and toilet preparations, wholesale confectionery, rayon and silk converting, hand knitting yarn, office machine marketing, baby chick, watchcase, and rendering (inedible tallow and greases).

Commission reports to congress covered investigations of the trend of corporate mergers and acquisitions, the degree of concentration in the copper industry and international copper cartels, growth and concentration in the flour-milling industry, the sulphur industry and international cartels, and economic effects of grain exchange actions affecting futures trading during the first six months of 1946.

The commission completed reports presenting aggregate estimates of the financial condition and operating results of all U.S. manufacturing corporations for the first and second quarters of 1947. Prepared with the co-operation of the Securities and Exchange commission, the reports were based upon a sample of 5,468 corporations in 22 major industry groups and disclosed the relationship between investments, sales, costs and profits. Another report contained cost and profit data for manufacturing corporations during the war years, 1941–45.

There were 52 export trade associations, organized under the Webb-Pomerene law, registered with the commission. After investigations, the commission recommended that two associations engaged in the export of sulphur and screws, respectively, readjust their business to conform to law. Pending inquiries involved associations exporting plywood, electrical apparatus, condensed milk products, and pipe fittings and valves.

Pointing to the postwar increase in corporate mergers, the commission recommended that congress amend the Clayton act "to prevent acquisition of physical assets as well as corporate stock where the effect may be substantially to lessen competition in interstate commerce." It also recommended an amendment to give Clayton act orders to cease and desist the same status as to finality and enforcement penalties as similar orders under the Federal Trade Commission act. (R. E. F.)

Federal Works Agency. The Federal Works agency, which contains three constituent units, the Public Buildings administration, the Public Roads administration and the Bureau of Community Facilities, is responsible for the operation of a great many programs of public construction.

Public law 697, 79th congress, approved in Aug. 1946, authorizes the Federal Works administrator to provide nonhousing surplus war structures and facilities to public and private nonprofit educational institutions requiring them in order to furnish training or education to veterans under the G.I. Bill of Rights. The facilities to be provided may include classrooms, laboratories, administrative buildings, infirmaries, libraries, and storage and other facilities and equipment. This program, known as the Veterans' Educational Facilities program, is administered by the Bureau of Community Facilities. Of the $100,000,000 authorized to carry out the provisions of the act, $75,000,000 was made available in the Third Deficiency Appropriation act, 1946, plus unexpended balances from Lanham act funds.

As of Oct. 31, 1947, applications had been approved involving outlays of more than $76,000,000. In addition, the bureau had transferred to the colleges surplus equipment having an estimated fair value of $46,000,000. An additional appropriation of $3,000,000 was made to be used exclusively for the disassembling and transportation of structures to sites of colleges that agreed to re-erect the buildings at their own expense. The federal funds provided were limited to $3 per square foot and no allocations could be made after Sept. 30, 1947. As of Oct. 31, 1947, projects had been approved involving $2,825,000.

The Advance Planning program had been carried on under title V of the War Mobilization and Reconversion act of 1944, and administered by the Bureau of Community Facilities. Congress had appropriated $65,000,000 to be advanced to state and local governments for the plan preparation of their public works, exclusive of housing. The advances are repaid without interest when construction begins on the public works so planned. As of June 30, 1947, applications in the amount of more than $61,000,000 had been approved for projects with an estimated total cost of $2,300,000,000. After that date there had been no authority for the making of new advances and the bureau was concentrating on speeding up the completion of plans.

Public law 233, 80th congress, approved July 25, 1947, provides for the Disaster Surplus Property program. The act authorizes the Federal Works administrator, upon declaration by the president, to loan or transfer, with or without compensation, surplus war personal property to state and local governments to alleviate damage and suffering caused by flood or other catastrophe.

During the first few months this legislation was invoked to provide assistance for Texas City, Tex.; following the floods in the Missouri and Mississippi valleys; for Vermont and New

Hampshire; in the hurricane areas of Louisiana, Mississippi and Florida; and following the extensive forest fire devastation in Maine.

Other programs administered during the year by the Bureau of Community Facilities include the Lanham act program of war public works and war public services in war-congested areas, which was in final liquidation except for a small program of financial aid to schools still overburdened with war-incurred enrolments; and public works and repair programs in the Virgin Islands and the Hawaiian Islands.

The Public Buildings administration constructs, maintains, operates and protects buildings used by the federal government, except military establishments, and leases, controls and assigns office space in federally-owned and federally-leased buildings. It also acquires sites for federal buildings and disposes of surplus government real estate. As authorized by public law 413, approved June 14, 1946, working drawings and specifications were completed for certain government buildings to be erected on government sites, including 16 postal buildings and a border station at the Bridgewater boundary in Maine. During fiscal 1947 the office of the supervising architect also prepared designs and working drawings and in some instances construction contracts for a replacement program survey at St. Elizabeth's hospital and for the design of four buildings at Howard university, in Washington, D.C.; a radio monitoring station at Laurel, Md., for the Federal Communications commission; four new hangars and an extension to the heating plant at the Washington National airport and working drawings and material lists for repairs of certain U.S. embassies.

As the result of extensive research and with the collaboration of many PBA technical specialists, six basic manuals were issued setting forth detailed statements of PBA standards and methods. The work program of the office of the supervising engineer included 78 projects listed and a total of 64 contracts awarded for alterations and remodelling government-owned and government-leased buildings. Project contracts were also awarded to provide increased students facilities at institutions enrolling veterans under the G.I. Bill of Rights. In its regular construction program this office carried on during the year the extension of the U.S. mint at Denver, Colo., construction of the Memorial Laboratory of Infectious Diseases, at Bethesda, Md., and construction of Federal Office Building No. 4 and temporary vault at Suitland, Md.

The Public Roads administration reported the volume of federal-aid road construction undertaken and completed in fiscal year 1947 was only moderate in comparison with that of prewar years, but that substantial progress had been made in advancing projects toward the construction stage and in the letting of contracts. Notable work was done in planning express highways through cities and in planning and constructing secondary roads. Of signal importance in the longer view was the continued co-operation between the state and the federal government in the selection of routes to comprise the 40,000-mi. national system of interstate highways.

During the year 7,929 mi. of highway of all classes of federal-aid construction were completed as compared with 2,964 mi. in 1946 and 12,936 mi. in 1941. Programs approved during the year amounted to $932,362,226 for 24,720 mi. of highway, of which $628,005,700 was for 7,982 mi. of improvement of the federal-aid system and $269,492,299 was for 15,620 mi. of secondary road. Total payments to the states during the fiscal year for work done amounted to $193,634,155.

All construction contracts awarded, involving state or federal funds, totalled $817,742,000 for 47,163 mi. of this construction. As at the end of the previous year, a large volume of construction plans was completed and remained on the shelf ready for use when conditions would permit.

As in the previous fiscal year progress was not at the rate contemplated in the federal legislation.

At request of the president the Federal Works administrator spearheaded a conference attended by delegates from the 48 states and 37 foreign countries to consider an action program to reduce losses by fire. It was called the president's conference on fire prevention and subsequent conferences at state levels were called by the governors of Kentucky, Massachusetts, Minnesota, New Hampshire, Ohio and Texas.

Notable decreases in traffic deaths and injuries followed the president's first highway safety conference according to reports at a second conference held in Washington, D.C., during the year. The Federal Works administrator also called this conference. It was reported that the 1946 fatality rate of 9.8 deaths per 100,000,000 mi. was the lowest in automotive history. (*See* also HOUSING.) (P. B. F.)

Federated Malay States: *see* MALAYAN UNION AND SINGAPORE.

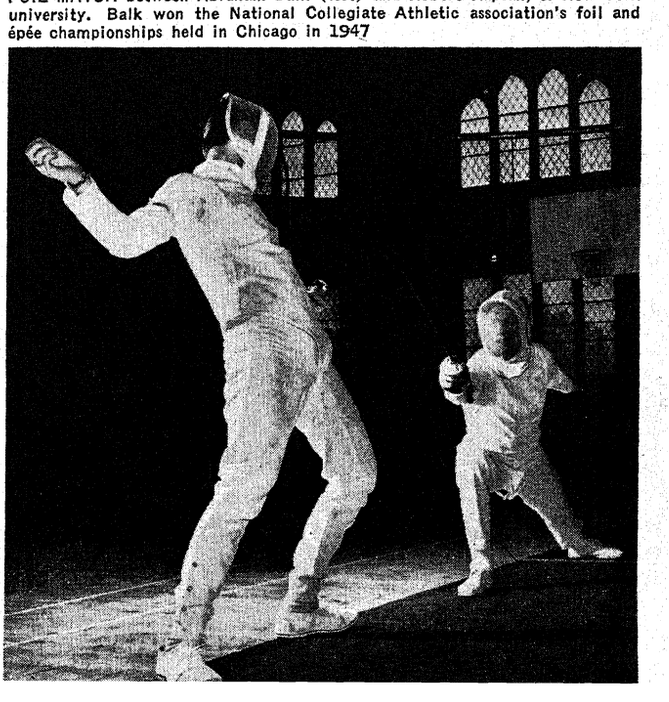
Federation of Labor, American: *see* AMERICAN FEDERATION OF LABOR.

Feldspar. Sales in the United States of crude feldspar of domestic origin advanced sharply from 417,820 short tons in 1945 to 569,386 tons in 1946. This quantity increase of 28% was accompanied by a rise of 36% in value. Sales of ground spar increased in much the same proportion—from 381,728 tons to 470,199 tons. Imports were relatively small, 14,924 tons in 1945 and 16,365 tons in 1946. The pottery industry used 38% of the total and the glass industry 62%.

Canada.—The production of feldspar in Canada rose from 30,246 short tons in 1945 to 36,369 tons in 1946. About half of the output is exported, mostly to the United States, only to be replaced by a similar amount of imports. (G. A. Ro.)

Fencing. The U.S. national fencing championships of 1947 at New York city attracted a record entry in both team and individual events. The Salle Santelli of New York won the first three team events—sabre (Tibor Nyilas, George Worth, Dean Cetrulo and Miguel de Capriles), épée (José de Capriles, Norman Lewis, Ralph Goldstein) and three-weapon (José de Capriles, Dean Cetrulo, Tibor Nyilas). The New York

FOIL MATCH between Abraham Balk (left) and Robert Kaplan, of New York university. Balk won the National Collegiate Athletic association's foil and épée championships held in Chicago in 1947



Athletic club retained the foil team title with Warren Dow, Dernell Every, Sylvio Giolito and Rudolph Ozol. The Fencers club retained the women's team titles with Helena Dow, Maria Cerra, Ruth Maxwell and Henrietta Brackley.

In the individual championships two former champions regained the titles they once held. Dean Cetrulo of the Salle Santelli won the men's foil title which he last held in 1941. Warren Dow of the New York Athletic club (1942 and 1943 champion) was second and José de Capriles, defending champion, was third. Helena M. Dow defeated the almost perpetual titleholder, Helene Mayer. Miss Mayer took second, and third place went to the 1944 champion, Madeline Dalton of the Salle Santelli. James Strauch of the Salle Montague of New York won the épée event with Albert Wolfe, defending champion, second and Carlos Agostoni of Mexico third. James Flynn of the New York Athletic club emerged with his first national sabre title. Dean Cetrulo was second and the defending champion, Tibor Nyilas, third.

The year 1947 saw the first international tournament held in the United States since the British-American match for the Thompson trophy in 1934. Four teams from the United States and a team each from Mexico and Cuba competed in three weapons for the Wilkinson Sword trophy. The winning team consisted of the then United States national champions, José de Capriles, Albert Wolfe and Tibor Nyilas.

In the Pacific coast championships at San Francisco, Edward Carfagno retained his foil title and regained the sabre championship he lost in 1946. A newcomer, Bruce McBirney, won the épée championship. Helene Mayer retained the women's foil championship.

The midwest championships were held in Chicago. The Michigan division swept the men's events with Byron Kreiger successfully defending the foil crown, Gregory Flynn winning the épée event and Howard Hayden the sabre. Mary Grenander won the women's championship.

The first intercollegiate championships of the National Collegiate Athletic association were held in Chicago; Abraham Balk of New York university won the foil and épée championships and Oscar Parsons of Temple university won the sabre championship. (W. A. Dw.)

Fertilizers. Estimates indicated that about 16,500,000 tons of commercial fertilizer were used on more than 3,000,000 of the 6,000,000 U.S. farms—a new high record of consumption. With one exception, consumption had increased every year since the 1932 depression low of 4,385,000 tons. In 1937 it rose to 8,179,000 tons but dropped the following year to 7,467,000 tons. In 1943 consumption exceeded 10,000,000 tons for the first time, and in 1946 it approximated 15,000,000 tons.

Unfortunately, decreases in production of other countries totalling 3,201,000 tons almost matched the U.S. increases. The drop in Germany alone was about 1,500,000 tons. The International Food committee of the United Nations Food and Agriculture organization earmarked 61,000 tons of nitrogen from the U.S. commercial supply to send to about 20 nonoccupied countries. Army shipments to occupied countries were not disclosed, but the yearly army production program called for about 250,000 tons. Representatives of U.S. fertilizer manufacturers stated that commitments had been made to ship abroad 28% of the total U.S. supply of fertilizer nitrogen including ordnance production.

Safety Problems of Ammonium Nitrate.—In 1947 the industry suffered a serious setback insofar as ammonium nitrate, one of its agronomically superior nitrogen carriers, was concerned. This compound contains a total of 32½% of nitrate and ammonia nitrogen, the former being quickly and the latter more slowly available to crops. Produced chiefly in 12 government-built or financed nitrogen-fixation plants in U.S. and Canada constructed primarily for war purposes, it is readily explosible by fire. This product was being loaded onto the French ship "Grandcamp" on April 16 when fire produced an explosion which caused the Texas City, Tex., disaster. This tragedy, in addition to a minor ship explosion at Brest, France, during the summer of 1947, led to increased safety measures for handling the compound.

Government Competition.—Bombing and postwar dismantlement caused a temporary worldwide nitrogen shortage, aggravated by an unprecedented (and probably impermanent) demand and lack of customary peacetime imports. Pressure brought upon the United States to help make up the shortage resulted in re-expanding U.S. government production.

In 1946 and 1947 intensive efforts were made to force additional legislation that would increase government competition with the private fertilizer industry. The Farmers union and the American Farm bureau sponsored a bill in the U.S. senate under the name of National Soil Fertility Act of 1947 to make available to the Tennessee Valley authority millions of dollars for construction of a large plant at Mobile, Ala., and "other plants on a nation-wide scale." A house bill presented in Nov. 1947 would appropriate $100,000,000 to place the entire fertilizer industry under federal government control, to be exercised by the secretary of agriculture.

Aside from the pending bills, two conditions created unusual problems. The first arose from the continued use of unrevoked wartime power under which the government had put into effect "procedures designed to assure export" of nitrogen carriers in accordance with its commitments to particular countries. The second arose from the Marshall plan and the report of the Paris Conference on European Economic Co-operation (European recovery program) which contemplated that European fertilizer production, particularly in the western zones of Germany, would be inadequate until 1950–51. Conditions in the Russian zone were not known, although about two-thirds of the nitrogen and potash-producing capacity of Germany was allocated to the soviets.

Research Progress.—During 1947 excellent progress was made in the inauguration, co-ordination and prosecution of agricultural, chemical, physiological and technological research. Direct relations were found between fertilization and the incidence of plant diseases in certain crops. Ammonia solutions from tanks were used commercially for the first time to fertilize cotton and pastures in the Mississippi delta area, and satisfactory equipment was developed to apply both anhydrous and aqueous ammonia.

A new slow-acting nitrogen carrier was developed by U.S. department of agriculture soil scientists. Still in the experimental stage in 1947, it is a combination of urea and formaldehyde. Nitrogen is released gradually during the growing season.

Production of concentrated superphosphate (45% P_2O_5), first made by a private manufacturer in 1907, was considerably expanded, and a continuous process for its manufacture was devised by the Tennessee Valley authority. Great progress was made, especially with potatoes and tobacco, in determining the response to fertilization of soils having different nutrient levels.

The necessity for using boron on a number of crops to obtain higher productivity when grown on certain soils was firmly established. The New Jersey Agricultural Experiment station proved that fertilizers are best applied to orchards in bands instead of broadcast as had hitherto been the almost universal practice. The procedure reduced waste of phosphate and potash and also, to an extent, of nitrogen.

A committee of agronomists designated by the Plant Food Research committee of the National Fertilizer association worked out a formula to guide farmers in their expenditures for fertilizer. The general rule was that 10% of the prospective value of the crop might be spent for commercial plant food. (*See* also AGRICULTURE.) (C. J. BR.)

FHA (Federal Housing Administration): *see* HOUSING.
FHLB (Federal Home Loan Bank): *see* HOUSING.
Fiction: *see* AMERICAN LITERATURE; BOOK PUBLISHING; CANADIAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; LITERARY PRIZES; RUSSIAN LITERATURE; SPANISH-AMERICAN LITERATURE; SPANISH LITERATURE.

Figl, Leopold (1902–), Austrian statesman, was born on Oct. 2, 1902, of a Lower-Austrian farmer's family, was educated in Vienna and took a science degree at the high school of agriculture. An active Catholic strongly opposed to the *Anschluss,* he was arrested by the nazis after the occupation of Austria in March 1938 and held as a prisoner until 1943. He was rearrested after the attempt on Hitler's life in July 1944 and was charged with high treason as an Austrian resistance leader. Liberated by the Allies, Figl joined the new Austrian People's party, a reformed version of the former Christian Social party, which headed the poll at the first postwar elections on Nov. 25, 1945. After the elections Figl was designated as chancellor by Dr. Karl Renner, the new federal president, and formed his government on Dec. 19, 1945. Though the constitutional situation would have allowed him to govern with a People's party majority, Figl decided on an all-party national coalition, as more fitting the circumstances of his country under Allied occupation.

A politician of Christian Democratic principles, Leopold Figl fought for an improvement in the economic conditions of postwar Austria and for his country's case at various international meetings and conferences, especially at the Four Powers conference in London in Feb. 1947. (B. ME.)

Figs: *see* FRUIT.
Fiji: *see* PACIFIC ISLANDS, BRITISH.
Filberts: *see* NUTS.
Financial Review: *see* BUSINESS REVIEW.
Fine Arts: *see* MUSIC; PAINTING; SCULPTURE; etc.

Finland. An independent republic of northern Europe. Area, 130,159 sq.mi. Pop. (est. 1947) 4,000,000. Capital, Helsinki; pop. (est. Jan. 1, 1945) 331,192. Other principal cities: Turku (Åbo) (78,492); Tampere (85,168). Language and nationality, 90% Finnish, about 10% Swedish. Religion, Lutheran Christian. President after March 1946: Juho K. Paasikivi; prime minister: Mauno Pekkala.

History.—Finnish politics have been vigorous (to put it euphemistically) for many years, and in 1947 politics appeared to be the only relief from the backbreaking hard work of reconstruction and reparations. Even politics were largely a reflection of economic conditions. The cost of living index had risen 100 points in 1946 and by mid-1947 was up an additional 30 points to 567 (based on 100 for 1938). Inevitably the successive wage demands and attempts to keep things in balance produced differences of opinions. The coalition government of Mauno Pekkala, composed of six members from the communist Peoples' Democratic union, five from the Social Democrats, five from the Agrarians and one from the Swedish Peoples' party, at length resigned on April 11. The Peoples' Democratic union wanted wage controls abandoned and price controls strengthened, and the communists maintained this general position through the year. However, no other government could be formed, and on May 21 Pekkala agreed to continue in office with the old government. It had a rather peculiar organization, with ministers and "affiliate" or "partial" ministers.

Demands for new elections in the summer were overlooked, the government thinking it wiser to wait for the regular elections in 1948, propaganda for which was under way by September. The communists particularly attacked the Social Democrats as capitalists under the skin, and the Social Democrats drew closer together in opposition. Each of these parties held about one-fourth of the parliamentary seats chosen in 1945. They worked together somewhat in the government, but each group hoped for a decisive mandate for itself. Public meetings occasionally led to disturbances and arrests. Speech was really free, and freer still after the ending of the wartime censorship in November. A British visitor was amazed to hear Finns talk to one another, condemning Russians even in the presence of soviet officials.

Industrial wages almost kept pace with skyrocketing prices, but salaries did not. The civil service workers several times threatened to strike and at last, at the end of November, tied up transportation and many other activities for 61 hr. Another difficult problem for the government was the conduct of trials for men found guilty of establishing "dumps" of arms and ammunition. The Russians obviously wanted stern justice, but many people were involved and the trials dragged on and on.

A disaster for which the beleaguered government would not be held responsible was the drought which lowered water levels in streams below anything seen in 100 years, and thus curtailed Finland's water-power supply and electricity. In hope for the future, work progressed nevertheless on the damming of the Oulujoki river and plans to build on it seven new power stations.

On Sept. 19 the third year of reparations payments ended, and it was a year in which most demands were actually surpassed, bringing Finland's total payments so nearly up to requirements that the U.S.S.R. agreed not to charge fines for the items slightly in default. Three-year totals amounted to $127,000,000, or 42% of the amount to be paid altogether. This achievement was complemented by an increase of 50% in free foreign trade, and by the raising of industrial production to 86% of prewar.

Finland's application for admission to the United Nations was denied, though at first approved unanimously in the Security council. The trouble was only that the U.S.S.R. would not permit Finland and Italy to be admitted unless the soviet Balkan satellites were admitted at the same time, and the other powers would not agree. Finland did become a member of the International Health organization, the Food and Agriculture organization, the International Monetary fund and the International bank.

Relations with the U.S.S.R. continued to be good, at least on the surface. The peace treaty, signed in February, was ratified by Finland and by Britain in April and by Russia on Aug. 29. It became effective Sept. 15, and the Control commission then began to close out its work. The slight boundary adjustments still required were worked out by a special commission. Finland formally rejected the invitation to the Paris conference on the Marshall plan, but obviously regretted the split between east and west. Finland had a trade agreement with Britain and conducted about one-quarter of its total "free" trade with Britain (though the U.S. led in Finnish imports). In November a trade delegation went to Moscow to arrange for widened commerce with the eastern neighbour.

By the end of 1947 nearly 80% of the Finns from Karelia (ceded to Russia in 1944) who were entitled to land compen-

sation in Finland had been provided for.

Education.—The school census of 1943–44 showed: 13,754 teachers; 46,232 pupils in city folkschools; 114,517 in provincial and rural lower folkschools; 211,588 in the upper folkschools; 69,910 in continuation schools; 1,049 in Finnish-speaking preparatory schools; 706 in Swedish-speaking preparatory schools; 2,621 in folk high schools; 2,735 who took the student examen; 8,348 registered at the University of Helsinki (1945); 1,370 at the technological institute; 383 at Turku university; 158 at the normal school; 666 at the school of commerce.

Defense.—According to the peace treaty of Feb. 10, 1947, the maximum strength of land army was to be 34,400; navy 4,500 (10,000 tons); air force 3,000 (60 aircraft). There was compulsory military service (350–440 days) for all men between 17 and 60. The conscription age was 20.

Finance.—The monetary unit is the markka; 136=$1.00. Government income, 1947, was estimated at $767,000,000 and expenditures at $736,000,000. Total debt on July 31, 1947: $852,000,000. Finland obtained a credit of $10,000,000 for purchase of surplus materials from the U.S. and British armies in Germany.

Trade and Communication.—Railways totalled 3,063 mi. and highways 19,705 mi. Late in 1947 through freight traffic was resumed by rail with western Europe, and railway transit traffic was re-established through the Russian-leased Porkkala district.

The trades figures for 1946 showed imports of $178,000,000 and free exports of $169,000,000, plus $69,000,000 in reparation and restitution payments. In the second quarter of 1947 the rate of free export was better than double the rate in the same period in 1946 and totalled 11,500,000,000 markka.

Agriculture.—Crops of 1946 were valued at $175,000,000, and consisted chiefly of hay, oats, rye, barley and potatoes. The 1947 crops were reported as 50% of prewar.

Manufactures.—Home market industry climbed to a volume index of 123 in Sept. 1947 (100=1935); export industry had recovered to a volume index of 82. Metal and machinery industry increased output 10-fold after 1935, and textile industry about 5-fold. The shift in emphasis was caused by the Russian reparation requirements.

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Fire Insurance: *see* INSURANCE.

Fires and Fire Losses.

Losses by fire, including lightning, in the United States during 1947 amounted to $692,635,000, according to estimates of the National Board of Fire Underwriters. This figure compared with $561,487,000 for 1946 and $455,329,000 for 1945. Fire losses in 1947 exceeded those of 1946 by $131,148,000.

Outstanding losses increased this total, although the exact amount could not be estimated until a full statement was available. For instance, in the explosions and fires of April 16–18 at Texas City, Tex., losses were first estimated at $125,000,000 but were soon revised downward to $50,000,000 and were expected to produce about 10,000 claims.

Losses occasioned by forest fires in Maine, especially at Bar Harbor, amounted to approximately $6,000,000. (*See* also DISASTERS.) (E. R. H.)

Fish and Wildlife Service: *see* FISHERIES; WILDLIFE CONSERVATION.

Fisher, Geoffrey Francis

(1887–), 99th archbishop of Canterbury, primate of all England, is the youngest son of the Rev. H. Fisher, rector of Higham-on-the-Hill, Nuneaton. He was educated at Marlborough, Exeter college, Oxford, and Wells Theological college. He was assistant master at Marlborough (1911), and was ordained deacon (1912) and priest (1913) at Salisbury. In 1914 he became headmaster of Repton school in Derbyshire. In 1917 he married Rosamond Chevallier, granddaughter of Dr. S. A. Pears, formerly headmaster of Repton. In 1932 he was consecrated bishop of Chester, and in 1939 was translated to London, where his administrative ability left a great impression, particularly in the City. On April 19, 1945, he was enthroned as archbishop of Canterbury, in succession to Dr. William Temple. He played a leading part in church assembly legislation, including the Diocesan Reorganization measure (1941) and the Church Commission measure (1946).

On Dec. 27, 1946, he appointed Bishop Stephen Neill (formerly bishop of Tinnevelly) as his assistant bishop, with headquarters at Geneva, Switz., for diplomatic relations with the continental churches, and as vice-chairman of the Council on Foreign Relations. In an open letter to Bishop Neill (Sept. 15) he announced that the new South India United Church would be entirely separate from the Church of England, although this would not affect the status of Anglican clergy and members of it when in Great Britain. (A. J. MAC.)

Fisheries.

In a year characterized by critical food shortages throughout the world, the fisheries of most nations nevertheless had returned to more nearly normal functioning in 1947 than at any time after the beginning of World War II. Fishing fleets for the most part were rebuilt, shore facilities were restored and production approached or in some instances even exceeded prewar levels.

Although most European fleets were still short of the large trawlers necessary for long-range operations at sea, the Grand Bank fishery, prosecuted by vessels from both eastern and western Atlantic nations, was generally a productive one. For Portugal, the good season on the Grand Bank meant an unusually large quantity of salt fish for home consumption, accelerating the trend toward a greater measure of self-sufficiency. Once a heavy importer of salt fish from other countries, Portugal in 1947 supplied a much greater proportion of its own needs for this commodity than in previous years. Spain sent a larger fleet to participate in the high seas fishery than before the war. Even France, which lost the greater part of its high seas fleet during the war, had a successful season on the Grand Bank, its production of salt cod being considerably larger than expected.

The Icelandic fleet in 1947 far exceeded in productive capacity that of prewar years; Denmark, with its principal fishery products of cod and flounders, also exceeded prewar catches. Great Britain, which in restoring its fleet had resorted largely to reconversion of various types of vessels to trawling, rather than to new construction, lagged slightly in productive capacity (*see* below). Norway in 1947 had about the same number of fishing boats as before the war, but faced a problem somewhat similar to that of Great Britain; replacement of aging boats became a pressing necessity.

In the Pacific, attention was focused upon the vast possibilities for development of new fisheries and fishing industries throughout the Central and Southwest Pacific, where Japanese interests had conducted large operations before World War II. Precise information on the potential resources of these regions was scanty, but available facts indicated them to be of great value. Estimates placed the potential value of tuna alone at $80,000,000 to $100,000,000 a year.

The year also saw translated into action a related program authorized by the Philippine Rehabilitation act of 1946—that of restoring and developing the Philippine fishing industry, which had been almost totally destroyed by combat action and through confiscation by Japanese occupation troops during the war. In furtherance of this program, two research vessels began oceanographic studies and exploratory fishing during 1947, and a laboratory was established in the Philippines from which experimental work on the pondfish industry and inshore fisheries was conducted.

The potential contributions of the fisheries to the world's food supply were considered by the conference of the Food and Agriculture organization of the United Nations held at Geneva, Switzerland, from Aug. 25 to Sept. 11. Among actions of the conference was a recommendation that the F.A.O. initiate formation of regional councils for scientific exploration of the sea in parts of the world not actively served by similar bodies. Plans were made for the collection of more uniform and adequate statistics of fishery production by member nations.

Statistics released by this organization during 1947 indicated that world production immediately preceding World War II totalled about 39,000,000,000 lb. annually. Previous estimates had placed world production at 37,000,000,000 lb.

United States.—As an important postwar development, the United States took active steps in determining the extent of the fishery resources of remote Pacific areas and in extending U.S. fishing activities into these regions. Public law 329 of the 80th congress, approved Aug. 4, 1947, authorized and directed the secretary of the interior, through the fish and wildlife service, to conduct necessary fishery explorations to insure the maximum development and utilization of high seas fishery resources of the territories and island possessions of the United States in the tropical and subtropical Pacific ocean.

Rapid expansion of the U.S. fishing fleet continued during 1947 with 1,275 vessels of 5 net tons or more added to the fleet. In a typical prewar year, additions of only about one-fourth as many vessels were made. Not only was the fleet larger numerically than ever before; with its larger, more powerful, and better equipped vessels, its potential producing capacity had been greatly increased.

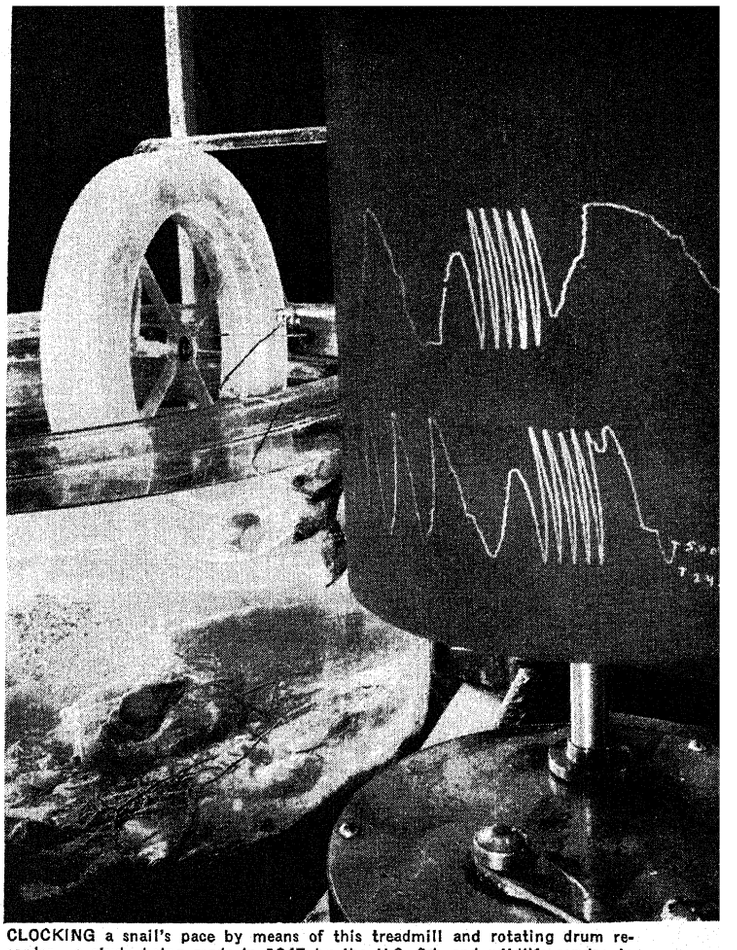
In spite of this expansion of physical equipment, landings by the United States fisheries in 1947 were approximately the same as in 1946 and about equivalent to the prewar average—4,400,000,000 lb. Because of prevailing high prices, however, this catch brought fishermen their largest income in history.

As in 1946, menhaden represented the largest U.S. catch, replacing the pilchard which for at least a decade previously had maintained first place. The yield of menhaden in 1947 exceeded 1,000,000,000 lb., thus continuing the year-by-year increases during which production had almost doubled during the years 1942–47. The entire catch of menhaden, which in 1947 comprised about 20% of the total, was converted into meal and oil.

The rise of the menhaden fishery on the Atlantic coast was balanced by an even more spectacular decline of its west coast counterpart, the pilchard or California sardine. From an average production of nearly 1,000,000,000 lb. maintained during the decade 1936–45, the yield of pilchards declined to 491,000,000 lb. in 1946 and to less than 250,000,000 lb. in 1947—the smallest yield in at least 20 years. Pilchard fishing in 1947 was generally poor along the entire California coast, the centre of this fishery, although until that year the southern California fishery had maintained high production. In the San Francisco district, the pilchard fishery was a complete failure, with less than 150 tons of fish brought to port, in contrast to a 1941–45 average production of more than 130,000 tons. At Monterey, from an average of 210,000 tons, the catch dropped to less than 150,000 tons. San Pedro dropped from 214,000 tons in 1946 to 97,000 tons in 1947.

In sharp contrast to the pilchard fishery, tuna landings on the Pacific coast were the largest in history, surpassing even the record year of 1946. The 1947 pack amounted to approximately 5,700,000 cases, or about 1,000,000 cases more than the 1946 pack. Reflecting the tendency of this fishery to expand into remote areas was the use of a large factory ship for operations in Costa Rican waters, the tuna being frozen on the fishing grounds and delivered to a cannery in Astoria, Ore., for processing. During the year the industry completed arrangements for use of additional floating freezers and for exploration of the tuna resources of the South Pacific.

After a series of poor years, salmon runs increased slightly on the Pacific coast of the United States and in Alaska, resulting in a pack of about 5,200,000 cases. This represented an increase of about 600,000 cases over the 1946 pack, but was still far below the prewar average. Despite reduced volume, the salmon packs of 1947 and years immediately preceding had brought the industry the largest financial return in history. The 1947 pack was worth about $100,000,000.



CLOCKING a snail's pace by means of this treadmill and rotating drum recorder—a study being made in 1947 by the U.S. fish and wildlife service to learn more about the sea snails which were a hazard to the oyster industry

Alaska herring, which along with menhaden and pilchard had become the mainstay of the fish meal and fish oil industries, provided a slightly smaller catch than in 1946. Practically the entire catch—195,000,000 lb.—was utilized in the production of oil and meal; the remaining small quantities were used for salting and as bait.

Production of fresh fish by the New England fisheries was affected by the apparent surplus of fresh and frozen fish which prevailed during the first half of 1947 and led to voluntary curtailment of operations by the fleet. The catch of rosefish, which was the leading species taken on the Atlantic coast for the fresh and frozen trade in 1946, declined sharply during the early months of 1947, the year's total production amounting to about 130,000,000 lb., a drop of about 50,000,000 lb. from the preceding year. As a result of this decline, haddock resumed its normal rank as the leading food fish taken on the Atlantic coast.

Freezings of U.S. fishery products during 1947 amounted to 240,000,000 lb., according to statistics reported by the U.S. fish and wildlife service. This was a decline of 40,000,000 lb. from 1946. The slackening of activity was brought about by the heavy inventories of frozen fish that existed at the end of 1946, when 158,000,000 lb. were reported on hand—the largest holdings in history. New freezings were therefore curtailed until this backlog was reduced.

The 1947 pack of canned fish was the most valuable in the history of the fisheries, but in volume was about equivalent to the 1946 pack of 700,000,000 lb. Three-fourths of the 1947 pack was composed of five items: salmon, tuna, California pilchards or sardines, Maine sardines and mackerel. While salmon, tuna

and mackerel were packed in larger quantity than in 1946, the production of Maine sardines fell off about 20%, and the pack of California sardines declined nearly 50%.

Demand for fish meal and oil, which for several years had been increasing far more rapidly than the supply, continued in 1947. The fortunes of this industry had become closely related to the success or failure of the fisheries for menhaden, pilchard and Alaska herring, the principal sources of raw material. In 1947, the phenomenal success of the menhaden fishery only approximately balanced the dismal failure of pilchard fishing, with the result that production of fish meal totalled about 190,000 tons, compared with a 1946 yield of 199,555 tons. The fish oil industry fared worse, for, in addition to the failure of the pilchard fishery, it was affected by the unusually low oil content of the menhaden caught in 1947, which even the heavy catches could not entirely compensate. During the first ten months of 1947, production of fish oil amounted to only 13,700,000 gal., and it was predicted that the total for the year would be less than half the average production during the period from 1935 to 1939.

The leading fishing ports in the United States in 1947, from the standpoint of total tonnage handled, were, in the order of their importance, San Pedro, Calif.; Lewes, Del.; and Boston, Mass. San Pedro, which had ranked as the most active port for four years, handled more than 430,000,000 lb., consisting chiefly of pilchards, tuna and mackerel. Lewes received about 250,000,000 lb. (exclusively menhaden), maintaining the same relative position it held in 1946. Boston, which in 1946 ranked fourth, moved into third place and resumed its normal position as leading New England port with landings of more than 200,000,000 lb. The reduction in landings of rosefish, concentrated at Gloucester, caused that port to drop below Boston in total landings. Reedville, Va., another menhaden port, held fourth place with landings of 172,000,000 lb. Gloucester, Mass., with landings of about 170,000,000 lb., held fifth place.

In the course of government-administered sealing operations on the Pribilof Islands in Bristol bay, a total of 61,447 fur-seal skins were taken in 1947. This represented a decrease of 3,276 skins from the 1946 take. The seal herd numbered 3,613,653 animals when the annual census was taken early in August, an increase of 6.72% over the 1946 census. When the federal government assumed active management of the fur seals in 1910, the herd contained only 132,279 animals.

A study of the migration routes and food habits of the Alaska fur-seal herd, comprising about 80% of all the fur seals in the world, was begun by the fish and wildlife service in May. The motorship "Black Douglas" followed the fur seals northward along the coasts of British Columbia and Alaska to their breeding grounds on the Pribilofs. After the breeding season, the vessel again followed the seals in their fall migration. As part of the study, nearly 20,000 seal pups were marked with metal tags for further investigation of their migrations.

Of special interest among natural phenomena affecting the fisheries in 1947 was the "red tide" which afflicted the west coast of Florida during the greater part of the year. Accompanied by a reddish discoloration of the water, this plague extended along about 150 mi. of coast and resulted in the destruction of millions of food and game fishes. Scientific investigations showed that it was caused by the presence of great numbers of a micro-organism belonging to the dinoflagellate group, *Gymnodinium* sp., which released toxic substances fatal to most forms of marine life. Scientists reported that the organism was closely related to forms that had caused other destructive red tides along the Pacific coast of North America, and in Peru, Australia, Japan, India and other parts of the world.

(R. L. Cn.)

Canada.—The most important development in Canadian fisheries during 1947 was the establishment of the Fisheries Prices Support board authorized by an act of Parliament in 1944. It was empowered to deal with inland and coastal fisheries, with areas inside those divisions, and even with particular kinds of fish, using a revolving fund of $25,000,000 for such price support. It could make differential payments to fishermen (that is, pay the difference between the actual market price and what the board believed to be an adequate price), and support fish prices indirectly by entering the market and purchasing fish at a contract price for export by the government. The only purchase made during 1947 was $8,000,000 worth of canned and salted fish as part of Canada's aid-to-Europe program.

The federal fisheries department also set up a Directorate of Marketing to control the quality of fish and fish products during processing, transportation and retailing; to increase annual per capita consumption of fish from 8.4 lb. to 13 lb., and to initiate studies and submit recommendations concerning government marketing policies.

In the 1947 Geneva tariff concessions Canada got freer entry to 12 world markets for various kinds of fish and fish products. The concessions took effect on Jan. 1, 1948, and were expected to boost the annual fish export of $80,000,000 by an additional 25%.

(C. Cy.)

Great Britain.—The British fishing industry was the strongest and most important of the European group during 1947. Returns of sea fisheries published by the English and Scottish ministries showed total landings by British vessels in British ports of fish other than shellfish during the first nine months of 1947 as, approximately, 790,720 tons; the corresponding figures for 1946 and 1938 respectively were 718,720 tons and just under 840,000 tons.

World War II had brought a respite for the fish stocks in most waters after the serious effects of overfishing felt in 1938, and it was hoped that the convention signed in London in April 1946 might take effect in time to continue that respite in modified form. Unfortunately the convention had not yet received in 1947 the ratification by all the signatory governments necessary to bring it into force. As a result of this delay, the meshes of fishing nets and the size limits of fish remained at the prewar conventional dimensions, and the permanent commission provided for in the new convention had not come into being. The duty of this commission would be "to consider whether the provisions of this convention should be extended or altered." The convention did not apply to herring fisheries, in which the question of overfishing had not yet arisen; they were of apparently inexhaustible abundance.

The British fishing fleets had not yet returned in full strength from war service, and only a few of the German fishing vessels had been mobilized: their gradual return, no doubt, accounted in part for the fact that the landings in 1947 showed an increase over those of 1946; and again, the reduction of fishing strength had a bearing on the fact that these landings were nearly 56,000 tons less than those of 1938, when the effects of overfishing were being severely felt in the rich home waters. (*See* also Marine Biology.)

(H. G. M.)

Fishing: *see* Angling.
Flax: *see* Linen and Flax.

Floods and Flood Control.

The U.S. Flood Control act approved July 31, 1947, provided $298,322,825 for flood control work during the fiscal year ending June 30, 1948. The funds were classified as follows: general flood control, $246,072,825; lower Mississippi river, $50,000,000; Sacramento river, $1,750,000; Mississippi river

emergency fund, $500,000. Of the flood control general fund, $231,800,825 was specified for new construction; $4,500,000 for advance planning; and $5,000,000 for preliminary examinations, surveys and contingencies. Exclusive of the lower Mississippi river and the Sacramento river, flood control construction was continued or begun on 156 projects in 35 states. Of the $4,500,000 voted for advance planning, congress specifically earmarked $2,350,000 for four projects: Oahe reservoir, S.D.; Red Rock reservoir, Ia.; Eufaula reservoir, Okla.; and Dyberry and Prompton reservoir, Lackawaxen river basin, Pa.

At the end of June 1947, 52 dams and reservoirs and 153 local protection projects were in operation throughout the United States. On Aug. 4, 1947, congress authorized construction of a flood control project on the Little Sioux river in Iowa, at an estimated cost of $3,320,000. Exclusive of the Tennessee river valley, the total number of projects authorized by congress numbered approximately 760, with a total estimated cost of $2,290,724,500. Ten additional projects having an estimated cost of $161,675,500 had been placed under the jurisdiction of the Mississippi river commission, an independent government agency operating within the office of the chief of engineers. In the ten-year period 1937–47, congress appropriated a total of $1,081,494,725 for national flood control purposes. Of this total, $1,005,272,825 had been spent for the construction and planning of authorized projects and $76,221,900 for maintenance, surveys and miscellaneous activities. Under the corps of engineers' over-all plan for national flood control, the authorized projects constituted a comprehensive, co-ordinated plan for intrariver basin development.

Channel improvement of the Mississippi river proper was continued during 1947 at a number of places below Cairo, Ill. The approximately 1,500 mi. of main stem levees extending from near Head of Passes, La., to Rock Island, Ill., were practically completed. Co-ordinated with the main stem levees were 1,000 mi. of tributary levees, also virtually completed in 1947. Below Cairo, work continued on riverbank protection. Revetment in place totalled approximately 100 mi. of riverbank; in addition, many miles of permeable dikes were in place for bank stabilization and channel regulation. The substantially completed 2,500-mi. levee system contained approximately 1,200,000,000 cu.yd. of earth.

A flood control dam on the St. Francis river, a tributary of the Mississippi, and two in the Yazoo river basin were completed and were placed in operation. Two more dams in the Yazoo basin continued under construction.

During the year, construction was initiated on almost all projects outside the lower Mississippi valley for which funds had been made available by congress. Included among these projects were the Wolf Creek reservoir, Ky.; the Cincinnati, O., local protection project; the Lookout Point reservoir in the Willamette river basin, Ore., the Konopolis reservoir, Kan., the local protection project at Kansas City, Mo., and Kansas City, Kan., the Garrison reservoir, N.D., and the Fort Randall reservoir, N.D. and S.D., all in the Missouri river basin; the Clark Hill reservoir on the Savannah river and the Allatoona reservoir in the Coosa river basin, both in Georgia; the Almond in the Susquehanna river basin, N.Y.; the Blue Mountain reservoir, Ark., the John Martin reservoir, Colo., and the Canton reservoir, Okla., all in the Arkansas river basin.

Work was continued throughout 1947 on the separately authorized project for the Sacramento river and its tributaries in California, a continuing project to provide flood protection for urban and rural property of great importance to the economy of western United States.

In addition to providing economical flood protection and allied benefits for centres of industry and population, agricultural lands, and lines of communication, many of the dams and reservoirs provided for multiple-purpose utilization, such as hydroelectric power, water conservation, irrigation, stream flow regulation for navigation purposes, pollution abatement, recreation and other worthy uses.



RISING WATERS of the Mississippi river and its tributaries brought severe crop and property damage to wide lowland areas in Missouri, Iowa and Illinois during June 1947. Farmlands near Hartford, Iowa, are shown under water

U.S. Floods.—Floods occurring during 1947 were among the worst of record in the United States. In June and July, floods in the Missouri and upper Mississippi river basins caused damages estimated at more than $1,000,000,000 and the loss of 40 lives. During these months an estimated 3,000,000 ac. were under water in the Missouri river basin and 1,000,000 ac. in the upper Mississippi basin. A number of areas were flooded several times. More than 50,000 families were forced from their homes; transportation, communication and normal community lives were disrupted over a period of several weeks. Direct damage was $156,000,000, and indirect damage—loss of soil, crops, impairment of future crops, damage to utilities and general business losses—was more than $800,000,000 according to an estimate of the department of agriculture. Earlier, in March and April, another flood swept the Missouri and many of its tributaries following ice jams and heavy rains in the lower basin. Damage was estimated at $17,500,000; it was estimated that an additional damage of $6,000,000 was prevented by the Fort Peck dam.

In Jan. 1947 floods in the southeast centred around Rome, Ga. The Coosa and Oostawaula rivers showed the highest crest since 1886, and damage was estimated at about $500,000. Floods occurred in the Great Lakes region in April, extending from northern Illinois to western New York and crossing the southern peninsula of Michigan. Damages were estimated at about $4,000,000 in Michigan and approximately the same amount in Pennsylvania and New York state. Rapid snow melting caused seasonal peaks in the Columbia and Willamette river basins in

May, with flood stages exceeded in several tributaries. Nominal damages were done to pastures and crop lands. A flash flood on East creek in Vermont in June caused approximately $7,500,000 damage, of which Rutland suffered about $5,000,000. Similar floods in the Little river basin in Arkansas and Oklahoma in August did only nominal damage. September floods in Florida, following heavy rains, did an estimated $30,000,000 damage.

Minor floods were experienced in all sections of the United States during 1947, with damages other than those in the Missouri and Mississippi basins estimated at $56,000,000. It was estimated that flood control projects installed by the corps of engineers had prevented an additional $69,000,000 of damages. Emergency flood fighting, rescue work and emergency repairs were conducted in all flood areas according to law. (G. Hb.)

Great Britain.—Following the lowest air temperatures recorded at Greenwich observatory since 1870, Britain was coated with an unusually heavy depth of snow during the first three months of 1947, particularly in February. Drifts of 20 ft. were commonplace. With the March thaw came the anticipated floods swollen by severe storms, the frozen ground expediting the rapid runoff; conditions suitable for floods of great intensity were created. Rivers in western, southern and mid-England burst their banks, extending the industrial stoppage precipitated by the cold weather and increasing the misery and discomfort caused by the earlier blizzards. As the thaw and storm crossed Britain from the west, Salisbury and Bath were the first to experience the abnormal conditions, followed by the Thames and Ouse basins, while traffic dislocation in the Midlands was described as the worst ever experienced.

The grimmest aspect of the devastating floods occurred in the Lea valley in north London where a large water supply filtration station of the metropolitan water board was inundated with highly polluted floodwaters. More than 500,000 people were without a piped supply of drinking water, and it had to be conveyed to them by means of road tankers. In East Anglia, dikes were breached so frequently that a large proportion of Fenland was soon under water, causing what was then erroneously believed to be irreparable damage to the rich agricultural belt. In certain upland areas of limited size, excellent control was achieved by reducing the waters held in store in water-supply reservoirs to accommodate the expected floods; in most cases, however, the actual flood yields were much greater than had been anticipated, the runoff in one week being more than that expected during a normal year. Over-all, the cost of this caprice of nature might be reasonably assessed in excess of £100,000,000; yet, contrary to expectations, no failures of waterworks' dams were recorded.

During 1947, no important flood works were in progress other than new steel-piled banks for the river Nene and other remedial measures, induced by the spring floods. Dutch engineers, with their specialized equipment, were employed in sealing the major breaches in the Fenland dikes. The need for a policy of control, however, was again recognized; many paper schemes, which, if implemented previously, would have saved much damage and destruction, were resurrected and modified, notable cases being Fenland and the £3,000,000 Irwell project at Salford, Lancashire. The latter would require a three-mile diversion tunnel across the large river loop to the Manchester ship canal.

One factor which was receiving more consideration than hitherto was that local drainage improvements by deepening and straightening of river courses in one part of a catchment, together with improved sewerage, accentuated flood conditions in lower parts of the river by moving the danger downstream. The intended legislation for improvements in river control should provide the replacement of flood displacement by multilateral control.

Other Countries.—Although many European countries experienced spring floods parallel to those in Britain, drought was the most striking feature afterward; in September, the river Danube reached its lowest level in 179 years, and the Rhine was at its lowest since 1810. In late December serious floods occurred in eastern France and heavy damage was suffered by the towns of Nancy, Epernay, Metz, Thionville, Verdun and Rethel from the overflowing of the Moselle, Meuse and Aisne rivers. In Nancy 2,000 houses, the homes of 16,000 people, were wrecked. Agricultural losses also were severe.

In the Punjab, India, the early and intense fall of the monsoons inundated large areas of fertile land and lines of communication, and increased the misery and death rate of the mass passage of refugees between Pakistan and India. Politically, the boundary division between the new dominions established in 1947 took some account of flood and irrigation control, but it was feared that any widening of the political gulf would make flood control either difficult or impossible.

The re-diversion of the Yellow river, China, back to its old northern course into the Gulf of Chihli by U.N.R.R.A., recalled the breaching of the dikes in 1938 by the Chinese, to impede the Japanese advance, when the breach became uncontrollable and drowned 400,000 people.

Experiments, originating in Australia and continued in Oregon, indicated that the artificial production of heavy rainfall by feeding dry ice and other chemicals into clouds, and thus setting up a chain reaction, might lead to great new developments in both drought and flood control. (*See* also Dams; Forests; Irrigation; Meteorology; Soil Erosion and Soil Conservation; Tennessee Valley Authority.) (D. G. Ds.)

Florida.

The extreme southeastern state of the United States, Florida is called the "Peninsula state" because of its peculiar outline. Its coast line, not taking into account the numerous bays and indentations, is greater than that of any other state, extending 472 mi. along the Atlantic and 674 mi. along the Gulf of Mexico. Area, 58,560 sq.mi., of which 4,298 sq.mi. are water surface; population (1940) 1,897,414, of which 1,045,791 were urban and 851,623 were rural; 1,384,365 white and 513,049 Negroes. Only about 60,000 were foreign born. Capital, Tallahassee (16,240 in 1940). The larger cities are Jacksonville (173,065), Miami (172,172) and Tampa (108,391). By the state census (1945) Florida had a population of 2,249,649. Population figures for the three larger cities, Jacksonville, Miami and Tampa, were 206,442, 192,122 and 124,476 respectively.

History.—The state elective administrative officers in 1947, whose terms were to expire in Jan. 1949, were as follows: Millard Caldwell, governor; R. A. Gray, secretary of state; J. Thomas Watson, attorney-general; C. M. Gay, comptroller; J. Edwin Larson, state treasurer; Colin English, superintendent of public instruction, and Nathan Mayo, commissioner of agriculture.

Education.—The biennial report of the state superintendent of public instruction, 1944–46, showed enrolment in the public schools for 1945–46 through grade 12 as follows: white 310,442; Negro 105,315; total 415,757. There were 1,706 elementary and 768 secondary public schools in the state, with instructional staffs not including supervisors totalling 14,234 teachers, of whom 10,736 taught in the schools for whites and 3,498 in the schools for Negroes.

Social Insurance and Assistance, Public Welfare and Related Programs.—Florida disbursed for state welfare through the State Welfare board $26,698,938.06 in 1946–47. From grants by the federal government, the state received in 1946–47 for old-age pensions $12,143,138.72; for dependent children $2,184,867.09; and for pensions for the blind $644,403.79; total $14,972,409.60. Disbursements for old-age assistance were $20,588,948.50; for dependent children $3,410,201.50; and for the blind $1,093,627.50. The unemployment benefit receipts were $13,821,435.23 with benefit disbursements of $5,207,161.80.

Florida has no state penitentiary, but maintains a prison farm at Raiford, a second prison at Belle Glades, an Industrial School for Boys at Marianna, and an Industrial School for Girls at Ocala. The appropria-



WIND-SWEPT PALM TREES photographed in Miami during the violent hurricane which swept westward through southern Florida on Sept. 17–18, 1947

tions for these institutions for 1946–47 carried the sums of $828,168, $152,000, $306,850 and $110,600 respectively. The state also supports a state hospital for the insane at Chattahochee and a hospital at Arcadia, the Florida Farm colony for the feeble minded at Gainesville, and the Florida School for the Deaf and Blind at St. Augustine. The appropriations for these institutions for 1946–47 carried the sums of $4,072,088.44 including the hospital at Arcadia, $312,750, and $506,938 respectively.

Communications.—The total highway mileage in the state in 1947 exclusive of roads built for military purposes, was 48,561 mi., of which approximately 22,208 mi. were paved or hard-surfaced. Disbursements for the year ending Dec. 30, 1947, for maintenance and construction, amounted to $38,579,638.04. The state road department's tentative budget for 1948 for construction was $56,275,971 plus $6,697,756.93 for maintenance and other departmental costs. Florida in 1947 had a little more than 5,000 mi. of railroads in operation exclusive of yard tracks.

Banking and Finance.—On June 30, 1947, there was a total balance in the state treasury of $83,043,538.38 with outstanding warrants of $8,739,715.97. The state is constitutionally forbidden to incur a debt by borrowing except to put down rebellion or repel invasion. The constitution also prohibits the legislature from levying an income tax, forbids any state ad valorem tax on real estate, and exempts homesteads from taxation by local taxing units up to the value of $5,000.

On June 30, 1947, there were within the state 61 national banks with deposits amounting to $1,194,391,000 and 120 state banks and trust companies with deposits of $475,111,000, representing total deposits of $1,669,502,000, a loss in deposits of $156,693,000 in the fiscal year.

Agriculture.—In 1945 the U.S. census of agriculture showed that there were 61,159 farms with a total acreage of 13,083,501 ac., of which 1,840,264 ac. were in crops; 474,367 ac. were idle (fallow); 4,568,278 ac. were in pasture (4,527,462 ac. of woodland were also pastured); 5,801,860 ac. were in farm woodland.

Principal Agricultural Products of Florida, 1947 and 1946

Crop	1947	1946
Corn, bu.	7,946,000	6,910,000
Tobacco, lb.	25,190,000	22,251,000
Potatoes, bu.	2,959,000	6,249,000
Sugar cane, short tons	1,073,000	1,156,000

The citrus production for the season 1946–47 and the estimates for 1947–48 respectively were as follows: oranges (including tangerines) 58,400,000 and 53,800,000 boxes; grapefruit 29,000,000 and 31,000,000 boxes; limes 170,000 and 190,000 boxes.

On Jan. 1, 1947, the livestock resources of the state were as follows: 1,012,000 beef cattle and calves; 148,000 milk cows; 630,000 swine; 14,000 sheep; 27,000 horses; and 33,000 mules.

Manufacturing.—The more important manufactures of the state in 1947 were lumber, wood pulp, naval stores (turpentine and rosin) and cigars.

The cigars manufactured in Florida are valued at around $21,000,000 annually. Tampa and Jacksonville are the leading cities in this industry.

Florida's lumber production, mainly yellow pine and cypress, in 1946 was about 450,000,000 bd.ft. The total estimated value of primary wood products for Florida in 1947 was more than $125,000,000. Tung oil and the manufacture of paper and paper board were also important industries.

In 1939, according to the U.S. census figures (1940), the state had 2,083 manufacturing establishments, paying $37,823,204 to 52,728 workers and producing $241,238,534 worth of goods.

Mineral Production.—Florida has only limited resources in minerals, but has large and rich deposits of phosphates, lime and limestone and less extensive, though highly valuable, deposits of kaolin and fuller's earth. The estimated value of the state's mineral production in 1947 was more than $30,000,000. (A. N. P.)

Flour. Wheat flour production in the U.S. during the crop year ended June 30, 1947, totalled 300,000,000 sacks (100 lb. each), compared with 264,000,000 sacks for the 1945–46 crop year, an increase of 14%. During the 1946–47 crop year, only 8,600,000 sacks, or 2.9% were produced by mills with a daily capacity of 400 sacks or less. In general, the annual production of flour in the U.S. had increased steadily after 1935, when only 189,600,000 sacks were produced. According to production statistics prepared by the bureau of the census, industry division, foods section, flour milling reached an all-time high in Jan. 1947 when 64,575,000 bu. of wheat were ground to yield 27,906,000 sacks of flour, equivalent to an extraction rate of 72%. The monthly production for the first nine months of 1947 averaged 25,440,000 sacks, also an all-time production record.

Flour Conservation Program.—According to H. Fakler, vice-president of the Millers National federation, there was little official interest in a return to the 80% extraction type of flour in connection with the food conservation program. U.S. department of agriculture officials were aware of the general ineffectiveness of producing long-extraction flour as a means of providing more flour for export.

The flour-saving program proposed by Charles Luckman, chairman of the president's Citizens' Food committee, comprised the following 11 points:

1. To feature smaller sizes of loaves.
2. To use a higher proportion of noncritical foodstuffs to replace flour.
3. To use materials other than flour for "dusting" purposes.
4. To reduce the number of varieties of bakery products.
5. To serve smaller cuts of cakes and pies in food establishments.
6. To avoid all production losses.
7. To store and handle all raw materials so as to avoid foodstuff losses.
8. To plan production so as to eliminate loss of materials.
9. To avoid stale baked-goods losses in eating places.
10. To devise means of using leftover breads and rolls.
11. To publicize all efforts at food (flour) conservation.

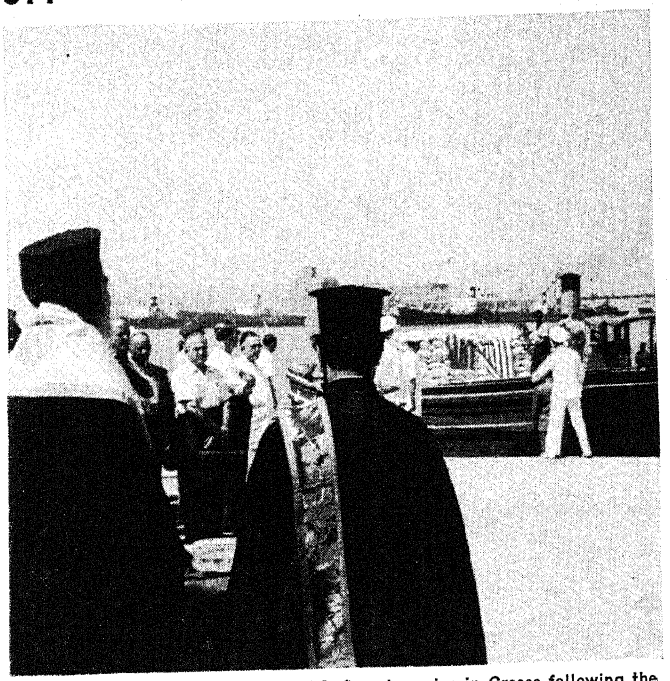
Preliminary estimates for 1947 indicated a decline in consumption of flour, wheat and cereals in the U.S. of 10 lb. per person as compared with the 1935–39 average.

Grain exports, including flour and other wheat products, during the 1946–47 crop year amounted to a total of 15,396,000 tons, representing an increase of about 1,000% over the average annual shipments for the 1935–39 period. The U.S. department of agriculture reported that wheat and flour exports for 1946, totalling 10,600,000 tons—equivalent to 396,400,000 bu. of wheat—were the largest on record.

In preparing family food packages for shipment abroad by CARE (Co-operative for American Remittances to Europe, Inc.), the 7 lb. of flour included represented nearly $\frac{1}{3}$ of the total weight of 21.5 lb. of food in each package.

Flour Milling.—Milling sanitation had received increasing attention during the past few years, and considerable survey work had been undertaken by the larger milling companies to determine the extent of foreign material fragments in flour. In furtherance of the flour mill sanitation program the use of unlaundered secondhand textile bags was prohibited in Minnesota for flour and other products for human consumption, effective Aug. 1, 1947.

Flour Prices.—Directly related to rises in the cost of wheat



UNLOADING the first shipment of U.S. flour to arrive in Greece following the announcement of the Truman doctrine on March 12, 1947. Church dignitaries were on hand to bless the cargo at the port of Piraeus

to millers, the price of flour advanced steeply over 1946 in spite of excellent crops and ample grain supplies. While most of this rise was attributed to intense speculation in grains, especially in wheat, it should be noted that the U.S. department of agriculture supported wheat prices substantially by announcing on June 30, 1947, that a national average price of $1.83 per bushel would be guaranteed to farmers as compared with a rate of $1.49 in 1946. Although only grade No. 3 wheat or better was eligible for this price support, for loan or purchase, the price of flour quickly advanced and, in view of export demands, it was thought that it would probably remain at record levels until European commitments or requirements should be satisfied.

Flour Technology.—Flour moisture content and its relationship to the relative humidity at various temperatures was the subject of an investigation by L. Morey, H. Kilmer and R. W. Selman. This work resulted in the establishment of a linear relationship between flour moisture content and the absolute humidity of the atmosphere. The equilibrium water contents of a typical Kansas flour in contact with air of varying moisture contents was determined at 50° C., 75° C. and 95° C.

A new method of flour bleaching was developed by W. S. Hutchinson and R. I. Derby, who reported that the oxides of nitrogen produced by the electric arc (Alsop process), when passed through a column of sodium chlorite, react to produce chlorine dioxide. The mixture of gases thus produced exhibit bleaching power much greater than that normally obtained from the electric arc machines.

In the field of wheat flour enzyme technology, an investigation was completed on the proteolytic enzymes of milled fractions of wheat.

An investigation of the colloidal properties of suspensions of glutens from different kinds of flours, including wheat, barley, rye, corn and buckwheat, was reported by A. Boutoric and Simone Fabry.

The effects of ultra-violet radiations on the aging characteristics of wheat flour was the subject of another study completed by the above authors, who concluded that the effect of ultra-violet light in accelerating the aging of flour was due chiefly to the action of ozone.

(*See* also BREAD AND BAKERY PRODUCTS.)

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Fluorspar. The major world producers of fluorspar are, approximately in order of importance, United States, Germany, Newfoundland, Korea, Great Britain, Mexico, France and Spain. World production reached a peak of about 1,200,000 tons in 1944 of which the United States supplied 35% and Germany 16%; other producers were of the order of 5% or less. Demand decreased sharply after the close of World War II, with the reduction in steel output and the decrease of specialized war uses.

United States.—The major features of the fluorspar industry in the United States are indicated in the following table in thousands of short tons.

Data of Fluorspar Industry in the U.S., 1940-46

(In thousands of short tons)

	1940	1941	1942	1943	1944	1945	1946
Shipments	233.6	320.7	360.3	406.0	413.8	324.0	277.9
Imports	11.9	7.5	2.2	43.8	87.2	103.1	29.9
Consumption	218.5	303.6	360.8	388.9	410.2	356.1	303.2
Iron and steel	160.1	214.7	250.4	241.4	238.0	204.7	167.7
Acid	35.7	56.0	81.6	113.6	129.6	109.3	83.9

In spite of the fact that fluorspar production declined 14% in 1946, shipments for the year were the largest for any peacetime year on record. The chief producing states are Illinois, Kentucky and Colorado. In the early years of the war imports were negligibly small but increased to furnish nearly one-fourth of the supply in 1945. The 1946 imports dropped back to the prewar level, with exports negligible. (G. A. RO.)

Food and Agriculture Organization: *see* FOOD SUPPLY OF THE WORLD.

Food and Drug Administration: *see* DRUG ADMINISTRATION, U.S.; NARCOTICS AND NARCOTIC TRAFFIC.

Food Research. The bureau of human nutrition and home economics in the U.S. department of agriculture reported valuable results in nutrition research. New, rapid and accurate methods were developed for the microbiological determination of nutritionally essential amino acids, especially methionine, lysine, threonine, valine and histidine. Some food proteins are low in nutritive value because they have little of the sulphur-containing amino acids, cystine and methionine. Through investigations into the chemical and nutritive properties of these and other amino acids that contain sulphur, the bureau developed a spectrophotometric method which proved useful in determining the amount of cystine in a number of proteins. Also, the investigators discovered that the cystine and methionine content of eggs can be improved by making certain changes in the protein of the hen's ration. Nevertheless, it proved ineffective to feed synthetic methionine to hens for the purpose of raising the level of cystine or methionine in the eggs. It appeared that, in order to be usable in the form of egg protein, the methionine had to be in combination with other linkages in the protein molecule.

In research to learn how well carotene in different vegetables is utilized by the body, the bureau experimented with kale and carrots in test diets. Experimental animals on diets otherwise adequate and depending on the cooked vegetable for vitamin A appeared to use only about 60% of the carotene in kale and about 25% of the carotene in carrots. The explanation appeared to lie, in part, in the inability of the rat to free the carotene from the vegetable cells in the digestive tract. Earlier studies had indicated that human beings utilize the carotene from peas and spinach very well—better than pure carotene

dissolved in oil. They do not, however, utilize the carotene from carrots so effectively as that from peas or spinach. However, the richness of carrots in carotene makes it an outstanding source of vitamin A, despite incomplete utilization.

Because of the interest developed in the study of vitamins, minerals and amino acids, nutritionists continued to give relatively little attention to the fuel value of foods. World War II called for a revival of interest in this problem. A common international basis for calculating the physiological energy value of wheat and other foods was needed. Accordingly, the bureau of human nutrition and home economics reviewed and summarized the literature on the derivation of calorie values from data on composition of foods, the heat of combustion of their major organic constituents and their digestibility by man. It concluded that the conversion factors used in the U.S., the factors 4.9.4 developed by W. O. Atwater in 1899, could appropriately be applied to the total number of grams of protein, fat and carbohydrate, respectively, when estimating the physiological energy value of the U.S. diet as a whole. The bureau explained the changes needed in the use of the Atwater system to give a more precise calculation of the calorie value of individual foods. It developed new calorie values for wheat flours of three levels of extraction and tentative comparable figures urgently needed by the U.S. army for a few other cereals, for potatoes and for some additional groups of foods.

Professor Henry C. Sherman, formerly chief of the bureau of human nutrition and home economics, and in 1947 at Columbia university, reported experiments at Columbia on the relationship of diet to senility.

In the Columbia experiments, Professor Sherman reported signs of senility in experimental animals agreed with the descriptions published by E. V. McCollum, Nina Simmonds, and Helen Parsons: "in our experiments as in theirs the onset of senility is deferred by nutritional improvement of the dietary. Thus in a typical case cousins, which in the opinion of skilled observers manifested senility in equal degree, had reached this condition in one case at an age corresponding to about 65 in man; while in the other case, with better-balanced diet, the same degree of senility was not reached until an age corresponding to about 75 or 80. The visible evidence of aging and the effects of diets upon their incidence are alike for males and females." (Henry C. Sherman, *The Science of Nutrition,* Nutrition Foundation, Columbia Univ. Press, 1947.)

In work on the effect of heat on proteins, especially those in oilseeds, the bureau examined the biological value of the protein in an unheated cottonseed flour prepared in the Southern Regional Research laboratory. This flour was a newly processed, solvent-extracted, gossypol-free product. Its protein had a much higher nutritive value than that in certain commercial cottonseed flours. This cottonseed flour also contained an adequate amount of lysine, one of the amino acids essential for growth. Some reports had pronounced cottonseed protein deficient in lysine. It was supposed that heat treatment might change the structure of the protein molecule, so that lysine becomes less readily available for the body's use.

A comparative study by BHNHE indicated rolled oats was equal or superior to all other major food grains tested in both quantity and quality of protein. Rice was lowest in the quantity of its protein but ranked with oats in protein quality. Rye, whole wheat, barley and corn followed in that order. Enrichment, restoration or fortification of certain foods with one or more nutrients was no longer compulsory by federal order as it had been between Jan. 1943 and Sept. 16, 1947. Yet the department of agriculture reported that the enrichment of grain products was continuing at much the same rate. In 20 states the enrichment of white flour was compulsory by state legislation. In addition, some states required the enrichment of corn and some other products. (*See* also FOOD SUPPLY OF THE WORLD; VITAMINS.) (A. P. CW.)

Food Supply of the World. No other year in modern times had seen so widespread concern over food as did 1947. The food shortage of the war years was followed by very slow recovery through 1945 and 1946. The crop year ending July 1947 saw little or no gain and the need for more food to prevent hungry people lapsing into chaos and political revolution became acute. The Food and Agriculture organization stated in December that "the world food situation is as critical this year as at any time since the close of World War II." While there were notable increases in production of several basic crops and better yields in some countries, the gains were insufficient to provide the exportable surpluses needed by the deficit countries. The needs of Europe became steadily larger through the year leading to food-saving campaigns in the United States and proposals for the return to rationing as in wartime. The steady advance of prices aroused the congress to consider inflation controls. The government called for another year of wartime-size production and increases over prewar levels to care for the increases in population. The crop-by-crop and country-by-country survey that follows reflects the food crisis in detail.

The world food situation at the beginning of 1947 showed little improvement over 1946. The International Emergency Food council stated that while the world as a whole was slightly better off, a number of individual countries found themselves in a worse food situation. In central and western Europe, excepting the United Kingdom, Switzerland and Portugal, some improvement in food supply was noted but in the lower Danube basin and in countries adjacent to the Soviet Union food conditions were worse. Competition for imports was keener than a year earlier. The most serious shortages were in the basic foods—rice, cereals, fats and oils, and to a lesser extent meats and sugar. Only about 3,000,000 tons of rice were available to meet demands for about 8,000,000 tons. Some gains in food supplies were noted in Asia and the far east, particularly China, Japan and southeastern Asia. In India the gain in relation to population growth was smaller, if any. Only half enough fats and oils were to be found and the meat supply of Europe was one-third less than prewar amounts. The hope of relief lay in the prospects for good crops in 1947, which must follow several years of high yields in the United States where the principal surpluses were to be found. In the United Kingdom food consumption was reported in March to be 5% to 10% less than a year earlier or during the war. At the same time it was emphasized that per capita consumption in the United States was higher, reaching 3,400 calories per day which was 5% above the prewar average.

In February former President Herbert Hoover headed an economic mission appointed by President Harry S. Truman and made a short survey of conditions in Europe and reported that the outlook was very serious and called for vigorous action by the United States, the chief source of surplus foods.

Effective measures to conserve human foods were reported to have resulted from the recommendations of the Conference on Urgent Food Problems held in Washington, D.C., in May 1946. These measures included the use of less wheat and other bread grains for livestock and the production of alcoholic beverages. In France, nonfood industries received no wheat. More controls were put into effect than during the war, particularly in Europe. The rate of milling wheat was raised to 85% to 96% extraction, and the waste of wheat and wheat products was made a criminal offense in some countries.

The President's Cabinet Committee on World Food Programs reported on July 1, 1947, that the United States would have to increase its exports of foods if the European situation was to be prevented from seriously deteriorating.

A special Cereals conference was held in Paris in July to consider measures to meet the grain shortage. Over thirty nations were called together by the F.A.O. and I.E.F.C. to survey the food grains situation. Numerous measures to save human food were recommended.

The Food and Agriculture organization held its third session at Geneva in August and appraised the world's food situation again. While improvement in some countries was noted for the year 1946–47, the total was not sufficient to offset the effects of long deprivation.

By Sept. 22, 1947, the situation was reported as less favourable for the coming winter than appeared evident in midsummer. The President's Cabinet committee reported that crops in Europe had rapidly declined during August and September so that steps should be taken to conserve grain supplies for export. In October the I.E.F.C. issued a statement supporting the estimate that world food production in 1947 would be below that of 1946 and that the deficit areas had the poorest crops.

These warnings led the president to call for a special campaign to save food grains for export. A Citizens Food committee was set up, and a nation-wide campaign was made to save 100,000,000 bu. of grain for export to Europe. The plan called for meatless Tuesdays, poultryless and eggless Thursdays and a "save a slice of bread a day" slogan. The results of the campaign would not be determined until late in the winter when exports had been measured.

A summary of the world food situation was issued by the F.A.O. Dec. 4, 1947, which appraised it as critical as at any time after the end of hostilities. World production of bread grains and rice per capita was estimated at 13% below the prewar average of 1934–38. Droughts and other weather damage caused heavy crop losses and destroyed the prospect for improvement indicated early in the year. Europe was hardest hit; middle east grain production fell off; the far east reported some gain over 1946 but hardly enough to offset population increases. The United States enjoyed the greatest increase of any part of the world.

The I.E.F.C. was combined with the World Food Council of F.A.O. in December and the allocations of food stuffs was to be continued by the new body which took over the staff of I.E.F.C. A general world food conference was expected to be held early in 1948 as soon as the requirements under new congressional aid to Europe plans had been developed in detail.

Bread Grains, Wheat and Rye.—Wheat had become the most important food crop of the world during and after World War II because of its place in feeding the destitute Europeans. The normal prewar imports of Europe were more than doubled by the local crop decline. While rye takes the place of wheat as a bread grain in some regions, the world's trade in rye was comparatively small in 1947. More than 72% of the world's grain exports consisted of bread grains, wheat and rye and the remaining 28% was principally corn. Of the world's exports of grain the United States provided 53%, Canada 24%, Argentina 15% and Australia 5%.

Productions of wheat and rye in 1947 were estimated at a total of more than 7,425,000,000 bu., consisting of 5,975,000,000 bu. of wheat and 1,450,000,000 bu. of rye. This total was slightly more than was harvested in 1946 and almost up to the production of 1935–39 due chiefly to the huge United States wheat crop. In Europe and other deficit areas the crop was still below the prewar average. This situation made it necessary to move more of the crop to the deficit areas to prevent famine. Population increases of 5% to 10% after 1939 further increased the deficits in some areas. In 1946 Europe imported more than 16,600,000 tons of grain to supplement home-grown supplies, and then was short of an adequate diet. The stocks being low at the mid-year and the corn crop also being smaller than in 1946 intensified the competition for bread grains which caused prices to rise to record heights in the United States. This greatly increased the cost of relief purchases in all countries.



"THE TASKMASTER" by Burck of the *Chicago Times*. The urgency of Europe's need led President Truman, in Oct. 1947, to urge all U.S. citizens to eat no meat on Tuesdays and no poultry or eggs on Thursdays in order to conserve food

Rice.—The world's greatest food crop for direct human consumption, rice, was slowly approaching the prewar level of production in the 1947–48 crop year. The total harvest was estimated by the United States department of agriculture at 6,900,000,000 bu., which was 4,800,000,000 bu. more than in 1946, and compared with a prewar average of about 7,446,000,000 bu. for 1935–39. The increase was made in China which formerly produced about 35% of the world's total, while there were reductions in India, due in some cases to acreage being shifted to jute. Siam, Burma, Japan, Korea and the Philippines each increased acreages of rice.

Europe as a whole planted a larger acreage in 1947 and harvested a crop almost equal to that of prewar years. Most of the increase was in Spain. Yields were low there, however, due to shortage of fertilizers. Italy's crop was fair but the acreage was below prewar. Egypt and Madagascar had excellent crops. The South American crops were expected to be about the same as in 1946–47. In North America the record crop of the United States raised the North American total almost 50% above the prewar level, providing a considerable supply for export.

While the rice production of the larger rice-consuming countries was increasing from the low levels reached during the war years, the total was yet so far below the prewar total that little relief to rice consumers was in sight. Population growth in China and India has been much more rapid than the expansion of food

production.

Potatoes.—The potato crop centres in Europe, as rice centres in Asia. About half of the world's total is grown in Europe and in prewar years about one-fourth of Europe's total was grown in Germany. The world's potato crop for 1947 was estimated at about 7,080,000,000 bu., compared with 7,132,000,000 bu. grown in 1946 and an 8,417,000,000 bu. prewar average. The 1947 crop was about 16% below prewar chiefly due to lower yields as the acreage was approaching the prewar level. Average yields were only 139 bu. per ac. compared with 149 bu. in 1946 and 160 bu. in prewar years. Drought and the shortage of fertilizers held down the production.

Fewer potatoes were grown in both the United States and Canada in 1947 and in almost all other countries except South America where the total is not large.

The experience of the United States in 1946 when it had a large potato crop did not encourage exports to any great extent. Dehydrated potatoes could be shipped but the transport of raw potatoes was attended by heavy losses. Supplies in the United Kingdom became so scarce that the rationing of potatoes was begun in the fall of 1947.

Sugar.—World sugar production increased about 19% in 1947 and provided a supply that allowed for greatly increased consumption. The Cuban crop was double the prewar output and the crop of Europe was 40% above 1946 although less than half of prewar output. The Philippines and Formosa were still harvesting less than 10% of prewar production. The higher price of sugar continued to restrict its purchase for deficit countries, since other foods were considered more essential. The potential sugar output of the world is sufficient to provide the 12% increase recommended by F.A.O. by 1950.

Meat.—Production was expected to require more time to recover to prewar levels in the world as a whole principally because of the urgent need for grain for immediate human consumption. Meat is of less importance in Asia than in Europe, and in the former areas production effort was to be expended on rice and wheat. The numbers of livestock declined in the United States, Canada and Mexico while increases in Europe were small, probably less than 5% for all animals. Feed supplies were still 15% less than in prewar years in relation to the number of animals to be fed, and concentrated feed supplies were particularly short. This led to early slaughtering of meat animals and a corresponding reduction in the quantity of meat. Hog slaughter in Europe was still less than half of the prewar amount and was not wholly offset by the increases in the United States, Canada and Argentina. Poultry and egg production, which began to recover at the end of hostilities, was handicapped again by the severe grain shortage. The total world production of poultry for meat and eggs in 1947 gained slightly over 1946 in spite of the decline in the United States. Canada and Australia, which supply Great Britain, increased their output of eggs in 1947. The number of dairy cows was slowly increased after the war, and milk, butter and cheese production began to recover. By 1946 the western European countries had recovered about half of the prewar production. The low countries, the Netherlands, Denmark and Belgium, suffered from the 1947 drought which damaged pastures severely. The feed shortage was also a retarding factor.

Food Situation by Areas.—North America as a whole had a somewhat smaller total food crop and meat production notwithstanding the high record wheat crop of the United States. The Canadian wheat crop was off 15%. Corn declined in the United States and affected the output of livestock and products. Even with these reductions however, North America was the world's chief source of exports to make up the deficit of the needy countries.

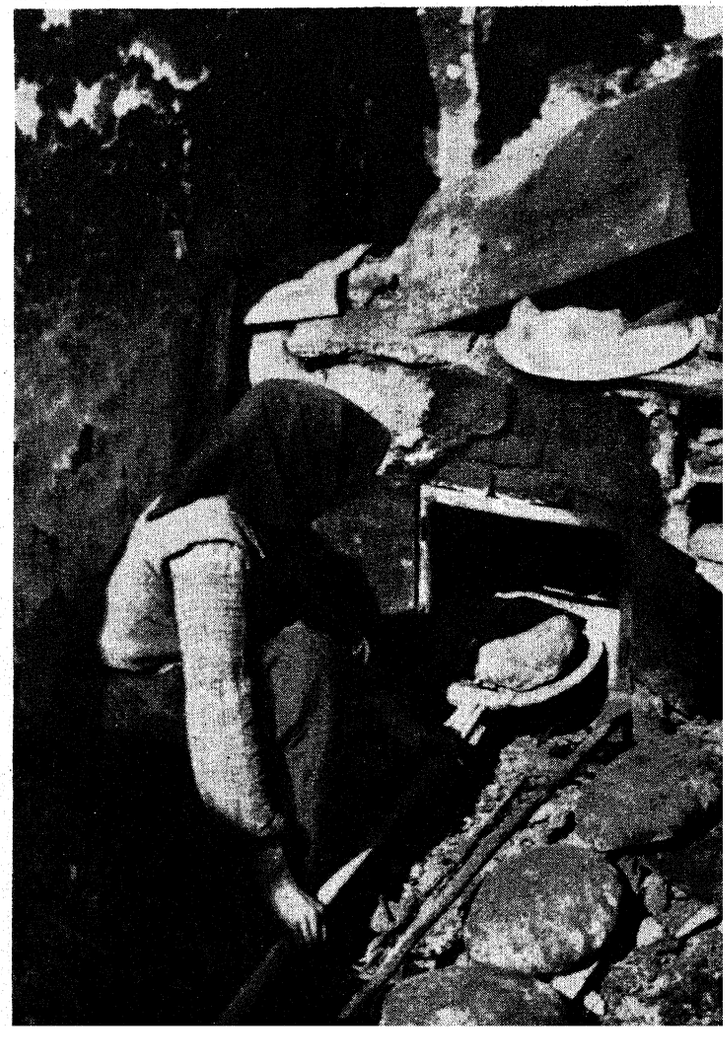
Great Britain experienced the worst floods and droughts in 50 years, which cut domestic production severely. Potatoes were 10% below the average yield, and in early November potato rationing was begun at 3 lb. per capita per week. Almost all other foods were rationed, which brought the average diet down to 2,700 calories, which was below the wartime level. Purchases from the United States were suspended in August because of the dollar shortage. Some purchasing was resumed later when the terms of the loan to the British by the United States were made more favourable. In December the British were buying in the cheapest markets, including the purchase of some wheat from the Soviet Union.

Europe was hard hit by bad weather—a severe winter followed by a dry summer. Yields were much below 1946, although the crop acreage was larger. The most severe loss was a drop of nearly 8,000,000 tons in wheat and rye. Other grains were also short, and potatoes were below the 1946 output. A slight increase in livestock, principally pigs and poultry, was reported. The shortage of feed grains cut down the output of meat and milk, although heavy slaughter due to feed shortage was expected to increase the supply of fats for the winter of 1947–48. Central Europe, principally Germany, needed imports for the winter of 1947–48 about as great as for the previous winter. Corn production in the Danube valley was better than 1946 and about up to the prewar level.

The middle east, usually an exporter of food grains, had a smaller crop than in 1946 because of drought and locust attacks.

The Soviet Union reports were very conflicting. Government claims of a large wheat crop were not consistent with the reports of observers who noted the lack of fertilizers, farm ma-

DARK BREAD, milled with U.N.R.R.A. flour, constituted three-quarters of the daily diet of this woman and most other residents of the village of Mokrance in eastern Slovakia during 1947



chinery, seed, work animals and the generally low rations being served to workers in the cities.

South America reported less grain and a decline in livestock production due to feed shortage. The wheat crop of Argentina was estimated at 17% below 1946. Tropical crops, sugar, coffee, etc., were increasing. Australia had a larger wheat crop and offered larger exports. South Africa had barely enough for its own needs.

China's 1947 crop production was estimated to be slightly better than the fair crop of 1946 and about equal to the prewar 1931–37 average. The civil war, poor transportation and financial troubles resulted in deficits in some regions reaching near famine conditions. Imports were effective in helping the coastal cities to maintain the people on the minimum diet. About 800,000 tons of rice and wheat were brought in from other coastal areas.

Burma, French Indo-China and Siam, which had an export surplus of 45% of their production in prewar years, reduced production during World War II as the result of the Japanese blockade and in 1947 were producing only about half the prewar amount, and exports had not recovered above 17% of the prewar amount. The recovery of these countries is essential to provide ample food for China and India.

India was very short of food following the 1946 harvest, and the crop of 1947 was only sufficient to replace stocks when the third successive year of short supplies was experienced in nearly all parts of the country. The division of the country intensified the need, since millions of people were taken from the land to cities in other areas where the people had no land and no allowance of food. Statistics of food production were delayed in India to avoid alarming the people to induce hoarding. Prices advanced with the shortage and this made the situation worse for the poor, who constitute about three-fourths of the people of India. From Dec. 1946 to Oct. 1947 more than 1,746,600 tons of grain were imported. Of this total about 787,000 tons came from the United States, 341,000 tons from Burma, 138,000 tons from Argentina and 125,000 tons from Turkey, while the rest came from a dozen other countries in smaller amounts. Very little grain was ever before shipped from the United States to India.

The Netherlands Indies were so chaotic because of military and political operations that an accurate survey of the food situation was difficult. Java and Sumatra were usually self-sufficient, but the Dutch in the cities lived on imports. Trade was so interrupted that some cities were near to starvation. Farming and trade were so disturbed that production of rice and other crops was 20% below the prewar level. Before the war this area usually exported more than 25% of its total food production.

The Philippines recovered much of their war losses in 1947 and were self-supporting again except for meat. Rice was relatively adequate after the good 1946 harvest and another good crop was harvested in 1947 which was about equal to prewar production. During the war the Japanese took much of the Philippine rice crop and left the Filipinos to subsist on corn and root crops, chiefly sweet potatoes and casara. The crop of beans and vegetables was increased in 1947 and hog and chicken production made rapid recovery. Copra and sugar production began to recover. Sugar mills, half of which had been destroyed by the Japanese, were being rebuilt.

Australia and New Zealand were expanding food production as rapidly as possible. Australia had a larger wheat crop than for two years and expected to increase exports. South America as a whole was in a good self-supporting position with nearly the prewar surpluses for export, except that the Argentine wheat crop was smaller than in 1946.

World Food Organizations.—The United Nations Food and Agricultural organization (F.A.O.) speeded its activities in many ways during the year and adopted a more definite program of work at its third general conference at Geneva, Switzerland, in August. Missions of experts were sent to Greece, Poland and South America at the requests of the countries involved, to survey the needs for improved production and distribution. These missions made suggestions to the national governments and to the F.A.O. Other missions were started to Siam, Hungary and Venezuela to report in 1948.

Special conferences were held on timber, fish, cereals and the diseases of animals. Reports were made on wheat, rice, fibres and rural welfare. Studies were begun on many technical problems.

The World Census of Agriculture was planned to cover all phases of the food supply in the year 1950. A special Forestry office was set up in Geneva, and the headquarters of the former International Institute of Agriculture at Rome was made a temporary European headquarters. The absorption of the institute was almost finished and most of its staff were pensioned or employed by F.A.O.

The plan for the World Food council was approved by the full conference of 54 governments in Geneva in August. This council was to consist of 18 of the governments, meeting at intervals between the annual sessions of the full conference, to keep the world food situation under review and to take action in emergencies. It would make recommendations only on the basis of information gathered by its staff of experts.

The International Emergency Food council, which succeeded the Combined Food board of the war years, completed its work and turned its staff, functions and files over to the World Food council of the F.A.O. at the end of 1947. During the year the Emergency council, which represented 35 nations, made allocations of scarce food among the countries. The headquarters of F.A.O. continued to be at Washington, D.C., although members of its staff were working in many parts of the world.

The International Federation of Agricultural Producers, organized in London in 1946, held another meeting in the Netherlands in June and adopted a constitution. A director was chosen and plans were made for a third annual convention in Paris in May 1948.

Efforts to reach accord on a new world wheat agreement between the principal grain growing and consuming nations were continued at two conferences without success. About 16 nations were interested, and more meetings were planned for 1948 to strive for accord. The International Trade organization was unable to reach a final agreement at its Geneva meeting and was in session at Havana, Cuba, at the end of 1947. The outcome of the latter meeting was thought to have much to do with the trade in foodstuffs and to affect all agricultural agencies from a policy standpoint. (J. C. Ms.)

Foot and Mouth Disease: *see* VETERINARY MEDICINE.

Football. Notre Dame and Michigan shared most of the honours in intercollegiate football during 1947 as new marks were established for attendance and receipts. The rivalry between the Fighting Irish and the Wolverines for the mythical national championship was as close as anything football had known in many years.

Army, whose winning streak had begun in 1944, was halted finally by Columbia. In the most surprising result of the season, the West Point cadets, who had gone through 32 games without defeat, lost to the Lions by the margin of a single point, 21-20, after leading by 20-7. Still among the strong teams of the country despite the loss of the famous backfield combination of Doc

Blanchard and Glenn Davis and six other 1946 regulars, Army also was defeated by Notre Dame, 27-7. This game marked the suspension of relations between the two teams, which had met annually since 1913.

Notre Dame went through the season with a perfect record for the first time after 1930, Knute Rockne's last year as head coach. Michigan, which lacked Notre Dame's size but was exceptionally fast and had one of the smartest attacks of the year, also won every game and gained sole possession of the Western conference championship for the first time after 1933. Fritz Crisler was voted outstanding coach of the year in the poll taken among the coaches of the country; Frank Leahy placed fourth. The Heisman trophy, awarded to the outstanding player of the year, went to Johnny Lujack, Notre Dame's brilliant quarterback. Bob Chappuis, Michigan's famous halfback, was runner-up in votes received.

One other team of major status went through the season with a perfect record. Penn State, coached by Bob Higgins, won every game on its schedule for the first time since 1912 and was awarded the Lambert trophy as the leader of the east. Southern Methodist, with one of the year's outstanding backs in Doak Walker, and Pennsylvania, with an all-American centre in Chuck Bednarik and a highly talented back in Tony Minisi, were also unbeaten, though tied once.

Southern Methodist won the championship of the Southwestern conference on the strength of its one-point victory over Texas, which won all of its other games and had a great back in Bobby Layne. Pennsylvania was the best in the east's Ivy group.

The title in the Southern conference went to William and Mary. Mississippi, with one of the most effective passing combinations in history in Charley Conerly and Barney Poole, won undisputed title to the Southeastern conference championship for the first time.

Southern California, unbeaten until its game with Notre Dame, took the Pacific Coast conference crown. Oklahoma and Kansas, which had one of the year's best ball carriers in Ray Evans, tied for Big Six honours. Tulsa won the title in the Missouri Valley and Utah in the Big Seven. Princeton was king of the Big Three.

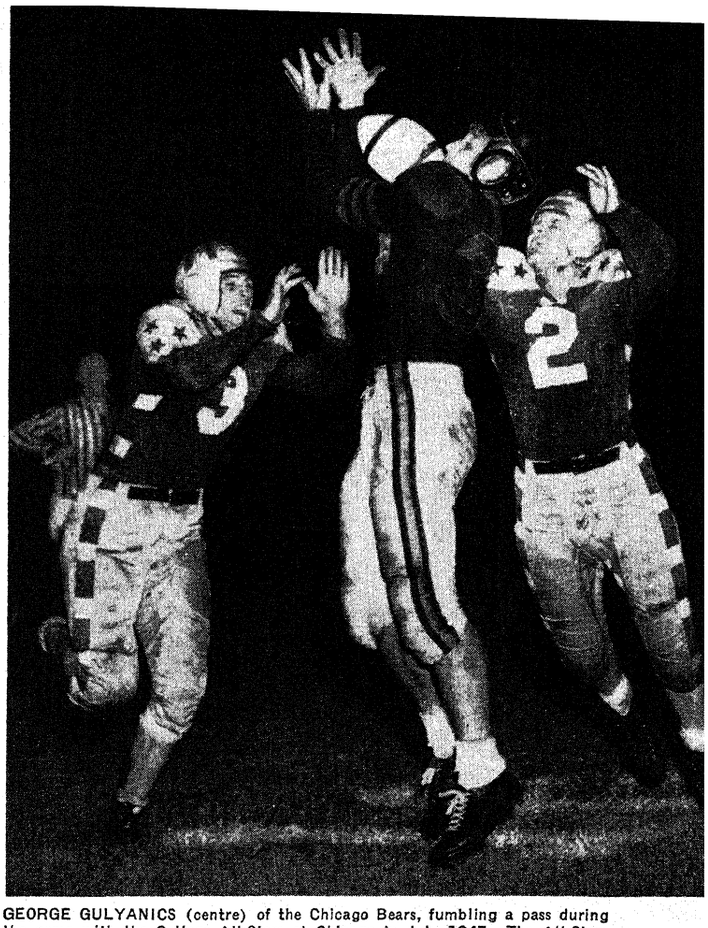
California, beaten only by Southern California and led by a new coach, Lynn Waldorf, Alabama, North Carolina, Georgia Tech, Rice and Columbia were among the other strong teams of the season.

Outstanding players in addition to those mentioned included Joe Steffy of Army, Harry Gilmer of Alabama, Bob Davis of Georgia Tech, George Connor, Ziggy Czarobski and Bill Fischer of Notre Dame, Dick Scott of Navy, John Ferraro and Paul Cleary of Southern California, Chalmers (Bump) Elliott, Bob Mann and Len Ford of Michigan, Jack Cloud of William and Mary, Steve Suhey of Penn State, George Savistsky of Penn, Dick Harris of Texas, Ike Owens of Illinois, Tom Fears of U.C.L.A., Charley Justice of North Carolina, Dan Edwards of Georgia, Leo Nomellini of Minnesota, Rod Franz of California and Bill Swiacki of Columbia.

Michigan, as champion of the Western conference, was invited to the Rose Bowl at Pasadena to play Southern California on New Year's day, 1948. Crisler's Wolverines won by the top-heavy score of 49-0.

In the Sugar Bowl at New Orleans the contestants were Alabama and Texas. The decision went to Texas, 27-7. Southern Methodist and Penn State met in the Cotton Bowl at Dallas, Tex., with the game resulting in a 13-13 tie. The Orange Bowl at Miami, Fla., presented Georgia Tech against Kansas. The former won, 20-14.

Tremendous crowds attended the college games in all sections of the country during 1947. Notre Dame drew the year's largest gathering with Southern California in the Los Angeles coliseum—104,953 spectators. In all, 571,527 saw the Fighting Irish perform, breaking the 1929 figure of 560,000.



GEORGE GULYANICS (centre) of the Chicago Bears, fumbling a pass during the game with the College All-Stars at Chicago in July 1947. The All-Stars upset a 14-year record by defeating the Bears 16 to 0

Southern California attracted 102,000 when it played U.C.L.A., and 101,500 filled Philadelphia's Municipal stadium as Army thoroughly trounced Navy. President Truman, members of his cabinet and high ranking officers of the army and navy were in the crowd.

The T formation remained the most favoured style of attack, but the single wingback made a comeback. Teams that had abandoned it took it up again, some in conjunction with the T. Michigan used both, and Penn State, S.M.U., Pennsylvania and Mississippi attacked from the single wing. Notre Dame and Army continued to use the straight T. Defensively, the five- and six-man lines were much in evidence. A few teams, including Navy and Cornell, used a seven-man line with a diamond secondary.

The new substitution rule, permitting an unlimited number of one-man replacements, made it possible for more players to get into the games. It also resulted in the use of specialists as never before. Most coaches of large squads had offensive and defensive units in the line or backfield, or both. Michigan had a light offensive line and a heavier one for defense. Fast backs and passers were usually rested on defense, adding to their effectiveness on the attack. The continual substituting made it difficult for the spectators to keep track of players on the field. It also made it possible for the coaches to send in instructions as often as they wished and control the running of the team. But it was generally felt that the rule made for a better grade of football and for less injuries.

Professional Football.—The Chicago Cardinals won the

championship of the National league for the first time after 1925 and the Cleveland Browns retained the title in the new All-America conference. The Cardinals won the Western division honours by defeating the Chicago Bears, 30-21 before a record crowd of 48,632 at Wrigley field, Chicago. In the east, the Philadelphia Eagles came through for the first time by trouncing the Pittsburgh Steelers, 21-0, in the play-off of a tie for first place.

The East-West play-off for the championship of the league resulted in a 28-21 victory for the Cardinals over the Eagles. The game was played on a frozen gridiron on Dec. 28, and only 30,579 turned out in Chicago's Comiskey park. Steve Van Buren of the Eagles, the league's leading ground gainer, was completely held in check while the Cardinals' Charley Trippi made touchdown runs of 75 yd. and 44 yd. and Elmer Angsman twice ran 70 yd. for scores. Philadelphia's Tommy Thompson threw 44 passes, of which 27 were completed for 297 yd., breaking the record made by Sammy Baugh of the Washington Redskins in the 1937 play-off.

The Cleveland Browns and the New York Yankees again won the sectional honours in the All-America conference. In the play-off the Browns defeated the Yankees in the latter's stadium, 14-3, before 60,103. Otto Graham of the Browns, with his passing, and Spec Sanders and Buddy Young of the Yankees were the offensive stars of the league. The New York Giants, hard hit by the loss of Frank Filchock, who was banned from the league, had their poorest season in years but picked up when they acquired Paul Governali, former Columbia passer.

The two rival leagues continued to war on each other. The conference's efforts to get together with the old circuit on a common draft and a postseason world series were rejected by the National, though the owner of the Eagles spoke in favour of a common draft. As a result of the warfare and the high bidding for players, few teams in either circuit made any money, and some of them suffered huge losses. Among the latter were the Chicago Rockets and the Brooklyn Dodgers of the conference. Jimmy Crowley, coach of the Rockets, retired from football. The Yankees and Browns, in a meeting during the regular season, played to a gathering reported as 70,060, the largest to see a professional game in New York city after Red Grange made his debut at the Polo Grounds almost a quarter of a century before.

Canada.—On the last play of the game, Joe Krol, brilliant halfback, kicked the point that enabled the Toronto Argonauts to defeat the Winnipeg Blue Bombers, 10-9, in the East-West play-off for the Grey cup and win the dominion championship for the third successive year.

The Argos qualified to represent the east by finishing on top in their own league, the Big Four, and then defeating the Ottawa Trojans, champions of the Ontario Rugby Football union. The Blue Bombers eliminated the Calgary Stampeders in the west.

The University of Western Ontario Mustangs completed their eighth undefeated season in the Intercollegiate union. They were prevented from competing for the Grey cup by a rule of the union forbidding postseason games.

There were many who thought the Mustangs better than the Argos.

The season was notable for the number of coaches brought across the border. Vic Obeck, former member of Lou Little's staff at Columbia university, was installed at McGill university. Bob Masterson, one-time end on the University of Miami team and the Washington Redskins, was assistant coach at the University of Toronto. Sam Fox, erstwhile New York Giant, took charge of the Ottawa Rough Riders. These men, trained in U.S. methods, took steps to organize clinics among the high school coaches, and the foundation was laid for the formation of the Canadian Rugby Football Coaches association.

Another player from across the border to play a part in Canadian football was Frank Filchock, formerly of the New York Giants. Barred from professional football in the National league for failure to report a bribe offer, Filchock was signed as a player by the Hamilton Tigers without the sanction of the other clubs in the Big Four. In midseason he was granted an eligibility card and remained with the Tigers as both player and coach.

Virgil Wagner of the Montreal Alouettes, leading point scorer in the Big Four, was awarded the Jeff Russell Memorial trophy, given annually for excellence of play and good sportsmanship.

(A. DA.)

Great Britain.—*Rugby.*—Weather dominated the sport in the first three months of the year. It was so bad that some Rugby union clubs went nine weeks without a game. It was, however, possible to play all the important matches on the appointed dates, and England and Wales were bracketed for the championship, each losing only one match. Lancashire was the county champion, with a brilliant side led by veteran Jack Heaton, who also led England. Eng. Comdr. S. F. Coopper, R.N., secretary to the Rugby Football union since 1924, resigned, and was succeeded by the old England forward, F. D. Prentice. For the first time the universities match was played on a Saturday, rather than midweek, and it was won by Cambridge.

The leading Rugby league clubs were Wigan, Leeds and Bradford Northern, the last-named club winning the challenge cup at Wembley, by beating Leeds. In the autumn touring sides from Australia (Rugby union), captained by W. M. McLean, and New Zealand (Rugby league) visited Britain and France.

Association.—It was the "Old Guard" who kept the flag flying in the international world and F. Swift, H. Carter, T. Lawton, S. Matthews and W. Mannion helped to make a superb England side undefeated champions. The English cup was won by Charlton Athletic, and the Scottish cup by the Rangers. The league championships were won by Liverpool and the Rangers, respectively. In heading the Division Three (Northern Section) table, Doncaster Rovers gained the record number of 72 points in 42 matches out of a possible 84. (D. R. G.)

Foreign Exchange: *see* EXCHANGE CONTROL AND EXCHANGE RATES.

Foreign Investments in the United States.

The value of foreign investments in the United States on June 30, 1947, was estimated by the United States department of commerce at $17,395,000,000, an increase of $1,255,000,000 over the value of $16,140,000,000 at the close of 1946. The rise was more apparent than real inasmuch as the U.S. assets of such international organizations as the International Bank for Reconstruction and Development and the International Monetary fund rose from $474,000,000 at the end of 1946 to $2,714,000,000 at mid-1947. Exclusive of these holdings, therefore, the U.S. assets of foreign countries fell by $985,000,000 in this period.

At mid-1947 foreign long-term investments in the United States of $7,845,000,000 were $140,000,000 lower than at the previous year end, largely as a result of net liquidations of about $90,000,000 of U.S. securities and a decline in security prices, which was partly offset by the reinvestment of earnings of foreign-controlled enterprises operating in that country. Foreign-country holdings of short-term U.S. assets (with an original maturity of one year or less) fell by $870,000,000.

*Estimated Value of Foreign Investments in the United States, June 30, 1947**

(In millions of dollars)

Country or area	Long-term assets: Securities	Long-term assets: Other	Long-term assets: Total	Short-term assets	Total
Countries participating in European Recovery program:					
Austria	3	3	6	—	6
Belgium	55	130	185	172	357
Denmark	10	24	34	52	86
Eire	14	26	40	18	58
France	225	240	465	316	781
Germany	—	—	—	27	27
Greece	5	27	32	32	64
Iceland	—	—	—	7	7
Italy	14	49	63	187	250
Luxembourg	5	8	13	22	35
Netherlands	580	415	995	220	1,215
Norway	20	30	50	91	141
Portugal	12	9	21	42	63
Sweden	50	65	115	133	248
Switzerland	645	225	870	395	1,265
Turkey	10	6	16	51	67
United Kingdom	600	1,425	2,025	396	2,421
Total, participating countries	2,248	2,682	4,930	2,161	7,091
Canada and Newfoundland	680	730	1,410	588	1,998
Other areas	760	745	1,505	2,577	4,082
Total, all areas	3,688	4,157	7,845	9,550†	17,395†

*Does not include gold held in the United States for foreign account, including international institutions, amounting to $3,709,000,000.

†Includes $2,700,000,000 for international organizations, about $900,000,000 of estimated holdings of U.S. currency and claims on the U.S. government, an omission estimate of $500,000,000, and more than $100,000,000 of brokerage balances not included in the data for individual countries.

Source: United States department of commerce.

The liquidation of these investments and the size of remaining foreign investments in the United States provoked considerable discussion during 1947. Sentiment was voiced that it was only fair that countries calling on the United States for financial aid should first make reasonable use of their own realizable assets, including those of their citizens. Others proposed financial aid without reference to the foreign assets in the United States, but perhaps with the feeling that in the long run liquidation would be harmful to those countries.

Mobilization of Private Assets.—The European countries who requested U.S. assistance had varying degrees of success in mobilizing the investments of their nationals in the United States. Great Britain had begun such mobilization in 1939. Although substantial amounts were liquidated during World War II, the value of British assets in the U.S. on June 30, 1947, exceeded $2,000,000,000, including those of citizens of other countries resident in England. Italy's dollar assets were relatively small and the Italian effort, if any, to acquire the foreign assets of its citizens was not generally known. France apparently met resistance from private French investors in its attempt to acquire dollar assets; an order of Jan. 1945 calling for a census of such assets was followed in July 1947 by an order vesting U.S. securities and compensating their owners in French francs. Subsequently, the French government found it necessary to request both the Swiss and U.S. governments to aid it in locating French holdings not reported to it by its nationals. The latter governments were said to have refused to supply the requested information on the grounds that such data were confidential. No substantial liquidation of French-owned United States securities was reported during most of 1947.

The Netherlands government, on the other hand, attempted to encourage the voluntary liquidation of dollar securities held by Dutch investors, after taking ownership of privately held gold and foreign currency. However, investors were reported to lack enthusiasm for the offer to exchange Netherlands 3% government bonds in return for their dollar securities. The Swedish government requisitioned the short-term dollar assets of its nationals and called for registration of their U.S. securities. Little information was available regarding the efforts, if any, of the other so-called Marshall plan countries to mobilize their nationals' holdings of securities issued in the United States.

Foreign governments faced the added difficulty of liquidating turned-in assets (in many cases the controlling interest of large companies) without serious loss. Moreover, there was a reluctance to liquidate U.S. assets because they earned dollar income and were relatively safe insofar as principal was concerned. In the case of Great Britain the concern may also have existed that injury to its traditional role as a supplier of banking and insurance services might follow depletion of its dollar assets. The prewar reliance upon foreign-exchange reserves as part of the legal reserve against domestic currency in circulation and deposits was hardly considered by the Marshall plan countries (and other countries) in view of the shortage of dollars readily available for current purchases. However, the amounts that should remain unliquidated for trade purposes were not always certain since the working dollar balances necessary to finance international transactions are not fixed sums derived by simple formulas, but vary according to the total volume of such transactions and a complexity of psychological factors, including confidence in a country's currency.

In the light of these circumstances it was not surprising to find that few new foreign enterprises were reported to have been established in the United States during 1947. Nevertheless, compilers of that country's balance of payments were led to suspect by discrepancies in their balance-of-payments data that the progressively difficult economic situation of foreign countries was inducing movements of capital from Europe and elsewhere to the U.S., despite exchange controls in European countries, and in a manner that went undetected in the United States.

U.S. Controls.—During 1947 the U.S. treasury department was apparently satisfied that a significant part of the U.S. currency and securities that had fallen into axis hands during World War II had been recovered. In April the department announced that it would no longer be necessary for persons receiving or importing U.S. currency of any denomination from foreign countries to submit it to a federal reserve bank for examination. Instead of a general control over imported securities, a list of "scheduled securities" which had been looted from axis-occupied countries during the war was issued by the treasury in July. The purpose of the list was to prevent the entry and sale of such securities into the United States by anyone except their rightful owners.

The treasury also further relaxed its control of foreign funds. By Dec. 1947 only the assets of the following countries remained frozen: Bulgaria, Germany, Hungary, Japan, Portugal, Rumania, Spain and Yugoslavia; also, assets of nationals of certain other countries which had not been certified by those countries to be free of axis interest. The U.S. assets of Poland, Austria, Sweden, and Italy had been unblocked during the year, and the Yugoslav government was reported to have been negotiating with U.S. authorities to release $56,000,000 of Yugoslav gold that had been frozen during the war.

The Office of Alien Property continued to vest property in the U.S. in which the axis had an interest, including liquid assets of hostile German and Japanese nationals that had been frozen earlier by the treasury department. The value of property vested during 1947 was relatively small, however, compared with the war years, and the attention of the office was apparently directed to supervising the administration of seized axis property and appraising U.S. and other claims against such assets. The largest axis interest vested during 1947 included the Dutch and German interests in the North American Rayon corporation and the American Bemberg corporation valued at approximately $15,000,000. The interests of nationals of both countries were seized inasmuch as a considerable German interest had existed in the parent of both companies, Algemeene Kunstzide Unie, N.V., a Dutch company. Although the Paris agreement on German reparations stipulated that each partic-

ipant country should receive German assets within its borders as part of its reparations, the ultimate disposition of such property in the United States remained a matter for the congress to determine. Peace treaties between the U.S. and Bulgaria, Hungary, Italy and Rumania allowed for the return of properties previously seized by the Office of Alien Property. No formal decision was reached during 1947 with regard to the treatment of similar Japanese property.

Total payments of income to foreign investors during 1947 were probably little changed from the aggregate of $200,000,000 paid in the previous year. Nevertheless, sharp changes were anticipated in payments to individual countries. The U.S. department of commerce estimated that in 1945 payments to the United Kingdom from U.S. investments was approximately $86,000,000, of which about $43,000,000 was from British insurance companies operating in the United States. Payments in 1946 were estimated at $57,000,000, including $11,000,000 from insurance companies. For 1947 it was expected that the income from insurance company operations would decline further and that such business would even experience a loss, largely as a result of the explosions and fire at Texas City, Tex. It was expected that the liquidation of Netherlands holdings of about $50,000,000 in U.S. securities in the first half of the year would reduce income payments to that country.

The loss by Britain and Canada of more than a third of their short-term dollar assets had little effect on their receipt of income inasmuch as such assets, mainly bank deposits and short-term government obligations, yielded practically no income. Severe declines were also registered for other countries in the western hemisphere and in Europe. (*See* also EUROPEAN RECOVERY PROGRAM; EXCHANGE CONTROL AND EXCHANGE RATES.)

(M. AB.)

Foreign Ministers' Conferences. Between Jan. 14 and Feb. 25, 1947, deputies of the Council of Foreign Ministers met at London to begin the work of preparing treaties with Germany and Austria, in accordance with the agreement reached by the council in the preceding December. The deputies on the German treaty divided their time between discussion of the procedure to be followed in drafting the treaty and hearing the views of Allied states on the treatment of Germany. The western European Allies urged that Germany be organized as a weak confederation operating, however, as an economic unit. The Netherlands, Belgium and Luxembourg again requested minor territorial changes in Germany's western frontier, while Denmark felt that the Kiel canal should be placed under international control. Czechoslovakia also proposed small frontier rectifications designed to improve defense and communications, while Poland asked for confirmation of the Polish-German frontier as defined provisionally at Potsdam. The western Allies asked for moderate reparations and stressed the necessity for the restoration of German production and trade, while the eastern Allies and Greece asked for large reparation payments. South Africa opposed detachment of the Saar from Germany and proposed that its eastern frontier be moved to the east of the Oder.

Australia and Canada laid special emphasis upon broadening the procedure of peacemaking to permit active participation by all those Allies which had contributed military forces to the defeat of Germany. The Australian representative proposed that 18 Allies be admitted to discuss all aspects of the treaty at the council table, while South Africa suggested that they be represented rather on committees set up to consider various sections of the treaty. The French, British and U.S. deputies proposed that the Allies sit as observers at the council, with the right to discuss matters affecting their interests. The soviet deputy opposed all proposals for broadening the procedure and in fact moved that membership in the later general conference be limited to those European Allies whose territories had been under German occupation; this arrangement, if adopted, would have deprived the British dominions of any voice in the consideration of the treaty. A French compromise called for the setting up of a committee of information and consultation in which all the Allies would participate. Lengthy discussions having led to no agreement on procedure, the deputies presented four separate proposals to the council.

The deputies on the Austrian treaty heard Yugoslav claims for 1,200 sq.mi. in southern Carinthia and $150,000,000 in reparations from Austria. Czechoslovakia's claims for minor rectifications in its frontier with Austria were referred to the two governments for direct negotiation, while Austrian representatives pleaded for an early treaty which would establish Austrian independence on a solid footing. The draft treaty presented by the deputies to the council contained a considerable number of agreed provisions and set forth the unagreed clauses in their conflicting versions. There was no sign of agreement on the more difficult questions, such as the Yugoslav territorial claim or the definition of soviet claims to German assets in eastern Austria, but the progress made by the deputies held promise of the early conclusion of the Austrian treaty.

The positive achievements of the fourth session of the Council of Foreign Ministers, which met at Moscow from March 10 to April 24, were an agreement confirming the division of Prussia into a number of smaller states and a request to the United Nations to provide interim financial assistance to the future administration of the free territory of Trieste. The French, British and U.S. delegations also agreed on a sliding-scale device under which deliveries of Ruhr coal to France would be increased gradually. The principal issues involved in negotiating a German settlement among the major Allies remained unresolved or were further exacerbated.

In the question of treaty-making procedure the soviet foreign minister emphasized the exclusive competence of the four Allies, but was willing for other Allied governments to be heard in questions which concerned them individually. Secy. of State George C. Marshall and Ernest Bevin urged that those Allies which had provided military forces against Germany receive a fuller voice through membership in important commissions, and that other states which had been at war with Germany should also be heard both by the council, on matters which affected their interests, and at the general conference, on their views of the treaty as a whole.

Bitter controversy developed over the question of the German-Polish frontier. Marshall urged that the permanent frontier be located to the east of the Oder river, because of the historic German character of the area and because of Germany's need for agricultural land. Vyacheslav Molotov, holding that the frontier had been settled at Potsdam and needed only be confirmed in the treaty, rejected a U.S. proposal to set up a boundary commission to examine this and other frontier problems. He also declined to discuss the French claim, supported by Bevin and Marshall, for the economic integration of the Saar with France.

Secretary Marshall proposed that Germany be organized on a federal basis, reserving to the states, or *Länder,* powers not expressly vested in the central government, while the soviet proposals envisaged a highly centralized state governed from Berlin. Marshall also favoured the setting up of a provisional government which would consist of the present heads of the German *Länder* governments, while Molotov urged that a provisional government consisting of elected representatives together with representatives of trade unions and antinazi organizations be

placed in charge of German administration after it accepted the soviet demand for $10,000,000,000 in reparation. The U.S. approach, supported in the main by Bevin and by Georges Bidault, the French foreign minister, was that the creation of a central government must follow, not precede, the effective establishment of German economic and administrative unity through steps taken by the occupying powers.

There was again wide divergence over the question of reparations. While Molotov insisted on $10,000,000,000, which he asserted had been promised at Yalta, Marshall and Bevin took the position that the idea of collecting reparations from current production had been discarded at Potsdam in favour of removals of excess industrial equipment and acquisition of Germany's external assets, and that exports of current production must be applied to pay for necessary imports. A partial meeting of the soviet demand appeared possible when Marshall suggested that some reparation could be provided from current production to compensate recipients of reparations for the retention in Germany of additional industrial equipment which would no longer be available for removal under the proposed increased level of industrial production. This suggestion met with no response from the soviet delegation.

When Marshall pressed for favourable action on the U.S. proposal for a 40-year treaty guaranteeing the disarmament and demilitarization of Germany, Molotov on April 23 countered by advancing a series of amendments which would have inserted into the treaty the entire range of soviet demands. Further discussion seemed unlikely to indicate a way out of the impasse, and on the following day the council adjourned.

At Moscow the ministers also devoted much time to the Austrian treaty and agreed on a number of additional provisions. In the questions of the Yugoslav claim to southern Carinthia and the definition of German assets they failed to advance toward an agreement. The soviet government appeared determined to hold onto the extensive industrial properties which it was operating in eastern Austria; the other powers were unwilling to withdraw from Austria if that meant leaving it under soviet economic domination. However, before adjourning, the council appointed an Austrian treaty commission to continue the consideration of unagreed provisions in the draft treaty.

The new commission, meeting at Vienna from May 12 to Oct. 11, undertook a detailed examination of the individual enterprises which were claimed by the soviet authorities as German assets, with special attention to oil and shipping. Toward the close of the conference a compromise advanced by the French delegation proposed that a definite list of enterprises be agreed on as satisfying the soviet claim to German assets, thus cutting short the endless legal controversies; that enterprises transferred to soviet ownership not enjoy an extraterritorial status within Austria and that all other enterprises be returned to Austrian control. This proposal, together with the unagreed report of the commission, went to the deputies, who began their work on Nov. 6 at London. They again discussed treaty procedure at some length, and on Nov. 22 they were ready to report to the ministers that they had been unable to agree on an agenda for the new meeting of the council.

The fifth session of the Council of Foreign Ministers met at London from Nov. 25 to Dec. 15. It repeated, with growing acerbity, the disputes of the previous session. On Nov. 26 Molotov made sweeping charges against the other Allies, accusing them of striving for an "imperialist peace," of plotting both to ruin German industry as an undesirable competitor and to use it as "a base for military adventures." Turning to concrete issues, the council came closer to agreeing on the role of the smaller powers in the peace-making, but again reached no consensus of views on the German-Polish boundary, the economic integration of the Saar with France or the establishment of boundary commissions. Positions were unchanged concerning the steps necessary for the creation of a central government in Germany, but the exchange of charges was sharper, especially on the soviet side. The soviet delegation accused the United States of making huge profits out of Germany and of buying up industrial properties, and demanded that the agreement to unite the British and U.S. zones be denounced as a violation of the Potsdam agreement. Bevin and Marshall pointed in turn to the removals of current production from the soviet zone and to the establishment of a huge soviet industrial trust in eastern Germany.

On Dec. 8 Molotov demanded a share in the control of the Ruhr, cancellation of the bizonal agreement and assurance of $10,000,000,000 in reparations at 1938 prices; a soviet draft of that date set delivery of reparations ahead of German domestic consumption or payment of necessary imports. On Dec. 10 Marshall again refused to agree to reparations from German current production, which had been rejected at Potsdam, as the price of German economic and administrative unity, which had been agreed there. When no sign of a meeting of views appeared from these exchanges, Marshall proposed on Dec. 15 that the council adjourn. Although no date was set for a later session, the deputies were instructed to continue work on the Austrian treaty, and at their first meeting, on Dec. 17, it was noted with some encouragement that the soviet representative offered to present a concrete proposal defining the soviet claims to industrial property in eastern Austria. (P. E. M.)

Foreign Missions: *see* MISSIONS, FOREIGN.
Foreign Trade: *see* INTERNATIONAL TRADE.

Forests. Enrolment of students in the forestry schools of the United States reached record totals in 1947. Nearly 30 universities and colleges offered courses leading to a degree in forestry. A total of 7,000 students enrolled in undergraduate and graduate forestry courses was reported for the 1947–48 school year. The prospects were that the number of forestry graduates in the next few years would be greater than public forestry agencies and private forest industries could absorb. The United States forest service pointed out, however, that forestry practice currently was being applied to only a fraction of the nation's forest area. If and as sound forest management was extended, the need for men with technical forestry training would increase.

As part of a reappraisal of the postwar forest situation in the United States, the forest service conducted a study of the problem of wastage in the utilization of wood. A report of its findings was issued in 1947. It said that only 43% of all the wood cut in the forests winds up in useful products, other than fuel; 35% is not used at all. Of the 22% used as fuel, much is used wastefully or inefficiently, and much could be used to better purpose if efficient handling and processing techniques were developed.

Logging waste—tops and limbs of trees, cull logs and other material left in the woods after cutting accounts for 45% of the total waste; 49% is waste in the primary manufacture of logs into lumber, pulp and paper, veneer and other products; and 6% is wasted in secondary manufacture.

A major need, said the report, is greater integration of wood-using industries in timber-producing areas. One-product operations, still typical of the forest industries, tend to be wasteful. A variety of logging and manufacturing operations in a given locality can effect a more complete and advantageous utilization of the timber that is cut or that ought to be cut under good forestry practice. Encouraging developments along these lines



ACCESS ROADS to make more timber available were being built in many U.S. national forests during 1947. Logs are shown being loaded at California's Mendocino national forest, with the access road barely completed

by several forest industry concerns were cited. The report also recommended continued research to find ways of making old products with less waste or to devise new ways of using material now wasted; technical assistance to woodland owners and wood processors to get the results of research into use; and public aid in pioneering operations to establish the practicability of new waste-reducing or waste-consuming processes.

The forest service in 1947 invited bids for the purchase of timber in two large tracts in the Tongass national forest in Alaska. This action was expected to open the way for development of a pulp and paper industry in southeastern Alaska which would materially increase the supply of paper products in the United States, where paper products, especially newsprint, had been seriously short of demand during and after the war. Tongass national forest has extensive stands of timber which under sustained yield management could support a permanent, large-scale pulp and paper industry. Purchasers of the timber would be required by the forest service to follow cutting methods that would assure continuous timber growth.

Lyle F. Watts, chief of the forest service, in his annual report for 1947, emphasized the importance of vegetative growth on forest and range land watersheds for the conservation of water supplies, stabilization of soils and regulation of streamflow. Fire, overgrazing and overcutting of timber can cause serious damage to watershed values, he said.

> Muddy streams, dried-up springs, lowered water tables, eroding lands and reservoirs filled with silt, damaging floods every year—all these things are plain indications that much watershed land is not being handled as it should be.
>
> Damaged watersheds can be repaired. Rampaging streams can be brought under control. Water sources can be kept in good condition. And to a large extent, the kind of forest and range management that restores and maintains good watershed conditions will also make for increased timber supplies and increased livestock production. Recreation and wildlife also will benefit.
>
> Much of the wealth of our Nation has derived from our utilization of the soil, water, and forests which nature gave us. Fundamentally, our wealth is based upon the balance that existed between the water, land, and vegetative resources. That balance is being thrown out of kilter in many places. We shall do well to work for the restoration of that balance through wise and foresighted management of the land. We should work for a way of life that will not be under pressure to destroy the basis of its own existence.

Publications of the year in the forestry field included three forest reappraisal reports issued by the United States forest service: *Wood Waste in the United States; Protection Against Forest Insects and Diseases in the United States;* and *Forest Cooperatives in the United States.* The first issue of *Unasylva,* a new bimonthly magazine of international forestry, appeared in July 1947, published by the division of forestry and forest products of the United Nations Food and Agriculture organization. The magazine was issued in English and French editions; a Spanish edition was planned later. (C. E. R.)

Europe.—The problem of closing the gap between Europe's timber needs and the available supplies of softwoods, without causing lasting damage to the remaining forests, was the theme of an important international timber conference held at Marienbad (Marianské Lázně), Czechoslovakia, in April and May. Representatives of 34 nations attended the conference, which was organized by the food and agriculture branch of the United Nations and the Czechoslovak government. The conference recommended that during the felling seasons 1947–48 and 1948–49 all softwood-producing countries should either increase their cuttings by 10% or achieve a comparable result by restrictions in consumption, and that reforestation and intensive and scientific management of existing forests should be carried out to counter the effect of overcutting. The international control of forest pests and co-operation in the supplies of forest tree seeds and trans-plants were subjects recommended for investigation by the appropriate committee of the United Nations. A forestry statistical conference was held in Rome early in the year; the Scandinavian countries, including Denmark, also held an important forestry conference at Oslo.

In Germany heavy fellings in softwood forests were continued, and large quantities of timber were exported as war reparations to the Soviet Union, France, Great Britain and other countries. In the British zone of Germany the supervision of timber production was returned to German control.

Great Britain and the Commonwealth.—An empire forestry conference, the first after 1935, was held in England in July. Thirty-six different forest authorities presented statements which were later summarized by the Central Statistical office in the publication *Empire Forests and the War.* The subjects discussed included land utilization and forest policy, surveys of world timber resources, forest management and forest products research.

Reorganization of the Forestry commission enabled the big program of afforestation to be well launched and an advisory forest service to be established. A special engineering branch was formed to deal with the planning and construction of forest roads and bridges. In spite of the continued control of all timber felling by licence, much timber was felled to meet urgent needs. Hedge-row and poor timber were also felled, owing to the high prices obtainable for domestic fuel during the acute shortage of coal.

In many of the crown colonies there was a slowing down of the heavy wartime exploitations of timber, but there was considerable development in the marketing of new or little-known hardwoods species. The return of many officers of the colonial forestry services to general forestry duties, together with the resumption of normal recruitment of junior officers, made possible the reorganization and consolidation of colonial forest staffs. In many colonies scientific stock-mapping of the forests was undertaken and the regeneration of felled areas begun.

Apart from the use of forests for direct timber production, the year's most spectacular project was the Iraqi development scheme, planned to make the country free from flood danger and to increase the irrigated area to 15,000,000 ac. The political changes in India and Burma brought to an end the Indian forest service, founded in 1856. (A. H. Ld.)

Formosa (TAIWAN OR T'AI-WAN). Formosa is a large island in the western Pacific, separated from China to the west by the Straits of Formosa and from the Philippines to the south by the Bashi and Balingtang channels. Under Japanese rule the Pescadores (Bōkotō) and other outlying islands formed a political division of the Taiwan government-general. Area, 14,589 sq.mi., including Pescadores and neighbouring islands. Pop. (1946 est.), 6,250,403.

The capital is Taipei (formerly Taihoku) (326,407 in 1940); other large cities include Takao (152,265), Tainan (142,133) and Keelung (Kiirun) (100,511). Principal religions are Buddhism, Confucianism, Taoism and Shintoism. In 1940 there were about 60,000 Christians.

History and Government.—Formosa was ceded to Japan by China under the treaty of Shimonoseki in 1895 at the conclusion of the Sino-Japanese War. The island was administered as a Japanese colony until Japan's surrender in 1945, when under the terms of the Cairo declaration of 1943, Formosa was placed under Chinese administration. In Oct. 1945, General Chen Yi, governor of Fukien province from 1934 to 1941, assumed the governorship of Formosa for the Chinese National government. At the end of Feb. 1947, a rebellion began on the island, centred in the capital. The Formosans convoked an autonomous assembly to institute new laws, pending recognition of their demands by the Chinese government. By the end of March, however, the rebellion was put down by Chinese troops. In April Chen Yi was replaced as governor by Wei Tao-ming, former ambassador to the United States.

Education.—In 1941 there were 1,000 primary schools with 12,076 teachers and 740,693 students; 6 normal schools with 225 teachers and 2,507 students; 4 colleges with 236 teachers and 1,385 students; and 1 university with 345 students.

Finance.—Under Japanese rule, Formosan currency was based upon the Japanese yen (valued at 23.43 U.S. cents in 1941) with the Bank of Taiwan as the central bank. The Chinese introduced a special currency for Formosa based on the former yen notes.

Trade and Communications.—In 1939 there were 879 mi. of government railroads, 1,624 mi. of private railroads and 500 mi. of tramways; there were 10,000 mi. of roads of all types. There were 220 telegraph offices, 195 post offices and 123 telephone exchanges. In 1943 Formosa's overseas trade amounted to exports of about 400,000,000 yen and imports of 340,000,000 yen. During the first half of 1947, Formosa's most important exports were coal, sugar, fruits, tea and cement.

Agriculture.—Agricultural production in 1939 in short tons included: rice 14,540,000; sweet potatoes 1,400,000; sugar 1,270,000; bananas 200,000; oranges 29,700; meat and poultry 27,600; tea 15,400. The 1946 rice crop was estimated at 54,000,000 bu.

Industry.—During World War II Formosa produced sizeable quantities of coal, cement, chemicals and salt.

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Forrestal, James (1892–), U.S. government official, was born on Feb. 15 in Beacon, N.Y. He studied at Dartmouth college, 1911–12, and at Princeton university, 1912–15. He enlisted in the U.S. navy in 1917 and was assigned to its aviation force. Forrestal resigned from the navy with the rank of lieutenant in 1919 and resumed an earlier connection with Dillon, Read and Co., a Wall street banking firm, becoming its president in 1937. In Aug. 1940 he became undersecretary of the navy, serving in that capacity until the death of Secretary Knox, whom he succeeded on May 19, 1944.

Although originally opposed to a merger of the armed forces, he agreed (June 1946) to support the plan of President Harry S. Truman to unify them. After the president signed (July 26, 1947) the bill providing for the merger, he appointed Forrestal head of the program as secretary of national defense. Forrestal was sworn into office Sept. 17 by order of the president, then at sea on a battleship, returning home from the Inter-American Defense conference in Brazil.

On Oct. 1, Forrestal branded as "utter nonsense" soviet diplomat Andrei Vishinsky's charge that U.S. "big business" was seeking war; and on Oct. 20, he warned Russia that while Americans "hate the very idea of war," they believe that even war is preferable to such alternatives as living under a police state.

Foundations: *see* DONATIONS AND BEQUESTS; SOCIETIES AND ASSOCIATIONS.

Four-H Clubs. The 4-H clubs in 1947 continued as an integral part of the co-operative extension service in agriculture and home economics. In 1947 the 4-H club program extended into practically every county in the United States, Alaska, Hawaii and Puerto Rico. The total 1947 enrolment of 4-H members was approximately 1,700,000. More than 175,000 volunteer 4-H club leaders, both adult and junior, assisted the county extension agents in carrying out the 4-H program in local rural communities.

Under the administration and supervision of the co-operative extension service of the United States department of agriculture and the land-grant colleges, rural young people between the ages of 10 and 21 continued their 4-H club groups of from 5 to 50 members. Each member took advantage of the opportunity to "learn by doing" and conducted a certain farm or home enterprise pertaining to agriculture or home economics and demonstrated to others what he had learned. Subject matter assistance was provided by the extension specialists located at the state colleges of agriculture. Each 4-H member kept a business financial record of his project work, wrote a story relating to his 4-H club experiences, made a public exhibit of his products and, at the end of the year, submitted his records to the county extension agents. Various incentives or recognition awards were provided to 4-H members who satisfactorily completed their work.

Local 4-H clubs continued to stress citizenship, leadership development, character building, community activities, group recreation, knowledge of subject matter, acquiring of skills and group organization in their 4-H programs.

The annual National 4-H Club camp was held June 11–18, 1947, in Washington, D.C., and was attended by 365 4-H members and leaders representing the states and territories, along with guests from Canada and several other countries.

The National 4-H Club congress was held Nov. 30 to Dec. 4 in Chicago, Ill., and was attended by 1,300 4-H members and leaders representing the states and territories, together with delegates from two provinces in Canada and international representatives from 11 other countries.

During 1947 the following was adopted as the official National 4-H Club pledge: "I pledge—My Head to clearer thinking, My Heart to greater loyalty, My Hands to larger service, My Health to better living, for my club, my community, and my country."

As an aid in further developing the 4-H program, co-operative extension agents and local volunteer 4-H leaders continued to use the following ten 4-H guideposts which were designed to outline a broad basis for 4-H activities in the postwar period: (1) Developing talents for greater usefulness; (2) joining with friends for work, fun and fellowship; (3) learning to live in a changing world; (4) choosing a way to earn a living; (5) producing food and fibre for home and market; (6) creating better homes for better living; (7) conserving nature's resources for security and happiness; (8) building health for a strong America; (9) sharing responsibilities for community improvement; (10) serving as citizens in maintaining world peace. (M. L.W.)

France. A republic of western Europe bounded on the north by the English channel, on the east by Belgium, Luxembourg, Germany, Switzerland and Italy, on the south by

the Mediterranean sea, on the southwest by Spain and on the west by the Atlantic ocean. The country also includes the Mediterranean island of Corsica. Area: 212,737 sq.mi.; pop. (1946 census): 40,517,923. Chief towns (1946): Paris (cap., 2,725,374); Marseilles (636,264); Lyons (460,748); Toulouse (264,411); Bordeaux (253,751); Nice (211,165); Nantes (200,265). Languages: French, with some German in Alsace and Celtic in Brittany. Religion: no official church, mainly Roman Catholic with Protestant minority. President (elected Jan. 18, 1947): Vincent Auriol (*q.v.*); prime ministers: Paul Ramadier (*q.v.*) (Jan. 21–Nov. 23); Robert Schuman (*q.v.*) (from Nov. 24).

History.—On New Year's day, 1947, Interim Prime Minister Léon Blum in a broadcast appealed for co-operation of the public in a policy of price reduction so as to raise the real value of wages, which were to be stabilized. A government decree reducing prices with few exceptions by 5% was applied. The public had been profoundly alarmed by the increase of prices in 1946 (retail index figure: Jan. 1946=480, December=861) and welcomed warmly the hope of a reverse process. Blum's last act as prime minister was to visit the British prime minister, Clement R. Attlee, in London, where a joint communiqué was issued announcing an agreement to proceed with the negotiation of an alliance. (A 50-yr. treaty of alliance was signed at Dunkirk, on March 4, 1947, by Ernest Bevin and Georges Bidault.)

On Jan. 16 Vincent Auriol, Socialist and president of the assembly, was elected president of the republic. After Blum had refused to remain in office President Auriol asked Paul Ramadier, a Socialist, to form a government. Ramadier was elected prime minister by the assembly on Jan. 21. His cabinet included Communists, Socialists, Radicals, M.R.P. (*Mouvement Républicain Populaire*) and Independent Republicans, but with a disproportionate number of Socialists because the party accepted the responsibility of leadership. The Communists were granted the ministry of national defense but without powers of control over the other three service ministries.

The government had announced its intention of carrying on the Blum policy of stabilizing wages and reducing prices but was faced with the difficulty of reducing the cost of living when charges for electricity and gas had to be raised and the balancing of the budget required the abolition of subsidies. The C.G.T. (*Confédération Générale du Travail*) demanded an increase of the minimum wage to Fr. 7,000 a month. There was a four-hour protest strike of state and municipal servants which deprived Paris of both telephone service and traffic police on Feb. 14. Simultaneously with the protest strike the newspaper printers union (under independent leadership, not linked with either the Socialist or Communist parties) proclaimed a strike which kept Paris without newspapers for nearly a month.

In parliament divergencies between the Communists and the other coalition parties over policy in Indo-China led to violent scenes and repeated suspensions of the sitting. Although Ramadier in his first speech as prime minister had insisted that coalition solidarity was essential, he had to declare himself satisfied on March 23 when the Communist ministers were the only members of their party to vote the military credits for the far east, the rest abstaining. A similar divergence about the action to be taken in Madagascar after the rising there (*see* FRENCH OVERSEAS TERRITORIES) emerged a week later.

On March 30 Gen. Charles de Gaulle emerged from retirement to make the first speech of a political campaign at Bruneval. He denounced the inadequate functioning of a state based on the interests of parties rather than of the nation. On April 7, speaking at Strasbourg, the general announced the formation of the R.P.F. (*Rassemblement du Peuple Français*, or Rally of the French People) and sharpened his attack against the Communists.

Trade union problems soon caused the final breach between the Communists and the rest of the coalition. The Communists had in the two years following on liberation succeeded in dominating the organizations of the majority of the big unions and also the C.G.T. executive committee. While taking care to reinforce their position in the unions they had certainly used it over long periods to discourage strikes. By April it had become evident that the government was not succeeding in substantially reducing the cost of living which according to official statistics stood at 837 as compared with 856 in January. The workers of France were therefore becoming impatient for wage increases to compensate them for the big increases of prices in August, September and October of the previous year. There was growing impatience both with party control of the C.G.T., contrary to French labour traditions, and with the discouragement of strikes by the Communists. Almost simultaneously a strike under noncommunist leadership broke out in the great Renault works at the gates of Paris. In both the Socialist and M.R.P. press appeared comments indicating satisfaction that the Communists were losing their hold on the unions. The Communists reacted at once and overtly dissented from the government's policy of continuing to stabilize all but the lowest grades of wages. On May 4 the entire Communist party including the ministers voted against a motion of confidence in the government which passed by reduced majority of 360 to 187 with 70 abstentions. On the evening of that day Ramadier summoned his cabinet and (with the support of the president of the republic) informed the Communist ministers that they had ceased to be members of the government.

Ramadier's decision not to resign was approved by an overwhelming majority of the Socialist deputies but by the Socialist party's executive committee only on second thoughts and by the narrow majority of 10 to 9. The national council of the Socialist party authorized Ramadier and his Socialist colleagues to remain in a coalition which no longer included the Communists by only 2,529 votes to 2,125 after an all-night debate.

It was thus a government open to attacks on both flanks that had to face a series of strikes in the early summer. In April it had had to make the disagreeable announcement that the bread situation was so bad as to make necessary both a reduction of the ration and a serious deterioration of quality. By the end of the third week in May there were bread riots in Lyons causing the resignation of the prefect, and riots by shopkeepers against price control in Dijon which ended with the sacking of public offices and the destruction of records. The government declared its intention of resisting threats of violence and strike ultimatums, but in point of fact the gas and electricity workers found at the end of May that such an ultimatum took them more than halfway to their goal. When negotiations with the railway men were interrupted by a sudden strike all over France on June 7, Ramadier announced that they could not be resumed till the men had gone back to work, but they were resumed through the mediation of the C.G.T. executive and practically all the railway men's demands were granted by an agreement of June 12.

So far the main disputes had been in the nationalized sector of French industry. To prevent their spreading to the still private sectors of industry, the employers federation and the C.G.T. were authorized by the government to enter into direct negotiations on wage and price levels, the results however to be subject to government approval. This the government found itself unable to give, though once more some concessions were made. Meanwhile, the government itself had to find funds, since the salary increases obtained by strikes had to be spread to other professions and treasury bonds were not being renewed. The government scheme not only increased taxation and the price of



FRENCHMEN FLEEING IN PANIC before the advance of armed colonial troops (left foreground) during a demonstration in support of the Communist-led general strike at Nice in Dec. 1947

tobacco but by abolishing most subsidies increased the prices of milk and bread. The bill was forced through the assembly by a majority of 302 to 241 on June 24. Crowds of demonstrators were mobilized outside the Palais Bourbon by the Communists and there were sporadic protest strikes as far apart as Marseilles and the coal mines of the Nord. The strikes in the mines became general, the principal grievance being the quality of the bread. A bank and department store strike broke out and a metallurgical strike was avoided by concessions, which were then extended to the miners and bank clerks, bringing them back to work at the end of June and the beginning of July. The cost of living had risen to 886 in May and 937 in June. In July it was to go to 976 and a civil servants' strike was avoided on July 14 only after a substantial increase in salaries had been promised.

Meanwhile the Three Power conference on the Marshall proposal opened on June 27. The soviet refusal to co-operate left France in the same camp with Great Britain and the United States; since this followed the refusal of the soviet government in the course of the Moscow conference to recognize French claims to the Saar (*q.v.*) and the conclusion on the same occasion of an agreement on German coal between France, Great Britain and the U.S., it was evident that France was no longer sitting on the fence between the two groups of its allies.

At the end of August General de Gaulle stated that the R.P.F. would run candidates in the municipal elections of Oct. 19.

The financial and economic situation was steadily worsening. The harvest, estimated at 3,630,000 short tons as compared with 8,360,000 in 1946, was one of the worst on record, and the daily bread ration was reduced from 8 to 6½ oz. at the end of August. Simultaneously, it was announced that because of the acute shortage of dollars all imports from the U.S. were suspended except fuel and wheat. A committee was formed to prepare radical cuts in expenditure so as to balance the budget at any price. These cuts were put at 23% by Ramadier in a broadcast of Oct. 8.

Parliament at last adjourned on Sept. 5, after giving Ramadier a last vote of confidence of 292 votes to 243 with 54 abstentions. Politics were now dominated by the trial of strength of the municipal elections.

The news broke that the French Communists had joined the Cominform (*see* COMMUNISM) on the same day (Oct. 5) that General de Gaulle delivered a strong anticommunist and anti-Russian speech to the biggest meeting of his career at Vincennes.

The last week before the polls a strike of the Paris transport system, originally launched by noncommunists but taken up with passion by the Communists, was followed by threats of renewed strikes by the electricity and gas, and railway workers. Big concessions brought the metro strike to an end and prevented the others.

The polling in the big towns on Oct. 19 constituted an immense success for the R.P.F. candidates who were supported by nearly all the right, by more than half the M.R.P. voters, by many of the Radicals and by some Socialists and former Communists. In Paris (52 seats out of 90) and a number of provincial towns the Gaullists won a clear majority. The Com-



FRENCH FARMERS harvesting a grain crop in southern France during the summer of 1947. Poor weather prevented the bumper crops needed to fill empty granaries and restrictions on grain consumption were increased during the year

munists lost much less heavily than the M.R.P. but the numerous Communist mayors were reduced to a relatively small number. The Socialists recovered sufficient ground from Communists in the Nord and in the Limousin to compensate for losses elsewhere.

Although results in the smaller communes showed less radical changes, it was clear that General de Gaulle now commanded support of about 35% of the country and the Communists still about 25%, leaving at most 40% of supporters to the moderate parties of the government coalition, who, however, still had a narrow majority in the assembly. The general declared in a haughtily worded statement that the only solution was a dissolution of the assembly after a change of the electoral law—for neither of which was there a majority in the assembly. It was believed that the general was not anxious to return to office at once.

Ramadier reduced his government to 13 ministers only and secured a majority of 300 to 280 with 18 abstentions on Oct. 30.

During the autumn the cost of living continued to rise rapidly. The index figure for August was 1,078, for November 1,336. In spite of the depressing record of unresolved political conflict and of failure to achieve economic equilibrium the situation had favourable elements. Coal production, alone in Europe, was above the 1938 level, being 104% of an average month in that year in July. On the same basis of comparison the general level of production was 101% in September, with steel at almost the same level as the over-all figure.

Negotiations with a view to a stronger government continued throughout the first weeks of November. In order to balance the budget the government found it necessary on Nov. 5 to raise the price of coal by 50% so as to do away with the subsidy, and to increase railway and, in Paris, Marseilles and elsewhere, municipal transport fares. After a strike of municipal services in Paris, a strike followed by street demonstrations broke out in Marseilles, and on Nov. 12 the mob succeeded in invading the law courts, where they liberated two accused, and the town hall, where the newly elected Gaullist mayor and his assistants were beaten up. Simultaneously, the government's increasingly strained relations with the U.S.S.R. were marked by a police raid on the soviet repatriates transit camp at Beauregard near Paris. Whatever may have been abuse of privileges in the past, only three small children were found to be there improperly.

While the situation in Marseilles was steadily worsening and the strikes had spread to Paris, the fall of the Ramadier government was provoked by the secretary general of the Socialist party, Guy Mollet, who, with a disregard for the responsibilities weighing on those members of his party actually in office, and of other parties' views, announced that Léon Blum was ready to take Ramadier's place, although the efforts to prepare a succession government had so far been fruitless. Blum on Nov. 21 fell 10 votes short of the 310 necessary for election to the premiership (an absolute majority of all deputies is required by the constitution) because of his firmness in denouncing Gaullism with almost the same energy as the Communists. Robert Schuman (M.R.P.), hitherto minister of finance, was elected premier on Nov. 22. After difficult negotiations he formed a government with a Gaullist sympathizer, René Mayer, as minister of finance, but all other ministers drawn from those who had voted for Blum.

He was immediately faced with a situation so grave that the retiring government's last act had been to call back to the colours 30,000 men prematurely released for reasons of economy. At a meeting of the national committee of the C.G.T. on Nov. 14 a series of resolutions had been passed condemning the Marshall plan and the French government as instruments of U.S. imperialism and approving a project for what looked like (and was denounced by the noncommunist minority as being) a month's agitation to end in a general strike at the end of December; but the trouble broke out much earlier. Starting from Marseilles, it spread to all ports, to Paris and to the coal basin of the north; and, by the last week in November, France was on the verge of economic paralysis. The new government, especially its Socialist minister of the interior, Jules Moch, reacted with vigour and for the first time found effective allies in the noncommunist elements in the C.G.T. led by Léon Jouhaux, as well as the Christian trade unions. While the Communist majority preached strikes, the minority preached negotiation to remedy the same grievances. Gradually violence grew. There were numerous acts of sabotage, culminating in a railway accident near Arras with 20 dead and 60 injured. The government introduced two bills, one authorizing further calls-up of troops and the other greatly stiffening the penalties for use of violence, threats of violence or sabotage in connection with strikes. These were passed after a week of Communist obstruction in the assembly, which was damaging to parliamentary prestige.

The strike tide turned; the railways, the post offices, a minority of the mines and many factories resumed work, though the ports remained strike-bound and there were still railway stations occupied on Dec. 9. Violence rose as the strike receded, reaching a peak in the first week of December, but followed by a lull during which negotiations were undertaken. These broke down on Dec. 8 over the refusal of the government to grant automatic increases of wages when prices rose. Meanwhile, a total of 240,000 civilians had been called back to military life to provide guards for railway lines, pits, factories and post offices, to sweep streets and unload ships.

On the night of Dec. 9 the leaders of the C.G.T. reversed the decision of the strike committee to continue the strike, on the grounds that it was better to preserve the trade union organization for future struggles, thereby admitting that in many professions the will to strike was dwindling. On the same day the soviet government denounced the Franco-soviet repatriation agreement and broke off Franco-soviet trade negotiations. In reply the French government terminated the special facilities for the soviet repatriation mission which, the French claimed,

had abused its rights by subversive action, threatening the security of France. (D. R. Gr.)

Education.—1945–46: Infant schools 3,473, scholars 286,000; elementary schools 79,450, scholars 4,668,000; secondary scholars, boys 223,830, girls 160,329; universities 17, students 97,000.

Finance.—Ordinary budget 1947 (revised estimates of Sept. 1947): revenue Fr. 610,520,000,000; expenditure Fr. 617,600,000,000; operations of the treasury (1947): estimated revenue and expenditure balanced at Fr. 355,000,000,000; total revenue (actual 1946) Fr. 815,637,000,000; total expenditure (actual 1946) Fr. 1,286,896,000,000; public debt (Dec. 1946) Fr. 2,195,643,000,000; notes in circulation (Aug. 1947) Fr. 832,000,000,000; gold reserve (Aug. 1947) U.S. $544,000,000; commercial bank deposits (1947) Fr. 311,000,000,000; rate of exchange: 1 franc = 0.841 U.S. cents.

Trade and Communication.—Foreign trade (1946): imports Fr. 234,042,000,000; exports Fr. 101,406,000,000. Communications: railways open to traffic (1945) 25,271 mi.; passenger miles (1946) 1,620,000,000; short ton miles (1946) 2,079,000,000; goods transported on inland waterways (1945) 27,580,000 short tons; motor vehicles (1946): private cars 973,000, trucks 619,500, buses 12,500. Shipping (1946, with cargo): entered 15,876,000 net tons; cleared 7,980,000 net tons; total merchant shipping more than 500 tons (1946) 1,250,000 tons gross. Radio receiving sets (April 1947) 5,728,000.

Industrial and Mineral Production.—Figures for the years 1938 and 1946 are as follows:

	(Production in 000's of short tons) 1938	1946
Coal	51,243	52,923
Lignite	1,163	2,300
Iron ore	36,521	17,865
Pig iron	6,625	3,908
Steel	6,770	4,879
Pyrites	162	183
Bauxite	752	510
Cotton fabrics	161	110
Cotton yarn	274	189
Wool yarn	97	101
Rayon and fibres	25	34

Agriculture.—The production for 1939 and the estimated production for 1947 of five crops were as follows:

	(Production in 000's of short tons) 1939	1947 (est.)
Wheat	8,920	4,033
Barley	1,172	1,305
Oats	5,233	3,734
Rye	868	466
Maslin	907	311

Production of wine for 1947 was estimated at 108,000,000 U.S. gal.

Franco, Francisco (1892–), Spanish soldier and statesman, was born on Dec. 4 at El Ferrol, Galicia. For his early career see *Encyclopædia Britannica*. In the early days of axis victories in World War II Franco affirmed Spain's solidarity with Germany and Italy in the struggle against "bolshevism." When Allied arms began to triumph, he hastened to profess his neutrality and in 1945, following the collapse of Germany, he declared (May 20) that Spain was not a "dictatorship." Then on Oct. 22 he issued a "bill of rights" which included freedom of worship and expression and the right to petition, provided these liberties did not run counter to the "fundamentals of the state."

Franco, who survived verbal attacks made on his regime by the United Nations in 1946, set up a regency council on March 31, 1947, and on June 7 the cortes approved a bill giving him broad powers for life and authority to choose his successor. The "law of succession" bill was approved by more than 92% of the voters in a plebiscite held July 6, although many Spaniards stayed away from the polls. On July 18, Franco said the plebiscite proved that he had support of his countrymen and that the United Nations was not justified in attacking him. To celebrate the victory, he issued an amnesty, which did not, however, include his political enemies. On Oct. 17, Franco assumed the right to create new (as well as revoke old) Spanish nobility titles. (*See* also SPAIN; UNITED NATIONS.)

Frederick IX (1899–), king of Denmark, son of Christian X and Alexandrine, former duchess of Mecklenburg-Schwerin. He became crown prince in 1912, on the accession of his father, and king on April 20, 1947, when his father died. On April 21 he was proclaimed king when Premier Knud Kristensen called three times from the balcony of Christiansborg castle: "King Christian X has died! Long live His Majesty King Frederick IX." The new king responded with a simple pledge to try to be worthy of the same confidence the people had reposed in his father and a prayer for God's help.

Frederick lacked but an inch of his father's height of six feet, five inches. He was the first in the long succession of Danish rulers to be trained in the navy; the other 37 had all been army men. Frederick loved boats as his father loved horses, and he liked speed in any form; he had tested many a diesel train. His musicianship was also reputed to be of a high order.

In 1935 Frederick married Ingrid, daughter of the crown prince of Sweden, and they had three daughters—none of whom could succeed to the throne according to Danish law.

In October the royal pair made a brief visit to their relatives in Oslo and Stockholm and in November attended Princess Elizabeth's wedding in London. (F. D. S.)

Freemasonry: *see* SOCIETIES AND ASSOCIATIONS.

Freer Gallery of Art: *see* SMITHSONIAN INSTITUTION.

French Colonial Empire: *see* FRENCH OVERSEAS TERRITORIES.

French Indo-China: *see* FRENCH OVERSEAS TERRITORIES.

French Literature. French letters during 1947 presented a picture of such density and diversity that any attempt to isolate a dominating current immediately suggested its own contradictions. For there were many currents, reflecting not only France's own situation but that of the post-war world in general, and the great themes of the time—liberty and moral responsibility of the individual in the group, decadence or survival of the sacred, the significance of aesthetic creation, science and conscience, force and right—were passionately debated.

Concurrent with increasing world tension around the first of these themes, a significant feature of the year was the participation of many prominent writers in national politics. André Malraux became the leading propagandist for the De Gaullist party, Rassemblement du Peuple Français; Louis Aragon, Paul Eluard and Tristan Tzara gave active support to the Communist party; François Mauriac and Jean-Paul Sartre, albeit from opposed points of view, attacked both these ideologies, and the surrealist leader, André Breton, declared a "plague on all their houses" in favour of "permanent Revolution of men and things" based on the teachings of the "Divine Marquis" (de Sade) and Sigmund Freud. Despite these preoccupations, however, literary creation was not only abundantly manifest but, in some respects, more interesting and varied than during the preceding year.

In the poetic field, a rather boisterous bid for the place occupied between the world wars by the surrealists was made by the lettrist group, under the leadership of Isador Isou, a Sorbonne student whose 400 page manifesto entitled *Introduction à une nouvelle poésie et à une nouvelle musique* attracted some attention. The real discovery of the year, however, was undoubtedly Henri Pichette, aged 23, attached to no group, and author of the poetic drama, *Les Epiphanies*. For some critics he was a genius, the poet they had been waiting for, and his play was an astonishing renewal of the dramatic art. For others, his art was only verbiage and mystification, representative of a false advance-guard, puerile and immature. In any case, even his opponents recognized an abundant, surging gift for verbal creation. What was interesting in the work of both Isou and Pichette, however, was their simultaneous attempt to modify their linguistic medium by an attack on the individual word. In this respect they differed from their distinguished immediate elder, René Char who, although supreme mas-

ter of condensing emotion and thought into the simplest words, was content to leave both word and syntax untouched. Char's latest volume, *Le Poème Pulverisé,* received marked critical attention. Other poets who published during the year were Jean Cayrol, Aimé Cesaire (deputy from Martinique), Malcolm de Chazal (a newly discovered, highly lyrical poet from the Ile Maurice), Paul Eluard, Léon-Paul Fargue, Benjamin Péret, St.-J. Perse, Tristan Tzara.

Although critics agreed that the large number of novels published were for the most part of high quality, Albert Camus's *La Peste* (Prix des Critiques) was one of the few among them that aroused general, thoughtful discussion. The choice of André Gide for the Nobel literary prize was almost universally applauded. (*See* also LITERARY PRIZES.)

In the theatre, new plays were presented by Jean Anouilh, François Mauriac, Jules Romains, Armand Salacrou, Madame Simone and others less well known. Charles Péguy's *Jeanne d'Arc* was given in its entirety for the first time, under the supervision of the son of the poet. Other published plays included *Abélard et Heloïse* by Roger Vaillant; *Le Maître de Santiago* by Henry de Montherlant and *Théâtre Complet* by Roger Vitrac, former surrealist.

In the domain of philosophical thought, the concept of "existence" continued to offer one of the main themes of discussion: Emmanuel Mounier's *Introduction aux Existentialismes* and Jean Wahl's *Petite Histoire de l'Existentialisme* constituted accessible surveys for the lay public. Other volumes on the same subject were: *L'Existentialisme,* by Henri Lefebvre (who claimed that the young revolutionary philosophers of the 1920s were already existentialist); *Court traité de l'existence et de l'existant,* by Jacques Maritain; *Dialectique existentielle du divin et de l'humain,* by Nicolas Berdiaeff and *Existentialisme Chrétien: Gabriel Marcel,* by Etienne Gilson. *Karl Jaspers et la Philosophie de l'Existence,* by Michel Dufresne and Paul Ricoeur, included the first French translations from the works of this distinguished German philosopher. There also appeared a volume on *Descartes* by Jean-Paul Sartre; *De Bergson à Thomas d'Aquin* and *La Personne et le Bien commun,* by Jacques Maritain; *Introduction à la lecture de Hegel,* by Alexander Kojeve and under the title: *Principes élementaires de Philosophie,* a volume of posthumous notes by the Marxist philosopher, Georges Politzer. Gaston Bachelard announced that his study of "l'imagination matérielle" which already included volumes on fire, water and air, would be followed by a volume on earth, representing the element of weight and the symbol of nourishment. (*See* also PHILOSOPHY.)

Important essays of the year included Georges Bernanos' *La France contre les Robots,* in which he urged the French to reject over-industrialization; *Qu'est-ce que la littérature?* by Jean-Paul Sartre, a brilliant if often prejudiced study of the writer's place in society; *Méthode de Méditation,* by Georges Bataille; *Van Gogh ou le suicide de la société,* by Antonin Artaud; *Lettres sur la Bombe Atomique,* by Denis de Rougemont. Jean Paulhan, Maurice Blanchot and Pierre Klossowski discussed the works of the Marquis de Sade, and much interest was shown in such 19th century writers as Stendahl (Henri-Marie Beyle), Jean Rimbaud and Gerard de Nerval. Mention should be made too of such works as Charles Pichon's important *Histoire du Vatican,* Cardinal Suhard's *Essor ou Déclin de l'Eglise,* Jean-Paul Sartre's *Réflexions sur la question juive,* Pastor Marc Boegner's *Le Problème de l'Unité Chrétienne* and Louis de Broglie's *Physique et Microphysique.*

A number of important works on artistic subjects were published, including *Goya,* by André Malraux, *Psychologie de l'Art* by the same author; *André Masson et son Univers,* by Michel Leiris and Georges Limbour; *Schoenberg et son Ecole,* by the leader of the atonalist composers, René Leibowitz; *Juan Gris,* by Daniel Kahnweiler; *L'Enseigne de Gersaint,* a study of Watteau, by Louis Aragon.

More than 20 literary reviews, together with a half-dozen weekly and daily newspapers, continued to represent a rapid medium for the exchange of ideas as well as an essential vehicle for the introduction of new talent. Special mention should be made of *Temps Modernes, Fontaine, Critique, Esprit, La Nef; Arche, Psyché, Cahiers du Sud, Dieu Vivant, Cahiers de la Pléiade, Saisons, Poésie '47; Les Nouvelles Littéraires, Les Lettres Françaises, Le Figaro Littéraire, Gazette des Lettres, Carrefour, Arts, Combat.*

In conclusion, it should be noted that Marcel Pagnol, Paul Claudel and Etienne Gilson were elected to the French Academy. (M. JOL.)

French Overseas Territories.

Under this heading are grouped the overseas *départements,* the colonies (*territoires d'outremer*), the protectorates and the mandated territories, the total area of which (excluding Syria and Lebanon) is 4,605,633 sq.mi. and the total population (est. Dec. 1939) 67,591,000. Certain essential information on the composing parts of the French colonial empire —or *France d'outremer,* as it is officially called—is given in the table.

History.—The new French constitution provided that the French union consisted of the French republic (that is to say, metropolitan France and the overseas departments and territories) and the associated territories and states. These latter were certainly Morocco and Tunis, and perhaps Indo-China, whose status was still indeterminate. The overseas departments were Algeria (three departments), Martinique, Guadeloupe, French Guiana and Réunion (but not Corsica). In addition to representation by 75 deputies in the assembly (13.7%) and 65 in the Council of the Republic (32.5%), the constitution provided for the creation of a high council and an assembly of the French union with mainly advisory powers. The council was to consist of nominees of the French government and of the associated states, the assembly of delegates elected one-half by the French parliament and one-half by the territorial assemblies overseas. This federal organ was called for Dec. 10, 1947. The legislation for setting up territorial assemblies had been passed for Algeria, West Africa and Equatorial Africa. The sultan of Morocco refused to change the protectorate treaty for a closer bond with France, claiming instead restoration of Moroccan sovereignty and a treaty of alliance. A similar situation arose in Tunisia. In Indo-China the kings of Cambodia and of Laos were ready to enter the union, but the French plan was that they should do so as part of an Indo-Chinese federation. The principal member of this would be Viêt-Nam, whose government France no longer recognized (although it still had an agency in Paris). Institutions had also been prepared for Madagascar.

Indo-China.—In Indo-China long negotiations as to the meaning of the armistice agreement of March 6, 1946, which recognized Viêt-Nam as "a free state having its government, its parliament, its army and its finances within the framework of the Indo-Chinese federation and the French union," were interrupted on Dec. 19, 1946, by a surprise attack, evidently carefully prepared, by the Viêt-Nam troops on the French troops. In the course of the spring and early summer of 1947 the French forces gained control of the principal towns and internal communications of Viêt-Nam and during the autumn launched operations to cut communications with China and Siam. Negotiations were attempted, but broke down over the refusal of the French to recognize the Viêt-Nam government as the *de jure*

sovereign. They were ready to recognize Viêt-Nam as including Cochin-China, but their views of the rights of the Viêt-Nam were if anything more restricting than in 1946, since the constitution laid it down that Paris was responsible for the coordination of national defense and the policy necessary to assure it, for criminal legislation and the political and administrative organization of overseas territories. The French forces in Indo-China were about 100,000.

North Africa.—In Algeria the new constitution gave equal representation to the first electoral college, representing the 1,000,000 Europeans, and to the second, representing 8,000,000 Moslems. The first included a certain number of Moslems on grounds of either education or service, and it was at one time hoped that by gradual extension of this element a point would be reached when the two colleges would be equal. The instinct of self-defense of the European population, and the agitation of the more extreme Moslem elements led by Messali Haj, impeded this development.

In Morocco the sultan was the acknowledged leader of the nationalists. During a visit to Tangier (the first after the regime of the protectorate was established) at the beginning of April the sultan ostentatiously left out of his speech the only sentence referring to France. The French government thereupon recalled the civilian resident-general Eirik Labonne and sent out Gen. Alphonse Juin in his place. An administrative reform substantially modernized the higher Moroccan bureaucracy so as to give the sultan a better chance of forming and expressing an opinion on the measures put before him by the resident-general's staff, but in other respects political change in Morocco was slight.

In Tunisia constitutional progress was greater, and an attempt to initiate parliamentary government was made; but large parts of the administration were still in French hands and the principal nationalist party, the *Destour*, declined to co-operate. Political censorship was abolished in Tunisia.

In North Africa there were two serious incidents, a strike in southern Tunisia involving some bloodshed on Aug. 5 and 6 (73 casualties); and a nonpolitical outbreak in Casablanca by Senegalese troops, involving about 60 casualties.

Réunion and Madagascar.—Abd-el-Krim, the former Riff leader, was brought on board a ship without escort from Réunion so as to exchange his exile there for exile in France. He left the ship (after some persuasion) while in Egypt and joined the pan-Arab nationalists in Cairo, where Morocco was represented by the poet Allal el Fassi.

A rising broke out in the east of Madagascar which was still being suppressed at the end of the year. It left great bitterness among both Malagasy and Europeans. The three deputies and three councillors of the republic representing the autochthonous population of the island were all under arrest awaiting trial on charges of organizing the insurrection. It should be mentioned that they were elected by about 94,000 voters out of a population of 4,174,000. The colonial electorates appeared to be locally determined. A total of 1,898,200 went to the polls, but except in the electoral colleges reserved to Europeans less than half of the registered electors had so far used their votes. (*See* also PACIFIC ISLANDS, FRENCH.) (D. R. GI.)

French Possessions in America.—The four colonies of France in the western hemisphere fall into three regional groups: (1) the islands of St. Pierre and Miquelon at the mouth of the Gulf of St. Lawrence; each has certain dependent islets; (2) the French West Indies, consisting of the two colonies of Martinique and Guadeloupe, the latter with five small island dependencies; (3) French Guiana, a mainland colony in the northeastern part of South America, including French Guiana proper, a narrow coastal strip and the hinterland dependency of Inini.

History.—St. Pierre and Miquelon continued an uneventful readjustment to postwar conditions in 1947 and placed chief emphasis upon the further development of the fishing industry and processing of fish products, in which systematic developments had begun in 1946. The Caribbean colonies continued to co-operate closely with the expanded and increasingly active Caribbean commission, representing Middle American possessions of Great Britain, the United States, France and the Netherlands. Work continued in 1947 on the liquidation of the Devil's Island penal colony, off the French Guiana coast. By August 2,386 convicts had already been returned to their homes in France and North Africa, 800 more had completed their penal terms and were awaiting shipment and 2,718 were still serving sentence.

French Overseas Territories
1947

Country and Area sq. mi. (approx.)	Population (000's omitted)	Capital, Status, Governors, Premiers, etc.
AFRICA		
French Equatorial Africa, 959,983	3,423*	Brazzaville, *Governor and High Commissioner* (post vacant after death of Charles Luizet, Sept. 4, 1947).
Gabon, 91,405	410	Libreville, colony, *Governor:* Roland Pré.
Middle Congo, 175,630	746	Brazzaville, colony, *Governor:* C. Laigret.
Ubangui-Shari, 238,008	834	Bangui, colony, *Governor:* Jean Chalvet.
Chad, 454,940	1,433	Fort Lamy, colony, *Governor:* A. Léger.
Cameroun, 169,436	2,816†	Yaoundé, trustee territory, *High Commissioner:* René Hoffherr.
Algeria, 851,078	7,600‡	Algiers, colony under the jurisdiction of the minister of the interior, *Governor-General:* Yves Chataigneau.
Morocco, 154,000	8,000§	Rabat, protectorate under the minister of foreign affairs, *Sultan:* Sidi Mohammed; *Resident-General:* Gen. Alphonse Juin.
Tunisia, 60,209	3,463‖	Tunis, protectorate under the minister of foreign affairs, *Bey:* Sidi Mohammed al Amin; *Resident-General:* Gen. Charles Mast.
French West Africa, 1,816,000	15,943¶	Dakar, *High Commissioner:* René Barthès.
Senegal, 77,749	1,727	St. Louis, colony, *Acting Governor:* Laurent Wiltord.
Mauritania, 433,532	377	St. Louis, colony, *Governor:* Lucien Geay.
French Guinea, 97,247	2,164	Conakry, colony, *Governor:* Eduard Terrac.
Ivory Coast, 184,255	4,124	Abidjan, colony, *Acting Governor:* Oswald Durand.
Dahomey, 43,282	1,436	Porto Novo, colony, *Acting Governor:* Robert Legendre.
French Sudan, 480,417	3,875	Koulouba (Bamako), colony, *Governor:* Jean Louveau.
Niger, 499,555	2,058	Niamey, colony, *Governor:* J. Gosselin.
Dakar and dependencies, 62	182	Dakar, constituency incorporated with Senegal.
Togoland, approx. 22,000	919	Lomé, trustee territory, *High Commissioner:* Jean Noutary.
French Somaliland 8,376	40♀	Jibuti, colony, *Governor:* Paul Siriex.
Madagascar and dependencies, 229,438	4,175♂	Antananarivo, colony, *Governor-General:* Marcel de Coppet.
Réunion, 70	221¶	St. Denis, colony, *Governor:* J. Capagorri
AMERICA		
St. Pierre and Miquelon, 93	4†	St. Pierre, colony, *Administrator:* René Marchand.
French Guiana, including Inini, 34,740	37□	Cayenne, colony, *Governor:* Jean Pézet.
Guadeloupe and dependencies, 686	310‡	Basse-Terre, colony, Governor: Ernest de Nattes.
Martinique, 427	270°	Fort-de-France, colony, Governor: G. Orselli.
ASIA		
French India, 197	323§	Pondicherry, colony, *Acting Governor:* Charles-François Barou.
French Indo-China, 285,794	23,030*	Saigon, *High Commissioner:* Emil Bollaert.
Annam, 56,974	5,656	Hué, protectorate, *Commissioner:* Gen. de Brigade H. Lebris.
Cambodia, 69,886	3,046	Pnom-Penh, protectorate, *King;* Norodom Sihanouk.
Cochin-China, 24,974	4,616	Saigon, colony, *Commissioner:* R. Dufour.
Laos, 89,320	1,012	Vientiane, colony, *Commissioner:* J. de Raymond.
Tongking, 44,660	8,700	Hanoi, protectorate, *Commissioner:* J. Sainteny.
OCEANIA		
French territories in the Pacific		*Administrator in Chief:* J. C. Hanmant.
New Caledonia and dependencies, 7,654	60°	Nouméa, colony, *Governor:* Jacques Tallec.
New Hebrides, 4,633	43§	Vila, Franco-British condominium, *High Commissioner:* Jacques Tallec.
Pacific Islands, including Society Islands, Tuamotu Islands, Tubuai archipelagos, etc., 1,545	51♂	Papeete, colony, *Governor:* Jacques Tallec.

*Pop. 1936 census.
†Pop. est. 1945.
‡Pop. est. 1939.
§Pop. est. 1941.
‖Pop. est. 1946.
¶Pop. est. 1943.
♀Pop. 1944 census.
♂Pop. 1941 census.
□Pop. est. 1938.
°Pop. est. 1944.

Education and Religion.—Schools in both Martinique and Guadeloupe, the colonies of largest population, are patterned after the French system. Attendance in Martinique represents about one-seventh of the entire population. Fort-de-France has a school of law and a technical training school. Guadeloupe has 113 free elementary schools attended by 25,691 pupils, and 3 secondary schools with 1,832 pupils; private schools enroll 2,500. The predominant religion in all four colonies is Roman Catholi-

cism.

Trade and Communications.—Exports from St. Pierre and Miquelon in the first six months of 1947 were valued at 66,700,000 francs, and imports in the same period at 49,300,000 francs. For all of 1946, exports were 59,600,000 francs; imports 81,900,000 francs. Chief exports of Martinique are sugar and rum; sugar exports in 1946 were 165,194 metric quintals (1945: 482,360 quintals). Exports from Guadeloupe in the first six months of 1947 were valued at 2,331,400,000 francs, and imports during the same period at 1,326,700,000 francs. For all of 1946, exports were 1,495,200,000 francs, and imports 1,115,500,000 francs. Guadeloupe's principal exports are sugar (81,380 quintals in first six months of 1947), rum and bananas. Exports from French Guiana include gold, precious stones, wood and rosewood essence; imports include foodstuffs and clothing, machinery, fuels. Martinique and Guadeloupe have, respectively, 750 mi. and 800 mi. of roads but no railways. French Guiana has a few hundred miles of roads near Cayenne and 62 mi. of narrow-gauge railway.

Production.—Processing of fish products constitutes the only important industry in St. Pierre and Miquelon. Sugar production in Martinique and Guadeloupe, respectively, in 1945–46 totalled 23,530 and 45,082 metric tons (1944–45: 11,062 and 28,439 tons); estimated production for 1946–47 was, respectively, 22,000 tons and 35,000 tons.

BIBLIOGRAPHY.—*West Indies Year Book, 1946;* Paul Blanchard, *Democracy and Empire in the Caribbean* (1947); *Foreign Commerce Weekly* (Washington); Thomas S. Simey, *Welfare and Planning in the West Indies* (1947). (R. H. FN.)

French Pacific Islands: *see* PACIFIC ISLANDS, FRENCH.

French Possessions in Africa: *see* FRENCH OVERSEAS TERRITORIES.

Frequency Modulation: *see* FEDERAL COMMUNICATIONS COMMISSION; RADIO.

Friends, Religious Society of.

Although no formal celebration was held, 1947 marked the 300th anniversary of the spiritual experience which led George Fox to found the Society of Friends. In 1947 the society was composed of 53 yearly meetings and annual conference groups with an approximate total membership of 164,300. About 116,600 members were in the United States and Canada, and about 22,700 in the British Isles. During the year the Switzerland general meeting was given the status of a yearly meeting, and the constituent meetings of the Pacific Coast association, located in Canada, the U.S.A. and Hawaii, organized the Pacific yearly meeting.

Partial return to normal peacetime conditions in the Society of Friends was reflected in the increasing number of Friends able to travel about the world in the ministry and in the holding of three important international Quaker conferences. At Easter time, the first conference of European Friends after 1939 was held at Ommen, the Netherlands; approximately 70 Friends from 12 countries were present. The message from this conference emphasized the fact that "the spiritual need of the world is greater even than the physical," and reviewed frankly the spiritual state of the European meetings in these words: "Our own hearts have been hardened and our characters warped through these (wartime) years of violence and dishonesty and panic selfishness; but to some of us it has been given to find through suffering a new sense of fellowship and new opportunity for serving our fellows." In July, more than 450 young Friends from all parts of the world met at Earlham college, Richmond, Ind., to discuss the theme of "Christian Dedication in Spirit and Work." In September, the first postwar meeting of the Friends World Committee for Consultation was held at Richmond, Ind., with 93 Friends from 18 countries in attendance. Plans were made for a World Conference of Friends to be held in 1952 and arrangements were made for representation in the United Nations Educational, Scientific and Cultural organization (U.N.E.S.C.O.) and the United Nations Economic and Social council. Thus the sense of a world Quaker community began to be recreated.

As the United Nations Relief and Rehabilitation administration (U.N.R.R.A.) ceased its operations, the burden upon private relief agencies such as those operated by Quakers became correspondingly greater. Friends Relief Service, the British Quaker relief organization, had 180 workers in Austria, France, Germany, Greece and Poland; plans were made to close down operations or to hand them over to other groups in 1948. The needs of displaced persons in Europe and of refugees and prisoners of war in England also claimed the attention of Friends Relief Service. The Friends Service council had 60 workers in India, China, Madagascar and various European capitals. Young British Friends carried on rehabilitation work in France and Germany under the Friends Ambulance Unit Post-War Service. In India and China, British, Canadian, U.S. and New Zealand Friends worked with native personnel under the Friends Service unit. The work in India centred in Bengal, and took the form chiefly of village reconstruction and medical relief. Medical centres and mobile units were maintained in Honan Province, China, and in Yenan, capital of communist China.

The American Friends Service committee, with the largest budget in its 30-year history, carried on relief and reconstruction operations in 11 countries: Finland, Poland, France, Germany, Austria, Hungary, Italy, Spain, India, China and Japan. There were several new developments in the work of this committee. Under the Quaker International Voluntary Service program many American and European young people volunteered their services in the rebuilding of war-shattered communities in Europe; work camps for this purpose were conducted in Finland, Poland and France. The program of International Service Seminars, interrupted by World War II, was resumed; more than 250 students from all parts of the world came together in seven seminars scattered over the United States to study the problems of world peace under the leadership of a distinguished faculty. At the invitation of the U.S. state department the committee undertook responsibility for the orientation program on two ships carrying exchange students between Europe and the United States. The social-industrial section, in addition to operating its work camps, institutional service units and race relations program, turned its attention to the field of economic relations in an effort to see what special contribution Friends might make in this difficult area. The peace section, while continuing its Institutes of International Relations, its peace caravans and its work camps in Mexico, devoted much energy to mobilizing public opposition to peacetime conscription.

On Dec. 10 the Nobel peace prize was awarded jointly to the American Friends Service committee in Philadelphia and the Friends Service council in London in recognition of the contribution of the Society of Friends to world peace. (*See* also CHURCH MEMBERSHIP.) (F. Ts.)

Fruit.

World fruit production was about average in 1947, apples being estimated at 411,000,000 bu., of which North America provided 132,000,000 bu. Great Britain had a record crop, twice the average size. Germany, Austria, Belgium and the Netherlands had better-than-average crops in spite of the dry weather. The Italian crop was at about the pre-World War II level. U.S. production failed to reach the record total of 1946 by 4% but was 20% above average. Deciduous fruits, 6% less than in 1946, were also 12% above average.

Apples.—The U.S. crop in 1947 was estimated at 112,503,000 bu., 6% smaller than the 1946 crop of 119,410,000 bu. and about the size of the average for 1936–45. The table on p. 333 shows production in 24 states for 1947, 1946 and the 10-yr. average, 1936–45. The western states produced almost half of the total crop, Washington alone yielding 30% of the commercial output. The differences in production by areas reflected the differences among varieties. Baldwins yielded two and one-half times the 1946 crop, Gravensteins one-third more, Greenings, Yellow Newton and Spy one-tenth more while other varieties

Table I.—*U.S. Apple Production in Leading States 1947, 1946 and 10-Yr. Average 1936-45*

(In thousands of bushels)

State	1947	1946	10-Yr. Average	State	1947	1946	10-Yr. Average
Washington	33,480	32,710	26,955	New Jersey	1,935	297	2,887
New York	15,045	15,116	14,700	Missouri	1,630	1,230	1,263
California	10,010	7,648	7,814	Colorado	1,568	1,100	1,598
Pennsylvania	6,612	8,568	7,853	Indiana	1,489	1,174	1,399
Michigan	6,600	7,560	7,132	Connecticut	1,273	1,111	1,314
Virginia	5,010	12,975	10,196	Maryland	1,072	1,872	1,727
Illinois	4,187	3,573	2,908	Maine	930	767	643
Ohio	3,038	2,350	4,379	New Hampshire	838	465	730
Oregon	2,864	2,970	2,988	Vermont	799	424	601
Massachusetts	2,864	2,000	2,495	Wisconsin	799	996	647
West Virginia	2,820	5,075	4,125	North Carolina	768	1,248	1,011
Idaho	2,275	1,233	2,447	Arkansas	756	677	269

Table II.—*U.S. Grape Production in Leading States 1947, 1946 and 10-Yr. Average 1936-45*

(In tons)

State	1947	1946	10-Yr. Average	State	1947	1946	10-Yr. Average
New York	60,000	64,500	53,350	Virginia	1,800	2,200	1,810
Michigan	45,900	31,000	34,180	Alabama	1,800	1,700	1,440
Washington	21,400	19,400	11,810	Oklahoma	1,600	1,700	2,210
Pennsylvania	17,500	19,500	15,830	Oregon	1,500	1,600	1,920
Ohio	15,400	12,500	18,360	New Mexico	1,400	1,300	1,190
Arkansas	11,600	10,800	8,170	Kentucky	1,400	1,700	1,850
North Carolina	5,600	5,100	5,480	Texas	1,300	1,400	1,890
Missouri	3,800	3,100	5,800	Arizona	1,200	1,000	950
Illinois	3,200	2,300	3,810	Utah	1,200	800	880
Iowa	2,600	2,700	3,020	South Carolina	1,100	1,100	1,210
Georgia	2,600	2,200	1,820	West Virginia	900	1,800	300
Tennessee	2,400	2,100	2,250	Nebraska	700	600	1,370
Indiana	2,400	1,900	2,610	Delaware	600	800	1,155
New Jersey	1,900	2,400	2,270	Colorado	600	150	510
Kansas	1,900	1,600	2,290	Wisconsin	500	600	480

California	1947	1946	10 yr. Average
Wine Varieties	536,000	684,000	553,900
Table Varieties	605,000	630,000	451,600
Raisin Varieties	1,735,000	1,604,000	1,379,500
Total	2,876,000	2,918,000	2,385,000

showed no increase or a loss. The Delicious variety continued to grow in popularity as a commercial apple and constituted 21% of the total commercial crop in 1947. Winter varieties amounted to about four-fifths of the total because of better storage quality. The summer variety Gravenstein produced in California, made up about half of the total of summer types.

Shipments began early and two-thirds were shipped from Washington before October. The eastern crop was delayed in maturing. Imports from Canada amounted to more than 1,200 carloads, but this amounted to only about 2% of the United States production. Exports were about 5,200,000 bu. in the year 1946–47 ending July 1 and were expected to be smaller in 1947–48. Storage stocks of apples increased in the fall of 1947 above the 10,000,000-bu. level, about the same as in 1946.

Prices of apples in general were about the same as in 1946 but below the average for the very small 1945 crop. The average price to growers was $2.65 per bu. in 1947, compared with an average of $2.46 for 1946. Prices ranged higher in New England in the east and in Washington and Idaho in the west.

Apricots.—The U.S. crop was estimated at 199,000 tons, compared with 338,700 tons harvested in 1946 and a ten-year average of 191,500 tons. In the three states growing nearly all this fruit, California produced 166,000 tons, Washington 28,000 tons, and Utah 5,000 tons. World production of dried apricots was estimated at 19,800 tons, of which 15,000 tons were produced in the United States. Spain produced 2,100 tons and Australia 1,300 tons.

Avocados.—U.S. production was estimated at 16,300 tons in 1947, compared with 16,000 tons in 1946 and an average of 15,773 tons for 1936–45. California produced 14,000 tons and Florida 2,300 tons.

Bananas.—The supply from Central America became more abundant in 1947 as shipping improved, amounting to nearly 50,000,000 bunches, somewhat less than prewar supplies.

Cherries.—The U.S. commercial crop grown in 12 states in 1947 was estimated at 180,830 tons, 21% below the big crop of 229,620 tons harvested in 1946 but above the average of 169,157 tons for 1936–45. Sour cherries amounted to 98,810 tons and sweet varieties 82,020 tons. Michigan produced 49,500 tons of the sour cherries and New York 18,200 tons. Of the sweet varieties, Washington led with a crop of 29,200 tons; California produced 28,000 tons and Oregon 10,000 tons.

Cranberries.—The U.S. crop for 1947 was estimated at 784,700 bbl., about 13% below the big 857,000-bbl. crop of 1946, but 16% above the average of 638,830 bbl. during 1936–45. Massachusetts produced an estimated 485,000 bbl., Wisconsin 155,000 bbl., New Jersey 81,000 bbl., Washington 48,000 bbl. and Oregon 15,700 bbl.

Dates.—The U.S. date crop, all grown in California except for a very small amount in Arizona, was 10,250 tons, 41% below the 1946 crop of 17,400 tons, but above the average of 6,422 tons for 1936–45.

Figs.—California figs for drying were estimated at 33,000 tons in 1947, compared with 36,600 tons in 1946 and a ten-year (1936–45) average of 30,440 tons. California figs for fresh use and canning were estimated at 14,000 tons. Texas figs, mostly used for preserving, returned only 760 tons.

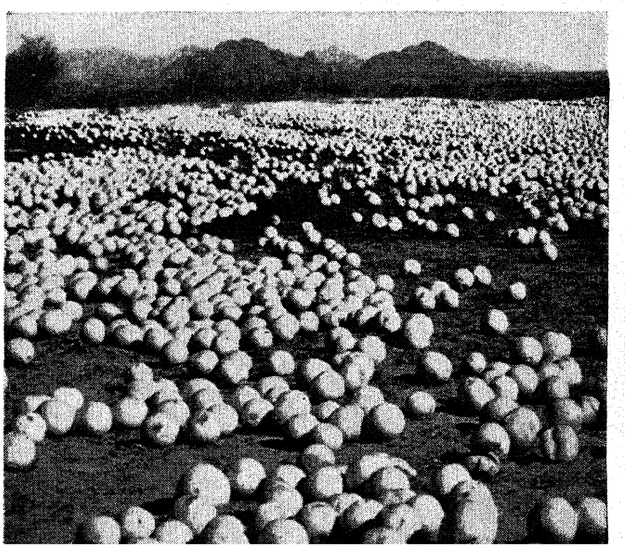
Grapefruit.—The 1947 U.S. crop was estimated at 62,270,000 boxes compared with a crop of 59,520,000 boxes in 1946 and an average of 44,593,000 boxes (1936–45). Low prices in the fall

Table III.—*U.S. Grapefruit Production by States 1947, 1946 and 10-Yr. Average 1936-45*

(In thousands of boxes)

State	1947	1946	10-Yr. Average	State	1947	1946	10-Yr. Average
Florida				Arizona	4,100	4,100	3,031
Seedless	14,000	14,000	8,840	California			
Other	17,000	15,000	13,990	Desert	1,200	1,220	1,115
Texas	24,000	23,300	16,121	Other	1,970	1,900	1,496

EDIBLE GRAPEFRUIT left to rot along the Salt river near Phoenix, Ariz., where growers dumped tons of the citrus fruit which failed to meet retail requirements in 1947



caused delayed marketing.

Grapes.—The 1947 crop in the United States was estimated at 3,093,800 tons, 3% less than the record 1946 crop of 3,119,500 tons but 20% above the average (1936–45). Prices were much lower in 1947, less than half the 1946 average of $93.30 per ton.

Lemons.—The 1947 crop of California was estimated at 14,100,000 boxes, compared with 13,760,000 boxes picked in 1946 and an average of 12,186,000 boxes during 1936–45.

Limes.—The 1947 crop, all in Florida, was put at 190,000 boxes, compared with 170,000 boxes harvested in 1946 and an average of 135,000 boxes for 1936–45.

Olives.—The U.S. commercial olive crop, all grown in California, was estimated at 40,000 tons in 1947, compared with 48,000 tons in 1946 and an average of 43,300 tons for the period 1936–45.

Oranges.—The 1947 crop of the United States was estimated at 108,260,000 boxes or about 5% less than the record crop of 1946 but 30% above the average of the ten-year period 1936–45.

Table IV.—*U.S. Orange Production by States 1947, 1946 and 10-Yr. Average 1936-45*

(In thousands of boxes*)

State	1947	1946	10-Yr. Average
California			
Navels	19,400	19,670	18,203
Valencias	31,200	34,000	28,329
Florida			
Early and midseason	27,500	30,500	18,125
Valencias	23,000	23,200	14,905
Tangerines	4,300	4,700	3,190
Texas			
Early and midseason	3,480	3,150	1,722
Valencias	2,320	1,850	1,220
Arizona			
Navels	480	600	327
Valencias	580	600	371
Louisiana	300	410	288

*Boxes hold 77 lb. in California and Arizona; 90 lb. in other states.

Tangerines.—The 1947 Florida crop of tangerines was estimated at 4,300,000 boxes, compared with 4,700,000 boxes shipped in 1946 and an average of 3,190,000 boxes during 1936–45. The crop was of unusually high quality.

Peaches.—The crop of U.S. peaches in 1947 was estimated at 82,981,000 bu. compared with the record crop of 1946 of 86,643,000 bu. and the ten-year (1936–45) average of 62,936,000 bu.

The California clingstone crop was put at 21,460,000 bu.; freestone amounted to 11,959,000 bu.

Table V.—*U.S. Peach Production in Leading States 1947, 1946 and 10-Yr. Average 1936-45*

(In thousands of bushels)

State	1947	1946	10-Yr. Average	State	1947	1946	10-Yr. Average
California	33,419	37,086	25,877	Pennsylvania	1,920	2,226	1,809
South Carolina	6,630	5,994	2,695	Virginia	1,800	2,640	1,282
Georgia	5,810	5,628	5,033	Texas	1,696	1,856	1,628
Michigan	4,526	5,100	2,993	New Jersey	1,617	1,776	1,276
North Carolina	2,905	3,160	1,971	Alabama	1,525	1,250	1,435
Washington	2,817	2,700	1,997	New York	1,440	1,682	1,332
Illinois	2,363	1,529	1,376	Missouri	1,288	1,098	575
Arkansas	2,220	2,479	2,040	Tennessee	1,209	540	1,596
Colorado	2,106	1,985	1,752	Utah	933	700	870

Plums and Prunes.—The U.S. crop of commercial plums, almost all grown in California and Michigan, was estimated at 77,300 tons fresh basis in 1947, compared with 106,000 tons harvested in 1946. Prune production in California was estimated for 1947 at 201,000 tons dried basis, 6% less than 1946. Idaho's crop made a new record of 35,500 tons, nearly double the ten-year average.

Table VI.—*U.S. Production of Prunes by States 1947, 1946 and 10-Yr. Average 1936-45*

(In tons, fresh basis)

State	1947	1946	10-Yr. Average	State	1947	1946	10-Yr. Average
Oregon				Washington			
Eastern	18,900	18,100	14,210	Eastern	19,100	19,800	15,200
Western	15,000	83,000	73,770	Western	4,000	9,300	8,940
				Idaho	35,500	22,400	18,460

Table VII.—*Quantities of Prunes Used, Fresh, Canned and Dried, in the U.S. 1947, 1946 and 10-Yr. Average 1936-45*

(In tons, fresh basis)

State	1947	1946	10-Yr. Average
Used fresh			
Idaho	31,700	20,800	17,090
Oregon	13,000	18,100	17,620
Washington	12,200	10,600	12,331
Canned			
Oregon	13,600	42,200	20,440
Washington	8,400	14,890	5,617
Idaho	3,000	800	80
Dried (dry basis)			
California	200,800	212,800	192,000
Oregon	400	8,200	10,750
Washington	100	250	670
Frozen			
Oregon	900	5,700	5,740
Washington	100	510	962
Farm household use	5,100	6,300	5,770

Pears.—The U.S. crop was estimated at a new high record of 35,350,000 bu. in 1947, 2% more than the 1946 record of 34,447,000 bu. and 19% above the 29,510,000 bu. ten-year (1936–45) average. The Bartlett crop of California was larger than in 1946 and only slightly below its record made in 1945. The Washington Bartlett crop was also larger than average. Prices averaged about $2.50 per bu., about the same as in 1946.

Table VIII.—*U.S. Pear Production in Leading States 1947, 1946 and 10-Yr. Average 1936-45*

(In thousands of bushels)

State	1947	1946	10-Yr. Average	State	1947	1946	10-Yr. Average
California				New York	960	693	975
Bartlett	12,209	11,168	9,421	Michigan	564	696	976
Other	2,042	1,750	1,329	Texas	402	407	389
Washington				Georgia	385	396	380
Bartlett	6,156	6,750	4,905	Mississippi	350	347	354
Other	2,149	2,140	1,876	North Carolina	298	299	298
Oregon				Alabama	288	343	306
Bartlett	1,975	2,335	1,700	Virginia	280	353	328
Other	3,749	3,785	2,374	Pennsylvania	262	345	430

Pineapples.—The Florida pineapple crop was estimated at 4,000 crates of 70 lb. each, compared with 20,000 crates produced in 1946 and an average of 11,500 crates in 1936–45.

Strawberries.—The U.S. crop of strawberries was 8,421,000 crates in 1947, compared with 6,933,000 crates grown in 1946 and a ten-year average of 9,508,000 crates. (*See* also AGRICULTURE.) (J. C. Ms.)

FSA: *see* FEDERAL SECURITY AGENCY.

FSLIC (Federal Savings and Loan Insurance Corporation): *see* HOUSING.

FTC: *see* FEDERAL TRADE COMMISSION.

Fuel Briquettes.

The manufacture of fuel briquettes is carried on in at least 24 different countries, but the scale of operations is usually small. World production reached a peak of 86,500,000 short tons in 1943, of which Germany produced 85%, France 4%, Belgium 1% and the United States 2%; 97% of the total output was in Europe.

United States.—The growth of the fuel briquetting industry in the United States is indicated in the table on p. 335, in thousands of short tons.

In addition to the regular briquettes, there is a small output of "packaged fuel," which consists of several cubical briquettes wrapped and sealed in a wrapper, for convenience and cleanliness in use. Production

Data on U.S. Fuel Briquetting Industry

(In thousands of short tons)

	Production	Exports	Consumption	Fuels Used
1940	1,051	23	1,028	1,003
1941	1,299	40	1,259	1,228
1942	1,748	104	1,644	1,652
1943	2,164	175	1,989	2,076
1944	2,465	164	2,302	2,331
1945	2,762	174	2,589	2,603
1946	3,004	163	2,841	2,829

of packaged fuel reached a peak of 269,842 short tons in 1941, but operations were hindered during the war years by shortages of labour and materials. Output dropped from 208,143 tons in 1945 to 190,919 tons in 1946. (G. A. Ro.)

Fuel Oil: *see* PETROLEUM.

Fuller's Earth. Production of fuller's earth in the United States advanced from 296,368 short tons in 1945 to 298,752 tons in 1946. Texas is the leading producer followed by Florida and Georgia, Illinois, California, Nevada, Tennessee and Utah. The 1946 output lacked 11% of meeting the 1930 record. The refining of mineral oils takes 68% of the output, absorbents use 16%, the refining of vegetable oils takes 8%, and 3% goes into rotary drilling mud. (G. A. Ro.)

Furfural: *see* CHEMURGY.

Furniture Industry. The 4,500 or more factories in the United States manufacturing wooden and upholstered household furniture in 1947 produced the greatest dollar volume in the entire history of the industry, an estimated $1,425,000,000, a gain approximately 27% more than the $1,120,000,000 output of 1946. This record dollar volume, however, did not represent an all-time high in unit production, but was primarily the result of increased prices, which averaged about 42% higher than the 1941 level. In total number of pieces, the industry showed a gain of about 20% after 1941, when dollar volume totalled only $630,000,000, or approximately half that of 1947.

Practically the same results were registered by the other 1,000 plants manufacturing metal, glass, plastic and other types of furniture, with a combined estimated volume of $300,000,000.

Bedroom and dining room furniture, living room tables, bookcases, cabinets and other novelty furniture represented 60% of the 1947 production, while upholstered furniture accounted for 30% and kitchen furniture 10%.

The supply of upholstered furniture was practically normal at the year's end, novelty furniture was becoming quite plentiful and kitchen furniture was in good supply. But casegoods (bedroom and dining room suites) were still being voluntarily rationed by manufacturers, who had more than 90 days' advance orders on their books and refused to inflate their backlogs beyond that period because of the prospect of higher labour and material costs during 1948.

In May the industry had a backlog of orders representing six months' production, but large store buyers, fearing a recession and having heavy inventories, began to cancel most of their advance orders, expecting prices to drop. By September 50% of the industry's backlog had been wiped off factory books. Furniture prices, however, remained firm, and consumers continued to buy, so the larger stores began placing orders again and furniture prices advanced about 5%. Late in the year another 5% increase was found necessary to meet increased production costs and this brought another wave of buying. It was conservatively estimated that large stores would pay $10,000,000 more for the goods they cancelled than they would have paid under the prices prevailing from May to September.

The July 1947 furniture markets in Grand Rapids, Chicago, New York, High Point, N.C., San Francisco, Los Angeles and the May market at Jamestown, N.Y., were "buyer's markets" in the full sense of the term. But the Jan. 1948 markets in those centres, like the November market in Jamestown, were expected to be "seller's markets" again with casegoods rigidly allocated.

Stylewise, Modern assumed complete supremacy over all traditional types, including 18th century English, French Provincial, Regency and Victorian, the other leading favourites. Mahogany remained the most popular furniture wood but walnut was enjoying renewed popularity and oak, maple, cherry and birch were holding their own.

There were few strikes in the industry during 1947 and employment was at the all-time peak of approximately 160,000 with pay rolls up 28% to approximately $250,000,000. Profits were expected to equal or exceed the 6.9% average of 1946, the best in the industry's long history.

Canada's 623 furniture factories were still operating at peak volume during 1947 but competition was growing. Indications were that the $60,000,000 volume produced represented the complete facilities of the industry and that only higher prices could bring further gains. Approximately 16,000 persons were employed by the industry and pay rolls for 1946 totalled $21,889,000.

The furniture industry in Europe was showing renewed life. From Sweden, Finland, France, Belgium, England, Scotland and Germany came reports of heavy production increases and some Swedish, Finnish, English and French furniture was being exported to the United States. At the big Hanover fair in Germany, a number of furniture manufacturers exhibited new lines and took heavy orders. The furniture industry in Europe was assured of strong demand for several years because of war losses suffered by home owners. (*See* also INTERIOR DECORATION.)

(J. A. G.)

Furs. At the beginning of 1947, the U.S. fur industry was in the midst of drastic deflation. Fur apparel and fur skin prices declined as much as 50% in some instances, as compared with top prices in 1946.

Fewer garments were made and sold in 1947 than during the previous year, although consumers responded promptly to lower fur prices in the winter and spring. August fur coat sales were hampered by a sudden change in styles. It was not until fall that these styles were modified to meet consumers' approval. Retail business was excellent during the last quarter; fur coat prices were firm and carry-over of merchandise into 1948 was small.

The U.S. government's 20% tax on fur apparel produced $57,880,645 in revenue during the ten months through October. For the corresponding period in 1946, $68,537,093 was collected. Smaller collections were due to lower prices during the first nine months, removal of tax on most fur trimmed cloth garments and fewer sales.

Raw fur imports through September totalled $89,400,000, compared with $178,500,000 in 1946. Russian furs dominated U.S. imports but were less in value than in 1946 and included quantities of ermine, squirrel, Persian lamb, sable, marten, weasel, muskrat, kolinsky and mink. (Fur auctions in Leningrad were revived.) Shipments from China and Japan were limited, consisting mostly of Chinese lambskins, kidskins, weasel, kolinsky, Jap mink and marten. New Zealand and Australia supplied rabbit skins, mostly for the hat felt trade. Imports from Scandinavian countries were limited by lack of demand for silver and platinum foxes. Principal imports from South America were nutria, ocelot, rabbit, hare, and lambskins for mouton. Imports from Canada and Nova Scotia, valued at about $8,000,000, included mink, muskrat, beaver, otter, ermine, marten and silver fox. Shipment of processed



BRITISH AND FRENCH fur dealers inspecting samples at an international fur auction which opened at the Fur palace in Leningrad, U.S.S.R., on July 21, 1947

and manufactured furs from the U.S. to Canada was prohibited late in the year because of dollar shortage in the dominion. The U.S. imported about 5,000,000 Persian lambskins, most of which came from South-West Africa. Other sources were Afghanistan and the U.S.S.R.

U.S. exports of furs during the first nine months of 1947 were valued at $31,255,022, considerably more than in 1946; they were shipped to Great Britain, the Scandinavian countries and South America. London remained the most important U.S. outlet.

The most popular furs of the year were muskrat, mink, Persian lamb, mouton, weasel, beaver and nutria. It was a record year for the silver blue type of mutation mink; more than 150,000 skins were offered by the Mutation Mink Breeders association. Long-haired furs continued to be neglected, and silver fox farmers requested financial aid from the government. It was the first year since 1941 that insolvencies in the trade were numerous; they totalled 113 for 12 months ending with November, involving over $8,000,000. The trade quickly recovered from the break in prices during the first quarter, however, and was on a sound basis by the close of the year.

Skin prices advanced during November and December on all wanted furs, and muskrat sold as high as $4, wild mink as high as $74 in Canada, and mutation mink sold freely with the best types of silver blue going as high as $130. All mink breeders had a successful season, with demand favouring the standard type of ranch mink. Alaska seal sold up to $123 and Canadian beaver around $65–$75.

The London market held auction sales and distributed raw and dressed furs from all parts of the world in limited quantities, mostly to European merchants. British furriers were permitted to purchase raw furs under government regulations. Most of the skins purchased had to be exported. The British public was able to obtain limited quantities of fur apparel paying a 33% tax instead of the prevailing 110%.

Rising prices threatened the fur business with the menace of new inflation late in the year, and consumer resistance increased. Shortage of dollars throughout the world, inflation in numerous countries and Russian domination of eastern Europe prevented the fur trade from returning to a more normal state.

(W. J. Bt.)

FWA: *see* Federal Works Agency.
Gambia: *see* British West Africa.
Gambling: *see* Betting and Gambling.

Gandhi, Mohandas Karamchand

(1869–1948), Hindu nationalist leader, was born at Porbandar (Kathiawar), India. For his biography, see *Encyclopædia Britannica.* On Jan. 22, 1937, Gandhi announced his retirement from active Indian politics, but by 1940 he was as prominent as ever in Indian affairs of state. In April 1941 he announced that the Congress party had temporarily abandoned its aim of independence for India, but he reaffirmed his personal policy of nonviolence. After rejecting new British proposals for postwar independence, Gandhi launched a new civil disobedience campaign for which he was imprisoned in Aug. 1942. He was released in May 1944 because of failing health. Although he called the independence plan issued in a White Paper, May 16, 1946, the "best document the British government could have produced in the circumstances," he voted against it; the party, however, approved it. Roused by Hindu-Moslem bloodshed, Gandhi initiated a protest fast toward the close of 1946. On Jan. 2, 1947, he began a walking tour of east Bengal villages to improve Hindu-Moslem relations.

While Gandhi disapproved of the partition of India, he reluctantly accepted it, June 4; later he denounced the Indian princes for their independence claims. On Sept. 4, he ended a three-day fast after receiving assurances that Hindu-Moslem rioting in Calcutta would not recur. On Jan. 13, 1948, he began another fast, lasting six days, against renewed communal fighting between Hindus and Moslems. Seventeen days later he was assassinated in the garden of Birla House, New Delhi, by a young Hindu extremist named Godse. His death, which was the signal for new waves of violence in India, was mourned throughout the world. (*See* also India.)

Garnet: *see* Abrasives.

Gas, Natural.

The salient data of natural gas production and consumption in the United States are shown in the following table in billions of cubic feet.

	1942	1943	1944	1945	1946*
Gross production	4,453.9	4,942.6	5,614.2	5,902.2	?
Loss and waste	626.8	684.1	1,010.3	896.2	?
Returned to ground†	771.6	843.8	892.9	1,087.3	?
Marketed	3,053.5	3,414.7	3,711.0	3,918.7	4,095.0
Exports	8.7	11.2	14.6	18.2	17.7
Consumption	3,044.8	3,403.5	3,696.5	3,900.5	4,077.3
Domestic	498.5	529.4	562.2	607.4	650.0
Commercial	183.6	204.8	220.7	230.1	237.3
Field use	721.1	781.0	855.2	917.0	960.0
Carbon black	335.5	315.6	355.8	431.8	478.3
Oil refineries	201.7	243.6	315.3	338.5	355.0
Cement plants	64.5	51.7	35.6	38.3	57.7
Other industrial	1,039.8	1,277.4	1,351.7	1,337.4	1,339.0
Public utilities‡	239.7	305.6	359.7	326.2	306.9
Interstate traffic	815.7	920.0	990.5	1,029.8	?

*Preliminary. †Mostly for repressuring oil fields; small amounts of surplus gas are returned to the ground for storage. ‡Includes manufactured gas, and not included in the consumption total.

Canada.—Natural gas production in Canada increased from 48,412,000,000 cu.ft. in 1945 to 52,314,000,000 in 1946, but sales decreased from 33,932,000,000 to 33,186,000,000. Production and sales continued to increase in 1947. The output through August was 35,960,000,000 and sales were 27,093,000,000.

Mexico.—Natural gas production in Mexico increased from 26,910,000,000 cu.ft. in 1945 to 27,170,000,000 in 1946, and 16,360,000,000 in the first half of 1947. (*See* also Federal Power Commission.)

(G. A. Ro.)

Gasoline: *see* Petroleum.

Gasperi, Alcide de (1881–), Italian statesman, was born on April 3 at Pieve Tesino, then in Austria-Hungary. After studying at the University of Vienna he started his public life as editor of *Il Nuovo Trentino* and later was elected to the Austrian parliament as an Italian minority representative. After the union of his native province with Italy, he was elected in 1921 deputy to the Italian parliament. Already a prominent member of the Christian Democratic party (then called *Partito Popolare Italiano*), he opposed Mussolini's dictatorship and in 1926 was sentenced to four years' imprisonment for antifascist activities. When freed, he became an official of the Vatican library. During World War II De Gasperi took part in the resistance movement in Rome and on June 9, 1944, joined the first Ivanoe Bonomi cabinet as minister without portfolio. Minister of foreign affairs of the second Bonomi (Dec. 10, 1944) and Ferruccio Parri (June 19, 1945) cabinets, he was elected leader of the reconstructed Christian Democratic party and on Dec. 9, 1945, became prime minister. His first, second (July 12, 1946) and third (Feb. 1, 1947) cabinets were coalition governments with Socialist and Communist participation. On June 1, 1947, he formed a cabinet composed mainly of Christian Democrats, without the Communists.

Gaulle, Charles de (1890–), French army officer and statesman, was born Nov. 22 in Lille, France. He was graduated from St. Cyr military college at Paris shortly before the German invasion of France in 1914. Wounded three times during World War I, he was captured by German troops at Verdun in 1916, but escaped and saw further action on the western front and in the near east.

De Gaulle's warnings to France not to place its trust in static defense were ignored by the French general staff, and he was proven right in 1940 when the Germans skirted the Maginot line and overran France. He fled to London where he set up a Free French regime, and returned to Paris after its liberation in 1944 to head a provisional government. On Nov. 6, 1945, the constituent assembly elected him interim president of the new provisional government. He resigned on Jan. 20, 1946, declaring his intention to retire from politics. However, he later appealed to his countrymen to reject the new constitution, but was turned down by French voters, and on Dec. 28, De Gaulle said he would not be a candidate for the presidency, stating that he did not wish "to preside, powerless, over the powerlessness of the state."

He continued his attacks on the constitution throughout 1947, and on April 14 announced he would head a new party, the *Rassemblement du Peuple Français* (Reunion of the French People). The new party showed enormous strength in the October municipal elections, gaining nearly 40% of the entire vote. Consequently, De Gaulle (Oct. 27) called for dissolution of the assembly and national elections, but his appeal was rejected by the government.

In his statements on foreign policy in 1947, he urged that France should shun either side in the east-west rivalry, but reversed this position on June 29, declaring that France must align itself with the U.S. in the event of an extension of the "dangerous rivalry" between the U.S. and the U.S.S.R. (*See* also FRANCE.)

Gem Stones. Information in regard to gem stones was relatively scarce during 1947, except for diamonds, which are covered under a separate heading. Most of the oriental gem centres were disorganized by Japanese occupation and had not yet returned to normal.

The United States imports included 544,711 carats of rough emeralds in 1946, but the origin was not reported and the value indicates low-grade stones. There were also included 11,902 carats of cut emeralds, the value of which was also relatively low. There was a marked increase in the value of imports of all kinds of precious stones in late years, with exceptional increases after 1943.

The following table shows the total dollar value of all gem imports, excluding industrial diamonds.

1937	$43,951,220	1942	$28,520,070
1938	28,304,956	1943	72,109,788
1939	40,488,136	1944	77,529,806
1940	37,769,135	1945	114,435,231
1941	33,777,215	1946	189,017,646

There was a similar expansion of imports after World War I, reaching a peak of $105,273,543 in 1919; during the interwar period the highest valuation reached was $80,651,281 in 1926.

Such gem production as there is in the United States is limited to a variety of semiprecious stones which is estimated to have increased from $40,000 in 1945 to $325,000 in 1946. The leading varieties included in the domestic output are jade, agate, turquoise, variscite, but numerous minor varieties are found in small quantities. (*See* also MINERALOGY.)

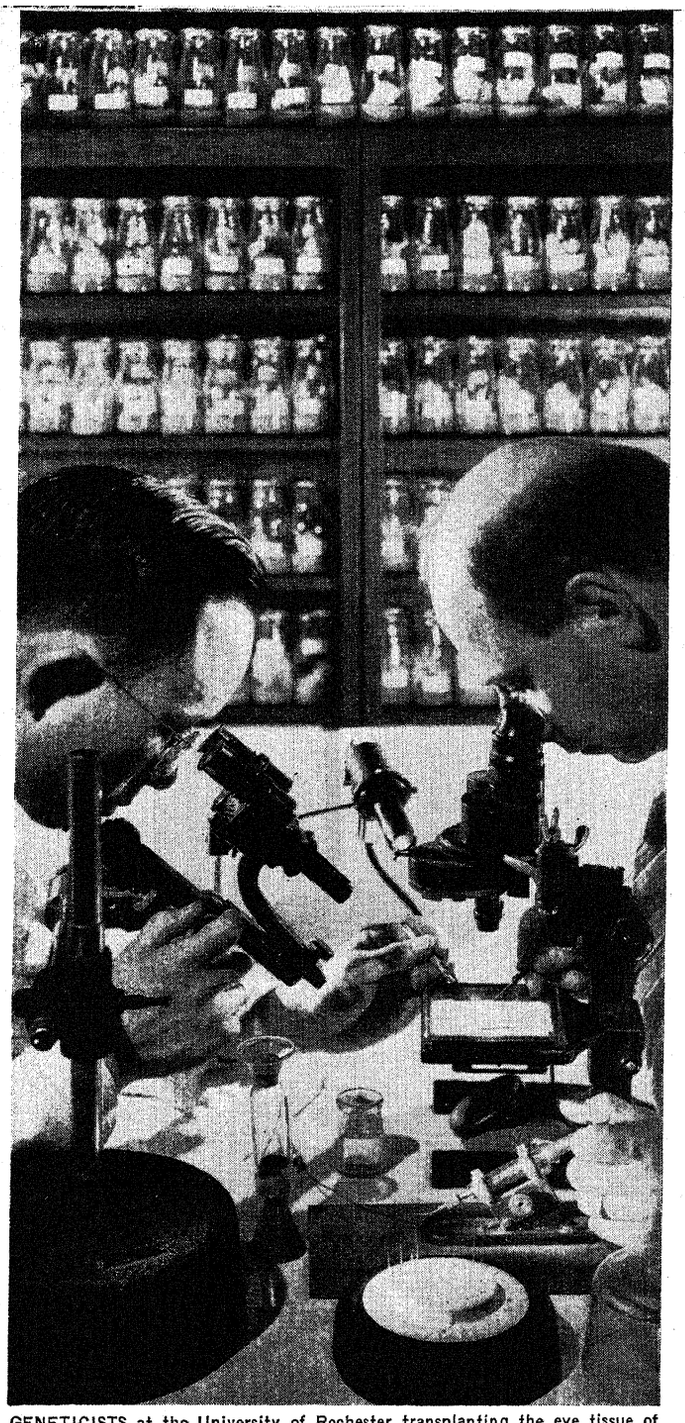
(G. A. Ro.)

General Federation of Women's Clubs: *see* SOCIETIES AND ASSOCIATIONS.

Genetics. **Radiation and the Human Germ-Plasm.**—In his Nobel prize lecture on "The Production of Mutations" before the Caroline institute, Stockholm, Sweden, H. J. Muller warned that humans are encumbered by innumerable mutations. Since the vast majority of these mutations are undesirable, their further random production should be rigorously avoided as far as possible. All high-energy radiation produces such mutations in man; radiologists were warned, therefore, to insist upon simple precautions to shield the gonads, whenever individuals are exposed to radiation, either in industry or in medical practice.

Genetics of Micro-organisms.—In a year of rapid advance in the genetics of micro-organisms, the work of W. S. Stone, O. Wyss and F. Haas on the induction of mutations in bacteria by irradiation of the substrate may be chosen as the most significant contribution. Stone and his colleagues irradiated nutrient broth with ultra-violet light and then demonstrated that the bacterium, *Staphylococcus aureus*, grown on this irradiated medium, underwent mutation to penicillin resistance and to streptomycin resistance much more frequently than when grown on control medium. They then demonstrated that the irradiation of the amino acid content of synthetic medium produced the mutations, while irradiation of the mineral salts had no effect. This method of inducing mutations should prove useful in the study of the physics and chemistry of mutation. In referring to the practical implications the authors suggest that: "a study of the effect of irradiated substrate on the development of cancerous tissue may prove profitable. If any of the activated mutators prove stable the phenomenon must be considered in nutrition and in safeguarding the use of atomic energy." (Wilson S. Stone, Orville Wyss and Felix Haas, "The Production of Mutations in Staphylococcus Aureus by Irradiation of the Substrate," *Proc. Nat. Acad. Sc.*, 33:59–66, March 1947.)

J. Lederberg demonstrated by the use of two strains of the bacterium, *Escherichia coli*, each carrying at least two different mutants producing biochemical or nutritional deficiencies in the organism, that recombinations of the normal or wild-type alleles of these mutants occurred when the two strains were cultured together. By using such strains, each carrying one alternative



GENETICISTS at the University of Rochester transplanting the eye tissue of a fruit fly with tiny glass surgical instruments to determine the effect of bodily environment on inherited characteristics—in this case, eye colour

allele of such factor pairs as those conditioning resistance or susceptibility to bacteriophage, he was able to demonstrate non-random recombinations. The facts led to the interpretation of the bacterium as a haploid organism containing one chromosome with genes arranged in linear order, the recombinations occurring when two such bacteria fuse to form a zygote. A tentative linkage map containing eight loci was constructed. The alternative hypothesis, that the recombination types are brought about by transforming substances released from the different cell types and inducing directed mutations, was made highly untenable by the experimental evidence. E. M. Witkin found that about one bacterium per 100,000 in a normal strain of *E. coli* mutated to a form resistant to the division-inhibiting and lethal effects of X-ray and ultra-violet radiation. Some of these mutant strains were also resistant to penicillin and sulfathiazole.

E. F. Oakberg and S. E. Luria demonstrated that resistance to sulfonamide in the bacterium, *S. aureus,* was the result of mutations and not a physiological adaptation as some workers formerly postulated. S. Emerson reported a strain of the mould, *Neurospora crassa,* in which sulfanilamide, usually an inhibitor of mould growth, was required for growth. The strain contained two mutants, one for sulfanilamide tolerance and the other requiring a sulfonamide for growth.

Natural Selection and Population Genetics.—M. J. Heuts reported that the stickleback fish, *Gasterosteus aculeatus,* showed intergrading of certain morphological characters, but that the populations formed could be grouped into two distinct physiological types, one adapted to a salt-water habitat and the other to fresh water. H. L. Carson and H. D. Stalker found that certain chromosome inversions in natural populations of the fly, *Drosophila robusta,* showed a north-south gradient in their distribution over the range of the species in the eastern U.S.A. They reported two pericentric and many paracentric inversions. In population cage experiments on *Drosophila pseudoobscura,* T. Dobzhansky demonstrated that a population containing a mixture of third chromosome inversions showed a constant selection in favour of flies heterozygous for the inversions as against homozygotes. This mechanism would allow for the retention in a population of different gene combinations adaptable to changing climatic and ecological factors.

BIBLIOGRAPHY.—H. J. Muller, "The Production of Mutations," *J. Hered.,* 38: 259–270 (Sept. 1947); Joshua Lederberg, "Gene Recombination and Linked Segregations in Escherichia Coli," *Genetics,* 32: 505–525 (Sept. 1947). (W. P. S.)

Geographical Society, American: *see* SOCIETIES AND ASSOCIATIONS.

Geography.

During 1947 geographers returned to the many diverse projects which had been interrupted by World War II and prepared new programs to aid the solution of urgent postwar problems. The year was especially difficult because of the shortage of trained personnel, the many shifts in positions from government services to academic work and vice versa, and the increasing cost and difficulty of travel. Nevertheless several ambitious programs were initiated and many geographers prepared to visit the first major postwar geographical congress (International Geographical union planned at Lisbon for Sept. 1948).

A critical spirit was more in evidence. During the war, geographers of all belligerent nations played essential parts in military and economic planning. Once their reports were re-examined, it became evident that much of the work was hastily improvised, often by workers whose training did not fit them for particular tasks. This was no discredit to the geographers who worked hard to meet almost impossible deadlines but rather reflected the inadequate number of trained geographers available as well as the limited vision of superiors who expected too much in too little time.

On both sides of the Atlantic attention was repeatedly called to the widespread lack of geographic knowledge. Few citizens in any country seemed to possess the geographic data necessary to form reasonable judgments of world affairs; this was most strikingly illustrated in the U.S. by the Gallup Poll which demonstrated that the majority of citizens could not identify even the major European and South American countries on an outline map.

Many international acquaintanceships initiated before or during World War II were renewed, and requests from geographers in war-torn lands for aid in re-establishing their libraries did not go unheeded. Publications were again exchanged.

Travel was facilitated by official missions which included geographers and by invitations to teach, especially in western hemisphere universities. Among the most successful of the international educational ventures was a summer school sponsored

by McGill university, Montreal, Canada.

Publications.—An outstanding publication of 1947 was the second edition of *Aids to Geographical Research* prepared by the American Geographical society. This convenient handbook lists the major sources of geographic information as well as the U.S. geographers specializing in each field. *The Professional Geographer,* a new journal of the American Society for Professional Geographers, instituted a useful series of reviews of overseas geography by publishing in its Dec. 1947 issue articles by Maurice E. Perret on "Geography in Switzerland" and by Shannon McCune on "Geographical Journals in Asia."

Publications from continental Europe were again reaching other lands. Especially welcome were the long awaited volumes on France in the *Géographie Universelle* series. Except in central Europe most geographic periodicals had survived the war. The revival of German geography was implied by the appearance of a creditable magazine, *Erdkunde: Archiv für Wissenschaftliche Geographie,* edited by Carl Troll and Herbert Lehmann. The French-Canadian *Revue Canadienne de Géographie* also appeared in 1947.

Mapping and Exploration.—The war revealed both the tremendous wealth of map data and the gross inaccuracies and huge gaps in existing maps. Even the U.S. had accurate detailed maps for only a fraction of its area. The army map service at Washington, D.C., had taken the lead in cartographic work by compilation, by distributing maps to selected depositories and by offering research positions to graduate students. Meanwhile, plans by the army and by the U.S. geological survey were laid for accelerating the mapping of the U.S. by photogrammetry.

Expeditions in unexplored areas were at work in the arctic, the antarctic and in Latin America under the auspices of the U.S. government. In general, exploration elsewhere was hindered by upset political situations and lack of funds. Reports in the *Geographical Review* and the *Geographical Journal* showed that intensive exploration of relatively well known lands had been more significant than dramatic ventures into areas which man had not hitherto seen. It is also noteworthy that many important contributions to geographic knowledge were made by soil scientists, agricultural experts, geologists and engineers with no formal training in geography as such. The field of geography had become so inclusive that thorough surveys must be by groups of specialists rather than by one man. Many studies by geographers were especially valuable because of their synthesis of more detailed findings into a unified regional picture.

Long-Range Projects.—The accomplishments of 1947 would not be known for many years, but in the U.S. they would undoubtedly include the activation of two long-range projects: the Centennial Studies project and the national atlas. The Committee on Centennial Studies planned to celebrate the 100th anniversary (1952) of the American Geographical society by publishing a volume of research studies which would sample, both by method and area, modern geographic work in the U.S. Another committee drew up a plan to prepare a national atlas of the U.S. comparable in scope with atlases already published by France, Finland, the U.S.S.R. and several other European countries. Both projects reflected the desire of U.S. geographers to bring their findings together so that a proper evaluation could be made both of past accomplishment and the needs for future research.

In Canada the need to integrate geographic information was recognized by the establishment of a geographical bureau under the department of mines and resources. Elsewhere hundreds of geographers were working in foreign offices, military agencies, libraries, other government departments and on planning boards to give guidance during the critical postwar reconstruction period. (*See* also CARTOGRAPHY; NATIONAL GEOGRAPHIC SOCIETY; SOCIETIES AND ASSOCIATIONS.) (O. P. S.)

Geology. The demand for well trained geologists, both on the part of educational institutions and industrial organizations, was greater during 1947 than could be filled. A number of important conferences were held and several articles published on the training of geologists. Plans were considered for the accrediting of geologic curricula in the colleges and universities of the United States. The number of undergraduate and graduate students majoring in geology reached an all-time high.

General Geology.—A basic textbook for beginning students in either geology or geography, entitled *Fundamentals of Earth Science,* by H. D. Thompson appeared in New York.

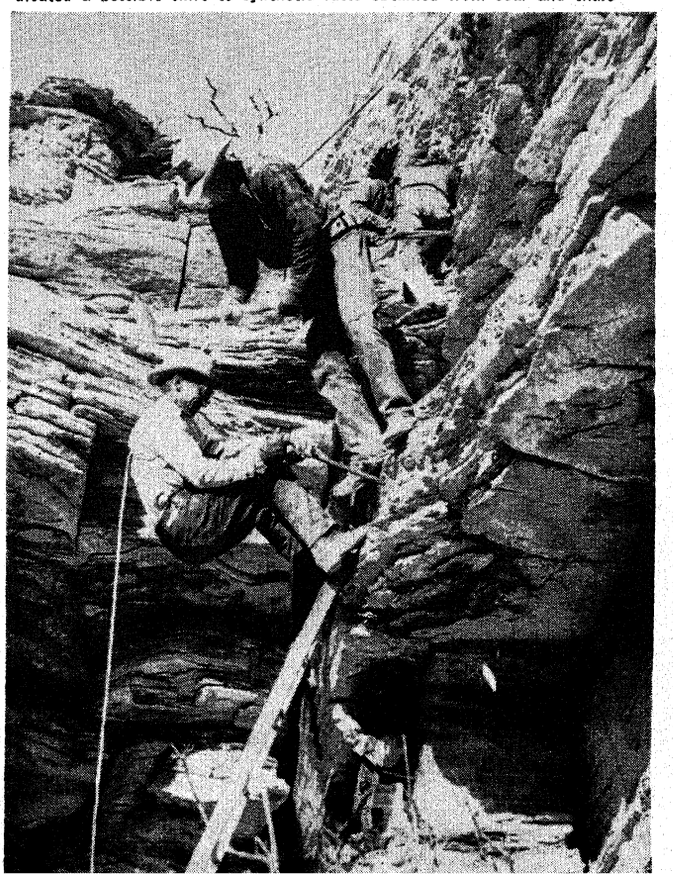
Geomorphology.—The fourth edition of C. A. Cotton's elementary text on *Geomorphology* was issued in New York and New Zealand. During 1946 there appeared in Liége, France, *Principes de Géomorphologie Normale* by Paul Macar.

Glacial Geology.—Developments in glacial geology were high-lighted by the appearance in New York of *Glacial Geology and the Pleistocene Epoch* by R. F. Flint. This presents information from the entire globe and indicates areas in which research is desirable. The British Glaciological society, founded in London in 1945, inaugurated a new scientific magazine, *The Journal of Glaciology.*

Sedimentation.—The expedition of the "Atlantis" into the northwestern portion of the Gulf of Mexico revealed that deposits clearly associated with the ice age occur within a foot or two of the surface of the sea floor over a large part of the Gulf.

Important evidence supporting the subsidence theory of the origin of coral reefs was revealed by core drilling for the United States navy on Bikini Island and by the results of studies by J. H. F. Umbgrove on the reefs of the East Indies published in the Aug. 1947 *Bulletin* of the Geological Society of America. The problem of geosynclines was thoroughly reviewed by M. F.

FIELD WORKERS for the U.S. bureau of mines drilling holes for blasting in oil shale cliffs near Rifle, Colo., in 1947. Diminishing U.S. oil supplies indicated a possible shift to synthetic fuels obtained from coal and shale



Glaessner and C. Teichert in the August and Sept. 1947 issues of the *American Journal of Science*.

The far-flung program of research formulated by the Research committee of the American Association of Petroleum Geologists presents eight projects in the field of sedimentology as indicated by S. W. Lowman in the March *Bulletin* of the association.

Stratigraphy.—A step forward in stratigraphy was the organization of the American Commission on Stratigraphic Nomenclature under the chairmanship of R. C. Moore. A model for future reports on facies relationships is *Memoir* 24 of the Geological Society of America by W. S. Pike, Jr., on the Upper Cretaceous of southwestern Colorado and adjacent states.

Of far-reaching importance is the series of ten papers constituting a *Symposium on Pennsylvanian Problems* assembled by H. R. Wanless for publication as Pt. II of the May issue of *The Journal of Geology*.

Historical Geology.—The second edition of the well known textbook on *Historical Geology* by R. C. Hussey, which gives special emphasis to North America, was issued in New York and London.

Other notable contributions introducing new concepts in this field were F. G. Snyder's "The Problem of the Lipalian Interval" and A. J. Eardley's "Paleozoic Cordilleran Geosyncline," which appeared in the May (Pt. I) and July issues respectively of *The Journal of Geology*.

Structural Geology.—The monograph by Hans Stille, *Einführung in den Bau Amerikas,* an outstanding work on the structure of North America and a portion of South America published in Berlin in 1940, has recently become available.

An expanded edition of J. H. F. Umbgrove's *The Pulse of the Earth* was published in English in The Hague.

Vulcanology.—*The Origin and Development of Craters,* published as *Memoir* 21 of the Geological Society of America, is based upon many years of study of Hawaiian volcanic activity by T. A. Jaggar.

Petrology and Petrography.—The third edition of L. V. Pirsson's *Rocks and Rock Minerals* (New York), revised by Adolf Knopf, constitutes a welcome addition to these fields. *Igneous Minerals and Rocks* is a new textbook on petrography by E. E. Wahlstrom published in New York.

Applied Geology.—In the June issue of the *Transactions* of the American Geophysical union there is a valuable contribution to hydrology by O. E. Meinzer entitled "Suggestions as to Future Research in Ground-Water Hydrology." The book *Elements of Soil Conservation* by H. H. Bennett, published in New York, brings this phase of geology up to date. J. B. DeMille's comprehensive work on *Strategic Minerals* (New York) is timely.

An important contribution to the rapidly expanding field of photogeology was W. G. Woolnough's "The Aeroplane in the Service of Geology," published by the Royal Society of New South Wales.

The trends of thought and lines of research being stimulated in mining geology were brought out in the "Report of the Committee on Research on Ore Deposits of the Society of Economic Geologists," W. D. Johnston, Jr., chairman, published in the September–October *Economic Geology*.

In the more practical phases of petroleum geology, increased attention was being given to more efficient conservation and secondary recovery methods, to possible sources of substitutes for petroleum, and to the exploration and development of foreign reserves, particularly in northern South America and the middle east. The current status of the world oil situation was summarized by K. F. Mather in "Petroleum—Today and Tomorrow," published in the Dec. 19 issue of *Science,* and in the "Review of Petroleum Geology in 1946" by F. M. Van Tuyl, W. S. Levings, and others, which appeared as the July *Quarterly* of the Colorado School of Mines. (*See* also MINERALOGY; PALAEONTOLOGY, VERTEBRATE; SEISMOLOGY.)

(B. H. P.; F. M. V. T.)

George VI (1895–), king of Great Britain, Ireland and the British Dominions, was born at York cottage, Sandringhan on Dec. 14; for his earlier career see *Encyclopædia Britannica*. By the India Independence act King George ceased from Aug. 15, 1947, to be emperor of India, but became instead king of each of the new dominions of India and Pakistan. A Canadian act of parliament also named him king of Canada. These changes of title and a tour of his South African territories were outstanding events in the year. Sailing from Portsmouth on Feb. 1 in H.M.S. "Vanguard," the king, accompanied by the queen and the princesses Elizabeth and Margaret, arrived at Capetown on Feb. 17. For two months the royal family travelled by special train through the self-governing states and dependencies as far north as the Victoria falls on the Zambezi river. At Capetown, Pretoria and Salisbury the king opened sessions of the union and state legislatures; elsewhere he met massed assemblies of the native peoples headed by their chiefs.

On the homeward voyage the royal family visited St. Helena and Ascension Island in the Atlantic.

Reviewing the tour at London guildhall where he was welcomed home on May 15, the king said: "Nothing will ever shake my belief that this old country is at heart as young and vigorous as it ever was." He inaugurated, during a two-day visit to Devon and Cornwall, the rebuilding of Plymouth, most warbombed of British ports. On July 10 he unveiled in Westminster abbey a memorial window to those who died in the battle of Britain, and on Oct. 21 the statue of his father, King George V, on the lawns of the abbey. Royal presentation parties were again held in the grounds of Buckingham palace on May 28 and 31 and a garden party on July 10. For the first time in seven years the ceremonial Trooping of the Colour was revived on the king's official birthday (June 12).

Other public occasions at which the king was present were the reopening of Drury Lane theatre after its wartime occupation (Jan. 23), the royal Chelsea flower show (May 20), the fourth centenary of Trinity college, Cambridge (June 3), the quincentenary of Eton college (June 15), the centenary show of the royal Norfolk agricultural association (June 26), the annual show of the royal agricultural society at Lincoln (July 2), an inspection of the home fleet on the Clyde (July 22 and 23), and the opening of a new storage reservoir for London at Staines, Middlesex (Nov. 7). More purely social events attended were race meetings at Epsom, Ascot and Newmarket, the International Horse show, the Royal tournament, the Wimbledon tennis finals and one of the cricket test matches (against South Africa) at Lords (June 24).

On July 9, the king announced the betrothal of Princess Elizabeth to Lt. Philip Mountbatten, R.N. (created, Nov. 19, the duke of Edinburgh, *q.v.*). The wedding took place in Westminster abbey on Nov. 20, before a congregation including many members of the European royal families. On Dec. 25 the king broadcast to the peoples of the empire.

(L. DU.)

Georgia. One of the original states of the union, located in the south Atlantic region, with an area of 58,876 sq.mi., Georgia is popularly called the "Empire State of the South." Its population (excluding armed forces overseas) was 3,233,000 on July 1, 1947, an increase of 3.5% over the 1940 census of 3,123,723 (34.4% urban, 65.6% rural, 64.9% native

white, 34.7% Negro and .4% foreign-born). Atlanta, the capital city, had a population of 302,288 in 1940. The four next largest cities were Savannah (pop. 95,996), Augusta (65,919), Macon (57,865) and Columbus (53,280).

History.—The death of Governor-elect Eugene Talmadge on Dec. 21, 1946, only 23 days before the date for his inauguration, left great uncertainty as to who would be governor, for the constitution of Georgia contained no specific provision covering this eventuality. The only candidate's name that had appeared on the ballot in the Nov. 1946 general election was Eugene Talmadge, nominee of the Democratic party; but in view of his ill-health, aggravated by the strenuous campaign in the Democratic primary, some supporters of the Talmadge wing of the Democratic party were known, "as an insurance measure," to have scratched the name of Eugene Talmadge on the election ballot and to have written in the name of his son, Herman Talmadge. It was also known that there were write-in votes for others.

In an atmosphere of tenseness, the general assembly convened in regular session on Jan. 13, 1947, and proceeded to canvass the election returns which showed that Eugene Talmadge had received 143,279 votes, Herman Talmadge, 675 votes; James V. Carmichael, 669 votes; D. Talmadge Bowers, 637 votes; Ellis Arnall 122 votes; and 26 other persons votes of less than 15 each. By a vote of 161 to 87, on Jan. 15 the assembly elected Herman Talmadge as governor.

As early as Dec. 24, 1946, Gov. Arnall had announced that he regarded Lt. Governor-elect Melvin E. Thompson as his rightful successor and that he would resign in his favour as soon as Thompson was inaugurated. Backed by an opinion of Attorney General Eugene Cook that he (Arnall) should remain as governor for four more years under the constitutional provision stating that the governor should hold office "until his successor shall be chosen and qualified," Arnall refused to relinquish the executive offices in the capitol or the executive mansion; but, supported by Adjutant General Marvin Griffin, Talmadge occupied both on Jan. 16. Arnall then set up an "executive office" in the capitol rotunda. Barred from this after a day, he retired to temporary executive offices in downtown Atlanta. On Jan. 18 Thompson was inaugurated as lieutenant governor, and Arnall announced his resignation as governor.

Several suits were brought in the courts seeking a judicial determination of the controversy over the governorship. One superior court judge ruled in favour of Thompson and two ruled in favour of Talmadge. On March 16, by a vote of 5 to 2, the chief justice dissenting, the state supreme court ruled that "in the circumstances appearing the General Assembly had no jurisdiction to elect the Honorable Herman Talmadge or any other person as Governor . . . thus creating the necessity of Governor Arnall to continue in office . . . The voluntary resignation of Governor Arnall on Jan. 18, 1947, immediately imposed upon the Lt. Governor the duties of Governor." Talmadge immediately vacated the executive office, saying that he would appeal to the people in the next general election.

The general assembly meanwhile had passed a bill abolishing all laws regulating primary elections. When submitted to Acting Governor Thompson, he vetoed this bill. The assembly adjourned without passing an appropriation bill.

On Oct. 24 the state supreme court invalidated a local bill authorizing the issuance of licences for the sale of beer and wine in Butts county on the ground that the bill did not have attached to it a notice that it had been properly advertised, as required under the constitution of 1945. This decision made it clear that some 350 other local bills enacted after 1945 would also be invalidated if contested. A home-rule bill designed to give wide control in matters of local interest to cities and counties passed the legislature in 1947.

The principal state officers at the end of the year 1947 were: acting governor, Melvin E. Thompson; chief justice, W. Frank Jenkins; secretary of state, Ben W. Fortson, Jr.; superintendent of schools, M. D. Collins; attorney general, Eugene Cook; state auditor, B. E. Thrasher, Jr.; treasurer, George B. Hamilton; comptroller general, Zach D. Cravey.

Education.—For the school year ending in June 1947, there were 4,622 elementary schools (1,718 for white children and 2,904 for Negroes) with an enrolment of 594,947 pupils (367,310 whites and 227,637 Negroes) and a teaching staff of 15,940 (10,073 whites and 5,867 Negroes). High schools numbered 1,293 (746 white and 547 Negro) with a student enrolment of 151,352 (117,562 white and 33,790 Negro) with a teaching staff of 6,406 (5,077 white and 1,329 Negro). Expenditures for elementary and high schools during the year were $31,668,681. In the fall quarter, 1947, a total of 25,210 students were enrolled in the 16 units of the university system of Georgia, including 1,903 students in three Negro colleges. This was more than twice the number of students enrolled in 1939.

Social Insurance and Assistance, Public Welfare and Related Programs.—For the fiscal year ending June 30, 1947, benefit payments by the state board of welfare for public assistance were as follows: old age, $13,688,256; blind, $480,349; dependent children, $2,245,146. In June 1947, a total of 75,810 individuals received old-age assistance, with an average individual allowance of $17.02; 2,189 blind persons received benefits averaging $20.43; and 16,476 dependent children received benefits averaging $13.71. The steady increase in public assistance payments in Georgia is shown by the following totals of expenditures by years: 1938, $3,240,577; 1941, $5,328,710; 1944, $10,363,311; 1946, $11,262,813; 1947, $16,413,752.

Total expenditures by the state department of health for the year ending June 30, 1947, were $7,627,904. In Oct. 1947, there were 1,143 patients in the state tuberculosis sanatorium (Batty hospital). On June 30, 1947, there were 9,018 patients in the Milledgeville State hospital. Current operating expenses for this hospital for the insane were $2,317,636 for the fiscal year ending in June, 1946.

During the year ending June 30, 1947, unemployment insurance totalling $4,954,497 was paid to 43,800 persons. In the same period, 75,200 veterans of World War II received $23,349,427 in unemployment payments.

On June 30, 1947, there were 5,515 prisoners in the various state and county institutions under the control of the state board of corrections. Total expenditures by this board for the fiscal year were $832,726.

A total of 5,213 persons were assisted by the state division of vocational rehabilitation. Expenditures of this division for the fiscal year ending June 30, 1947, were $1,139,497, including $836,958 from federal funds.

Communications.—On June 30, 1947, there were in Georgia 90,983 mi. of roads, of which 14,299 mi. were state roads and the remainder county roads. The total paved mileage, exclusive of city streets, was 10,478. Total expenditures of the state highway department for the fiscal year ending June 30, 1947, were $29,298,838. On Nov. 5, 1946, there were 6,442 mi. of main line railroad track in the state, of which 266 mi. were double-tracked; in addition there were 2,254 mi. of yard-switching and passing track. A survey of 1945 showed that Georgia had 958 mi. of developed navigable river channels.

On Nov. 1, 1947, there were 135 airports in Georgia. On that date the Civil Aeronautics administration estimated the approved airways in Georgia at 670 mi.

The Georgia Public Service commission estimated the total number of telephones in Georgia as 424,092 (385,592 of Southern Bell stations, as of Sept. 30, 1947, and 38,500 of independent stations, as of Dec. 31, 1946).

Banking and Finance.—On Dec. 31, 1946, there were in Georgia 267 state banks and 7 branches with total resources of $762,303,430, including $205,100,316 in loans and discounts, $321,382,413 in U.S. government securities bonds, and $197,277,290 cash in vaults and amounts due from approved reserve agents. Liabilities of these banks included $519,426,659 in demand deposits and $129,589,679 in savings deposits.

On Oct. 1, 1947, there were 44 federal savings and loan associations and 20 state chartered building and loan associations operating in Georgia. Total resources of these associations as of July 1, 1947, was approximately $135,000,000.

On June 30, 1947, there were 50 national banks in Georgia with total assets of $995,885,000, including U.S. government obligations of $402,944,000, loans and discounts of $259,477,000, and cash balances with other banks of $275,990.000. Liabilities of these banks included deposits by individuals, partnerships and corporations, $716,854,000 (demand, $546,513,000; time, $170,341,000); government deposits, $102,495,000; interbank deposits, $117,399,000; and capital accounts, $51,133,000.

For the fiscal year ending June 30, 1946, the total state receipts were $107,258,000, or $34.33 per capita. The chief sources of revenue were $27,284,991 from motor fuel tax, $15,182,916 from income tax, $16,605,734 from U.S. grants and $10,727,070 from the alcoholic beverage tax. Chief expenditures were $38,351,251 for education, $33,964,279 for highways and $12,433,738 for public welfare. There was an unencumbered surplus of $15,395,814 in the state treasury at the end of the fiscal year. Unofficial sources indicate that the state income had increased approximately 20% in 1947.

On June 30, 1946, the total state debt outstanding (not including current operation obligations) was $8,271,302.17, but this amount was covered in full by cash reserves. The constitution of Georgia prohibits any increase in the state's bonded indebtedness.

Agriculture.—Crops produced in 1947 were valued at $466,491,000, an increase of 11% over the previous year, and exceeded only by the all-time high of $578,000,000 in 1919. The total harvested acreage of principal crops in 1946 was 7,243,000 ac., a decrease of 1,422,000 ac. from the 1935–44 average.

Cash receipts from farm marketing in 1946 amounted to $416,410,000

Table I.—*Leading Agricultural Products of Georgia, 1947 and 1946*

Crop	1947	1946	Value, 1947
Cotton, bales	660,000	557,000	$104,610,000
Cottonseed, tons	265,000	223,000	21,730,000
Corn, bu.	48,075,000	44,145,000	103,361,000
Peanuts, lb.	780,780,000	716,900,000	79,640,000
Tobacco, lb.	130,132,000	110,537,000	51,137,000
Oats, bu.	16,100,000	16,404,000	17,710,000
Hay, tons	696,000	728,000	14,616,000
Commercial truck crops			9,601,000
Peaches, bu.	5,810,000	5,628,000	9,296,000
Velvet beans, tons	272,000	286,000	8,704,000
Wheat, bu.	3,360,000	2,093,000	7,728,000
Pecans, lb.	26,555,000	16,000,000	7,515,000
Sugarcane syrup, gal.	4,070,000	4,025,000	5,698,000

(crops, $288,345,000; livestock and products, $119,761,000; government payments, $8,304,000).

The principal crops of 1947 are shown in Table I.

Manufacturing.—Employment in nonagricultural industries in Georgia reached a peak of 660,000 workers in 1943, about 35% higher than in 1939. In Oct. 1947, the number of nonagricultural workers was estimated at 608,000. Approximately half of these workers were employed in manufacturing industries (as contrasted to nonmanufacturing industries such as trades, services and finance). Two industries, textiles and lumber, employ more than one-half of all manufacturing workers in Georgia, and if four more groups are included—apparel, food processing, furniture and chemicals—82% of all manufacturing employment is accounted for.

Minerals.—In 1945 (latest complete year) the total value of Georgia's mineral production was $19,939,000. Minerals produced were asbestos, barite, bauxite, cement, clay, coal, fuller's earth, mineral waters, peat, sand and gravel, slate, stone and talc. The value of the principal minerals produced was as follows:

Table II.—*Leading Mineral Products of Georgia, 1945*

Mineral	Value in 1945
Clay	$7,108,321
Stone	4,799,320
Barite	1,056,035
Iron ore	616,524
Sand and gravel	350,264
Talc	296,163

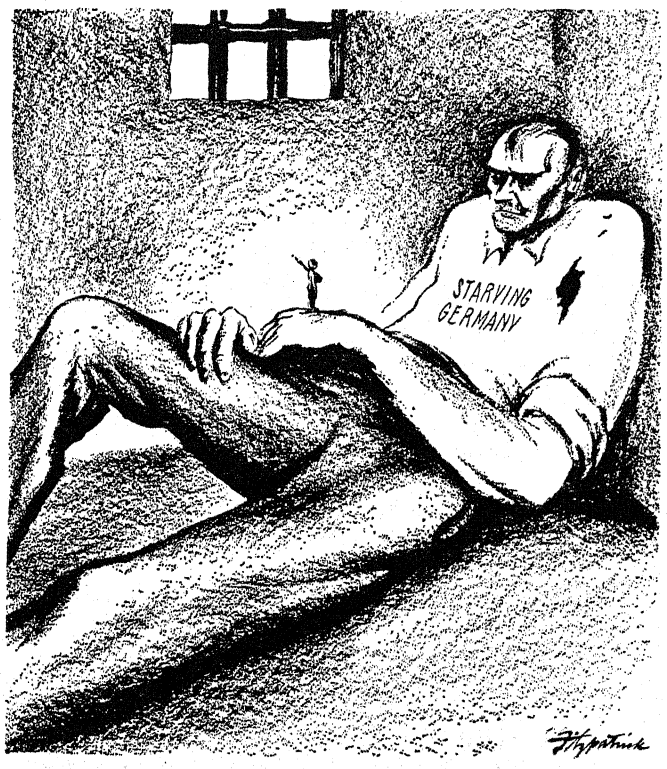
(A. B. S.)

German Literature.

The general picture offered by German literature in 1947 was one of stagnation. As was to be presumed, books published in 1947 were chiefly about the anti-Hitler conspiracy and about the concentration camps, in which an explanation of the rise and fall of nazi Germany was attempted. Such books, written mainly by politicians or chance-victims of gestapo terrorism, had nothing to do with creative writing. Books like Hans Bernd Gisevius' *To the Bitter End,* Rudolf Semler's sketchy revelations of his master Josef Goebbels, or Dr. Eugen Kogon's profound analysis of the roots and methods of S.S. control in *The S.S. State* were patriotic justifications of an unsuccessful action, attempts at personal exculpation, or denunciations of a fallen foe. Some of them might be of value to the historian: their human value, as that of the nazi regime, was negligible because they lacked the moral qualities demanded of the serious political writer. These moral qualities were, however, present in Theodor Haecker's *Tag- und Nachtbuecher* (*Day and Night Books*) posthumously published in 1947, in which the well-known Roman Catholic essayist and first interpreter of Soren Kierkegaard followed the events inside nazi Germany from 1939 to 1945. Haecker was born in 1889, a south German who lived in Austria, and died on April 9, 1945. As early as 1935 the nazis had forbidden Haecker to speak and to lecture in public; his translation of Kierkegaard's *Diaries* was allowed to be published but his own works were banned. The *Tag- und Nachtbuecher* were in 1947 the only documents of faith to have come from postwar Germany and were filled with a human and religious belief in the necessity of the catastrophic end of the reich, for the sake of secular and extramundane justice. Little recovery was noticeable from the deterioration of writing during the nazi rule. The nebulous, woolly diction of blood-and-soil mysticism seemed to have taken possession even of politically irreproachable writers like Ernst Wiechert. Some translation into German was done but scarcely any creative German writer except Haecker and, at a distance, Werner Bergengruen in his *Dies Irae,* had yet made an attempt to explain to his own people and to the world abroad what it was that had come to pass in Germany. The great German writers, Thomas Mann and Hermann Hesse, had already left their mother-country. (J. KR.)

Germany.

A country of central Europe bounded on the north by the North sea, Denmark and the Baltic sea, on the east by Poland, on the south by Czechoslovakia, Austria and Switzerland, and on the west by France, Luxembourg, Belgium and the Netherlands. According to a declaration signed in Berlin on June 5, 1945, the country was under the supreme authority of the four Allied powers—the United States, Great Britain, the U.S.S.R. and France—and divided into four zones. Area: British zone 42,724 sq.mi.; French zone 16,727 sq.mi.; soviet zone 46,584 sq.mi.; U.S. zone 36,869 sq.mi.; Berlin (*q.v.*) 341 sq.mi.; total 143,245 sq.mi. (Jan. 1, 1938: 181,742 sq.mi.). Pop. (Oct. 29, 1946, census): British zone 22,794,655; French zone 5,939,807; soviet zone 17,313,581; U.S. zone 16,682,573; Berlin (cap.) 3,180,383; total 65,910,999 (1939 census for same area: 59,595,000; 1939 census for entire prewar area: 69,317,000). The British, soviet and U.S. zones contained larger populations than in 1938; the zonal increases were: British 12.9%, soviet 14.4%; U.S. 20.5%. The additional inhabitants were mainly Germans transferred from Poland and Czechoslovakia. Only the population of the French zone was less (3.5%) than in 1938. Throughout 1947 considerable movements of population continued: in addition to the influx of refugees, returning evacuees continued to move from one zone to another. Chief cities (first figure, May 17, 1939, census; second figure, 1946 census): Hamburg (1,711,877; 1,406,158); Munich (829,318; 738,018); Cologne (772,221; 489,812); Leipzig (707,365; 608,111); Essen (666,743; 520,592); Dresden (630,216; 463,032); Frankfurt-on-Main (553,464; 389,097); Duesseldorf (541,410; 421,506); Dortmund (542,261; 436,198); Hanover (470,950; 347,040). Language (1946 est.): German with some admixture of Lusatian (260,000), Polish (150,000, mainly in Westphalia) and Danish (17,000). Religion (1938 est.): Protestants 62.7%; Roman Catholics 32.5%; Jews 0.7%; others



"BREAD OR A BIGGER JAILER" was how Fitzpatrick posed the 1947 problem of Germany, in the *St. Louis Post-Dispatch*



GERMAN PRISONERS OF WAR, discharged in 1947, are shown boarding a "round robin" train travelling past most large cities in the U.S. occupation zone. Each prisoner jumped off the train as it neared his home

4.1%. Military governors and commanders-in-chief: British zone, Lieut. Gen. Sir Brian Robertson; French zone, Gen Joseph Pierre Koenig; soviet zone, Marshal Vasili Sokolovski; U.S. zone, Gen. Lucius Clay.

History. — Elections for the three provincial assemblies (*landtage*) took place in the British zone in April 1947. The S.P.D. (*Sozialdemokratische Partei Deutschlands,* or Social Democratic party of Germany) with more than 3,000,000 votes and 173 seats gained the largest representation. The C.D.U. (*Christlich-Demokratische Union,* or Christian Democratic union) with about 2,750,000 votes and 144 seats were the runners-up, and after them came the K.P.D. (*Kommunistische Partei Deutschlands*) with 890,000 votes and 76 seats.

The three landtage in the French zone were elected in May. The C.D.U. secured an absolute majority of votes cast (984,000), with the S.P.D. second (572,000).

Most interesting of the year's elections, however, were those in the Saar which the French government had already, in Dec. 1946, separated economically from the rest of its zone of occupation by the erection of a tariff barrier. Three of the four Saarland parties declared themselves in favour of an economic amalgamation with France, only the Communist party opposing such a possibility. It was noteworthy that 92% of the electorate voted, so that little use was made of the opportunity to express opposition to "economic annexation" by abstention from the polls. This tacit assent of the Saar population to "economic annexation" to France was no doubt in part explicable by the hope of better material conditions (*see* SAAR).

Two important German problems came nearer solution in 1947—those of the prisoners of war and of denazification. The Four Powers agreed at Moscow to repatriate all German prisoners in their hands before the end of 1948. On July 5 the last German prisoner of war in U.S. hands was repatriated. After the Moscow conference the British government accelerated repatriation of German prisoners to a rate of 15,000 a month from Britain (as from Dec. 1, 1947, 20,000), and 5,000 a month from the middle east. The official Russian figure of German prisoners in Russian hands by March 1947 was 890,000. Repatriation of considerable batches of prisoners from Russia took place during the year. The number of German prisoners still in France by Sept. 1947 was 468,000; in Yugoslavia about 80,000; in Poland about 40,000; in Belgium about 36,000 and in Czechoslovakia about 10,000.

It became increasingly clear during 1947 that the immense numbers of persons implicated (3,250,000 in the U.S. zone alone), and consequently the time factor involved, were likely to bring denazification to a fairly speedy end, at least in the British and U.S. zones. On Oct. 4 the British military government, following the example set by the U.S. authorities in 1946, handed denazification over to the German *Länder* governments under decree No. 110 which laid down a detailed scale of categorization and punishment for former nazis, but included a proviso that dismissals should cease after Jan. 1, 1948. Up to Aug. 31, 1947, 337,000 nazis had been dismissed from posts in the British zone and up to June 30, 210,000 had been similarly dealt with in the U.S. zone.

The process of denazification should not be confused with the punishment of war criminals and of members of the organizations (*e.g.,* gestapo and certain S.S.) classified as criminal by the judgment of the Nuernberg tribunal. Military government courts in all four zones continued to try war criminals. (*See* WAR CRIMES.)

Economic.—The most important development in the economic



RUSSIAN OFFICERS supervising the removal of steel girders from the Siebel plant in the soviet zone of occupation, as part of German reparations to the U.S.S.R.

field was the creation, after the failure of the Moscow Four Power conference in April, of a German economic council in Frankfurt-on-Main for the fused British and U.S. zones. The economic council and its organs were composed of 54 members elected by the 6 provincial assemblies and the 2 free cities on a proportional party basis, an executive committee of 8 appointed by the provincial governments and 5 functional directors (economics, food, finance, post and communications) appointed by the executive committee with the assent of the council. Its decrees are, after approval by the military government, binding upon the Land governments.

Efforts were made by the British and U.S. authorities to step up industrial production and increase exports so as to promote imports of food and of essential equipment in the two zones. In March a $600,000,000 credit for the period Jan. 1, 1947, to June 30, 1948, was promised, and an Anglo-U.S. Joint Export Import agency (J.E.I.A.) was set up. A drive for increased coal production in the Ruhr was launched in January by the creation of a points system to discourage absenteeism among the coal miners. Under this scheme a miner working every shift during a month received clothing, furniture, bacon and liquor supplementary to his wages. Under a further measure in September miners exceeding a certain output received U.S. food parcels. The coal production drive was so successful that 275,000 short tons of coal were produced on Oct. 24, 1947, compared with 204,000 on Oct. 23, 1946, and during the first 9 months of 1947 more than 55,000,000 short tons of coal were produced compared with 45,000,000 during the corresponding period in 1946. Similar production improvements were not, however, achieved in other sectors of industries in the British and U.S. zones. The figures for raw iron production, for instance, were: Jan.–Sept. 1946: 1,544,000 short tons; Jan.–Sept. 1947: 1,523,000; raw steel: Jan.–Sept. 1946: 1,871,000 short tons; Jan.–Sept. 1947: 2,167,000. After the exceptionally severe winter, industrial production in the British zone sank in February to 26.4% of 1936. By Oct. 1947 it had risen to 39.5%, which was the best month's output since the capitulation.

The efforts to increase exports from the British and U.S. zones were forwarded by a relaxation of restrictions. German exporters were as from October permitted to conclude contracts up to $5,000 without prior submission to J.E.I.A. No startling increase in exports was, however, revealed in the year's statistics. Between Jan. 1 and Oct. 31, 1947, $164,000,000 was actually exported from the two zones.

In the soviet zone the policy of extracting reparations went forward. On Jan. 15 Marshal Vasili Sokolovski announced that dismantling of industrial plants was terminated, except in the case of certain coal-mine equipment. Nevertheless, several factories—for example, Richard Dietsch (textile) at Geyer and Hochfrequenz (electrical equipment) at Radeberg—were dismantled during 1947 in completion of the 1946 dismantling program. In September a start was made in the eastern zone with the dismantling of a further 750 mi. of railway track.

The conversion of a large number of firms in key industries in the soviet zone into soviet concerns was energetically proceeded with during 1947, with the undoubted intention of ensuring reparations from current production. According to the soviet zone production plan for the second quarter of 1947, out of the total production of Rm.1,800,000,000, more than a quarter (Rm.440,000,000) was to be furnished by these soviet companies.

Anglo-U.S. reparations policy after the failure of the Moscow conference was to define the limits of the reparations to be exacted from the two western zones so as to give German workers and managers an assurance of the permanent industrial structure that would be left to them. In pursuance of this policy a level of industry plan was published on Aug. 30. Under this plan German industrial capacity to be left intact in the two western zones would be approximately that of 1936. The important steel industry was to be left a capacity of 11,770,000 short tons a year.

Following the publication of the level of industry plan, a list of plants to be dismantled, either as war industry or as reparations, was issued on Oct. 16. It comprised 682 installations, including 302 arms factories, 224 machine-making works, 92 iron and steel firms and 42 chemical concerns. Decisions on dismantling in the so-called forbidden industries—aluminum, vanadium, beryllium, ball bearings, synthetic ammonia, synthetic rubber and synthetic oil—as well as in the shipbuilding industry, had still to be made. In all other respects the list was announced as the final statement of reparations claims on the British and U.S. zones. (*See* also REPARATIONS.)

The drastic policy of expropriation and socialization in the soviet zone, which had been initiated by the Saxon provincial government (after the referendum held in July 1946 on the subject of the future of 1,760 expropriated nazi and "reactionary" concerns), was proceeded with in 1947. On May 30, 1947, the Thuringian assembly passed a law for the nationalization of mineral and coal concerns. A similar law was passed in May by the Sachsen-Anhalt assembly. By October 400 firms were nationalized in Thuringia, and 545 in Sachsen-Anhalt. In Saxony 1,002 firms were nationalized, 278 handed over to municipalities and district (*Kreis*) authorities, 73 to co-operatives and 379 were resold to private persons.

In the British zone a decree ordering the breaking-up of trusts and cartels employing more than 10,000 workers was promulgated by military government in January. A start in implementing this policy was made in the steel industry in which 17 new separate firms were created by Sept. 30, 8 out of the United Steel concern, 2 out of Hösch of Dortmund, 2 out of Klöckner and 1 each out of Otto Wolff, Mannesmann and Krupp.

Labour shortage, resulting from the manpower deprivations of World War II and from the fall in the German worker's output, became a serious problem, particularly in the British and

soviet zones. In the soviet zone the difficulty in securing labour to work on dismantling and in the ore mines in Saxony, where uranium was being sought, led during the summer to drastic methods of compulsory recruitment. Many thousand workers were summoned to the German labour offices and ordered to predetermined industrial areas. Ration cards were taken away to enforce compliance. In the Saxon mining areas the compulsorily recruited miners were put into labour camps guarded by Russian detachments.

Nutrition.—In the British and U.S. zones the normal consumer's daily ration was fixed at 1,550 calories. Supplementary rations, were, however, issued to heavy and very heavy workers. In the British zone in September and November these amounted to 1,150 and to 2,500 calories extra per day, and 5,000,000 members of the working population received them. According to former Pres. Herbert Hoover's findings in April 1947, mothers and small children were being adequately nourished, but children between the ages of 6 and 20 were seriously undernourished. The black market flourished. The black market price of butter in the British zone, for example, was more than 100 times the legal price. As a consequence about 50% of the butter output of the German peasants in the 2 zones was diverted into illegal channels. (*See* also ANTI-SEMITISM; FASCISM; FOREIGN MINISTERS' CONFERENCES; OCCUPIED AREAS, ADMINISTRATION OF.) (D. A. SN.)

Education.—U.S. zone (1947): elementary schools 10,506, teachers 32,588, scholars 2,326,424; secondary schools 476, teachers 7,979, scholars 221,812; vocational schools 791, teachers 3,791, scholars 314,825. French zone (1946): elementary schools 5,289, teachers 12,568, scholars 833,477; secondary schools 228, teachers 2,719, scholars 74,000. British zone (1947): juveniles under supervision of welfare office 5,170; juveniles under welfare education 14,838; total school children fed daily 2,489,600.

About 106,000 students were registered in the universities of the 4 zones, of whom 20% were women. The students were distributed among the zones as follows: U.S. zone 49,504; British zone 31,974; soviet zone 12,878; French zone 11,509.

Finance.—Zonal budgets: U.S. zone (actual 1946–47): revenue Rm. 6,093,000,000; expenditure Rm.4,299,000,000. British zone (actual 1946–47): revenue Rm.7,617,200,000; expenditure Rm.5,416,700,000; emergency revenue Rm.528,300,000; emergency expenditure Rm.2,348,300,000; soviet zone (est. 1947–48): revenue Rm.8,500,000,000; expenditure Rm.8,300,000,000; French zone (ordinary 1946–47): revenue Rm.1,664,344,621; expenditure Rm.970,217,600; expenditure (extraordinary 1946–47) Rm.1,186,127,420. Currency: Reichsmark (Rm.)

Communication.—U.S. zone: railways (1946): tickets sold 307,074,000; freight carried 128,897,425 short tons. Motor vehicles registered (June 1947): cars 151,880; trucks 98,394, buses 3,119; road tractors 21,937; trailers 61,125. Civil aviation (Jan.–June 1947): passengers arrived 3,756; departed 6,087; freight arrived 125 short tons; left 32 short tons. Telephones (July 1947): 513,525. British zone: railways: track open (June 1947) 7,489 mi.; passengers carried (1946) 610,800,000; freight carried (1946) 99,780,360 short tons. Motor vehicles (July 1947): cars and ambulances 78,538; tractors 34,707; motorcycles 88,697; coaches and buses 3,171; miscellaneous 6,005; horse-drawn vehicles 715,644. German merchant shipping (including Bremen, 1947): 466,188 tons dead weight. Radio receiving sets: 3,012,331. French zone: railways (1946): track open 3,221 mi. Motor vehicles (1946): cars 30,489; trucks 18,525; buses 370; tractors 8,117; motorcycles 28,386. Telephones (Oct. 1946): 84,739.

Agriculture.—Production of principal commodities is shown in Table I. Other crops (1946) in short tons: oil seeds 41,000; potatoes 6,420,000; sugar beets 2,798,800; fodder beets 9,136,700; turnips 2,050,800. Livestock (1946): cattle 4,275,000; pigs 3,060,000; sheep 1,003,000; horses 908,000. French zone (in short tons): production (1946): cereals 935,870; tobacco 7,714; potatoes 2,259,320; sugar beets 383,940; wine 37,527,600 U.S. gal. Livestock (1946): horses 164,239; cattle 1,692,258; sheep 272,063; pigs 7,108.

Table I.—*Leading Agricultural Products of Germany*

(In short tons)

U.S. zone

Commodity	Actual 1946	Average 1939–44
Wheat and spelt	917,900	1,193,500
Rye	767,000	965,350
Winter mixed grains	1,727,000	2,223,800
Barley	498,100	926,800
Oats	735,000	1,059,000
Potatoes	5,928,760	8,522,800
Sugar beets	896,000	1,119,600
Oil seeds	19,800	56,200
Fodder roots	10,070,000	11,090,000
Hay	11,264,600	12,857,000

British zone

Commodity	Est. 1947	Actual 1946
Wheat	353,700	549,900
Rye	1,139,500	1,093,200
Barley	162,000	216,000
Oats	895,926	908,000
Mixed grains	282,100	236,900

Table II.—*Coal Production in Germany, July 1946–June 1947*

(In short tons)

	U.S. zone	British zone	Soviet zone	French zone
Hard coal	1,488,800	67,715,000	2,909,280	9,180,500
Brown coal	3,719,000	56,664,000	115,528,000	nil

Mineral and Industrial Production.—Coal production is shown in Table II. Other mineral products: U.S. zone (1946–47, in short tons): iron ore 940,150; steel ingots and castings 211,110; copper 18,620; lead 1,218; zinc 1,999; aluminum 11,544; crude potash 1,245,060; sulphuric acid 43,160; salt 493,990; caustic soda 44,072; calcium carbide 184,328; cement 1,035,800. British zone (1946–47, in short tons): iron ore 2,967,850; steel ingots and castings 2,731,290; lead 23,724; zinc 19,320; copper 7,785; crude potash 1,713,610; synthetic rubber 14,195; sulphuric acid 314,500; caustic soda 41,323; calcium carbide 69,073; cement 1,536,950. French zone (1946, in short tons): pig iron 243,000; steel ingots and castings 301,950; cement 287,000.

Textiles: U.S. zone (1946–47, in short tons): cotton yarn 27,650; wool yarn 4,331; staple fibres 10,718; British zone (1946–47, in short tons): cotton yarn 27,461; wool yarn 13,476; worsted yarn 3,411; linen 1,406; jute and paper 5,912; staple fibres 9,311; hemp 4,061.

BIBLIOGRAPHY.—Wilhelm Röpke, *The Solution of the German Problem* (1947); James P. Warburg, *Germany—Bridge or Battleground?* (1947); *The Economic Condition of Germany Today and Its International Repercussions,* International Chamber of Commerce (1947).

G. I. Bill of Rights: *see* EDUCATION; VETERANS' ADMINISTRATION.

Gibraltar. British fortress colony, situated on a narrow peninsula covering the western outlet of the Mediterranean sea and running southwest from the southwest coast of Spain: the territory consists of a long high mountain known as "The Rock," with a flat sandy plain, raised only a few feet above the level of the sea, lying to the north. Area: 2 sq.mi.; pop. (est. 1939): 20,000. Languages: Spanish and English. Religion: (civil population) mainly Roman Catholic. Executive authority is vested in a governor (appointed by the British crown) assisted by an executive council. Governor: Lieutenant General Sir Kenneth Anderson (appointed in 1947).

History.—Early in World War II it was found necessary, as a matter of military precaution, to remove "useless mouths" from what might, almost at any moment, become a beleaguered fortress. In all, some 16,700 persons were evacuated from Gibraltar. At the end of 1946 the number still awaiting repatriation from camps and hostels in the United Kingdom was about 2,100; by Oct. 1947 the figure was still more than 1,000. Every effort was made to speed up repatriation, but the local shortage of housing accommodation presented a serious obstacle. A housing scheme costing £1,750,000 was inaugurated early in the year; and it was decided, as one means of financing this scheme, to float a loan which, it was hoped, would produce at least £1,000,000. In order to provide the interest and sinking fund on the loan, a government lottery was opened by the governor in Oct. 1947. It was expected to bring in a revenue of £48,000 per annum. The question of the future composition of the Gibraltar legislative council (the establishment of which was approved in principle in Nov. 1945) was under consideration during the year.

Finance and Trade.—The legal tender of Gibraltar consists of local government notes and United Kingdom silver and copper coinage. Revenue (1946) £480,000; expenditure £685,000. The revenue of the colony is derived from port dues, rent on crown property, licence duties and fees and import duties. (J. E. SH.)

Gide, André Paul Guillaume (1869–), French novelist and essayist, was born on Nov. 21 in Paris. For his early career, see *Encyclopædia Britannica.* A flaunter of convention, Gide brewed many a literary storm in the 1920s. Publication of *Corydon,* a defense of homosexuality, touched off a quarrel with Catholic churchmen; his autobiography, *Si le grain ne meurt* (*If I Die*), was regarded as a shockingly cynical work; in 1927 his *Travels in the Congo,* an exposé of French colonial exploitation written

after his African travels, brought down on him the wrath of rightist critics.

Embittered by capitalist "iniquities," Gide sought solace in Marxism, but disillusionment with the communist experiment followed a trip to Russia, 1935–36. He stated his objections to communism in two works, *Return from the U.S.S.R.* (1937) and *Afterthoughts on the U.S.S.R.* (1938). Thenceforth, his former leftwing laudators denounced him as a "reactionary"; Gide, however, remained a confirmed antifascist. He gave aid to the loyalists in the Spanish civil war and refused to support Vichy during World War II.

Long considered by the Swedish academy for the Nobel prize in literature, Gide finally won it Nov. 13, 1947, over such distinguished competition as François Mauriac, T. S. Eliot and Benedetto Croce. The Nobel committee did not single out any specific work for mention, but Gide himself declared that he considered *Les faux monnayeurs* (*The Counterfeiters*) his most important book. His *Journal* was published in English translation in 1947.

Gilbert and Ellice Islands Colony: *see* PACIFIC ISLANDS, BRITISH.

Ginger: *see* SPICES.

Girl Scouts. In 1947 Girl Scouts of the U.S.A. celebrated the 35th anniversary of its founding in Savannah, Ga., by passing the 1,000,000 mark in girl membership. Focal points of the year's activities were a 27-nation International encampment for high-school age Girl Guides and Girl Scouts at Camp Barree, Pa., and the 29th biennial Girl Scout national convention at Long Beach, Calif.

At the International encampment, girls from every state in the nation, Puerto Rico, the Philippines and 26 other countries met for three weeks to discuss world scouting and youth's part in world affairs. The 29th biennial Girl Scout national convention, Nov. 4 to 7, with a record attendance of 2,600 women and men from all parts of the country, mapped out a "plan of work" for two years.

Agriculture was announced as a new field of activity for Girl Scouts of all ages. Among the 30 new proficiency badges added were 8 in the field of agriculture—beekeeping, dairying, fruit raising, home gardening, landscaping, poultry raising, rabbit raising and truck gardening.

"Clothes for Friendship," a project under which Girl Scouts would undertake to send 1,000,000 garments—100,000 wardrobes of new or reconditioned clothing—to children in Europe and Asia, was launched at the convention.

The convention amended the name of the national organization from "Girl Scouts" to "Girl Scouts of the United States of America." Mrs. C. Vaughan Ferguson, national president, was re-elected for a second term of two years. Dr. Mary H. S. Hayes became chairman of the executive committee, succeeding Mrs. Paul T. Kammerer.

On Sept. 30, 1947, there were 353,560 Brownie Scouts (girls 7 through 9) in 20,082 Brownie troops; 615,017 Intermediate Scouts (girls 10 through 14) in 32,197 troops; and 61,518 Senior Service Scouts (girls 15 through 17) in 4,624 troops. Total Girl Scout membership was 1,030,095. There were 293,867 men and women who were troop leaders, associate Girl Scouts or who served on troop committees, boards of directors, etc. Total Girl Scout and adult membership was 1,323,962. Girl Scout troops were organized in every state and U.S. possession. Headquarters of Girl Scouts of the U.S.A.: 155 E. 44th St., New York 17, N.Y. (C. M. R.)

Girl Guides, Great Britain.—The outstanding event of the year was the Guide and Scout International Folk Dance festival and rally, when teams of dancers from six European countries, the U.S.A., Great Britain and Ulster gave displays in London, the Midlands and Scotland. In conjunction with the festival, 1,500 First Class guides from all parts of Great Britain attended week-end camps around London and took part, with the dance teams, in a march past in the Mall, when Princess Elizabeth, Chief Ranger of the British empire, took the salute. This was the first occasion on which the new guide uniform was worn. It consisted of a bright blue shirt, navy skirt and navy beret.

The World Committee of Girl Guides and Girl Scouts met in London in October, and Miss M. W. Kydd, former chief commissioner for Canada, was welcomed as the new director of the World bureau. Two new headquarters training centres were opened at Broneirion in Wales and Lorne in Ulster. (M. A. S.)

Glands: *see* ENDOCRINOLOGY; MEDICINE.

Glass. Statistical information on world glass manufacture was unobtainable in 1947, but it was understood that the factories of central Europe were still in a crippled condition. Belgium and France had active factories, although those countries, as well as Great Britain, suffered from fuel shortage.

In 1947, the U.S. glass industry reached new high levels in employment, wages, volume and value of product. Still hampered by shortage of soda ash, and in the winter months by some lack of fuel and transportation, the industry was stimulated by demand for flat glass for automobiles and buildings, and by the high level of spending for domestic glassware. The total value of products reached $600,000,000. Little of the increase could be attributed to rise in prices, which remained remarkably stable in comparison with those of most consumers' goods.

U.S. plate-glass production for the year exceeded 250,000,000 sq.ft., and window glass filled 20,000,000 boxes of 50 sq.ft. each. Despite the renewed competition of tin cans and paper containers, the number of glass bottles and jars manufactured approached 17,000,000,000. Two billion lamp bulbs, in addition to millions of radio tubes and Christmas-tree ornaments, were produced during the year. Fine glassware and luxury items were in great demand, although the production of common tumblers, approximately 70,000,000 doz., declined somewhat from 1946; this was also true for common tableware and kitchen glassware.

Cheaper natural gas in the southwestern states attracted new glass plants, particularly to Oklahoma. At the same time, the last glass plant in the city of Pittsburgh, historically a centre of the industry, ceased operations.

The number of patents relating to glass has steadily declined, from a high of 323 in 1941 to 122 in 1947. However, important developments continue. For example, a process for printing photographs by ultra-violet light, developing permanent coloured prints within the glass itself, was in use; new processes were announced for drawing glass tubing automatically in larger sizes; the techniques of toughening by heat treatment heavy polished plate glass for doors, and of bending thin plates in matching pairs for curved safety-glass automobile windows were further improved. (S. R. S.)

Gliding. Gliding in 1947 was marked by the establishment of three new international records. In the U.S., Paul B. MacCready, Jr. set a goal and return mark of 230 mi. on July 16, 1947. Virginia Bennis (Mrs. Stephen) gained 7,200 ft. of altitude on July 17, 1947, establishing a new international women's altitude mark. In Sweden, Lt. Axel Persson soared 8,050 metres (26,410.74 ft.) on July 12, 1947, to a new international altitude record for men.

The Soaring Society of America held its 14th Annual Soaring

contest at Wichita Falls, Texas, July 4–20, with 79 pilots competing in 65 sailplanes. New U.S. national soaring records in addition to the two already mentioned were as follows: singleplace distance for men: John Robinson, July 19, 1947, 333 mi.; singleplace distance for women: Virginia Bennis, July 14, 1947, 94 mi.; singleplace goal for women: Virginia Bennis, July 8, 1947, 52 mi.; twoplace goal for men: Eugart Yerian and passenger, July 13, 1947, 207 mi.; twoplace goal and return for men: Lyle Maxey and passenger, July 15, 1947, 104 mi.

There were three flights exceeding 300 mi., 32 flights between 200 and 300 mi., 149 flights between 99 and 100 mi. There were 10 flights with a minimum altitude gain of 10,000 ft. above point of release. Richard J. Comey, flying a Schweizer 1–21, earned the title of National Soaring Champion.

Flying in Texas during the 14th Annual Soaring contest, Charles Wingfield set a new distance record of 215 mi. for British pilots, as well as a goal and return record of 146 mi.; Eric Nessler established a distance record of 319 mi. for French pilots.

The British National Gliding contest was held at Bramcotte, Nuneaton, June 22–29, with 32 pilots competing. There were 15 flights between 100 and 200 mi.

In Germany gliding enthusiasts of the royal air force staged a contest at Oerlinghausen May 17–23. The Kircheim school in the U.S. zone was ordered closed. (B. Sk.)

Gold. The year 1947 was conspicuous for three developments with respect to gold. It saw the stocks of the metal in the United States recross their previous high point of $22,799,000,000, established in Nov. 1941; it saw the development of lively black markets in many parts of the world, and it saw the Dominion of Canada place a premium on newly mined gold in order to stimulate production.

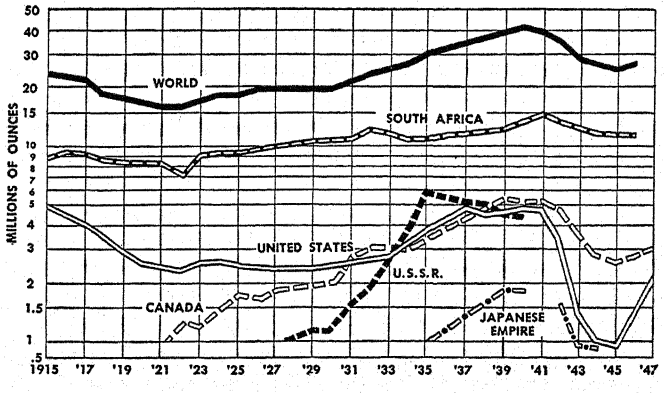
The net gain in monetary gold stocks by the U.S. for the year was $2,250,000,000, the largest after 1940 and the largest in the nation's history with the exception of 1934 (when the price of gold was officially raised from $20.67 an ounce to $35), 1939 and 1940. The increase, moreover, would have been even greater but for the fact that the government drew down $687,500,000 in February for use in the International Monetary fund. The Soviet Union, whose holdings were believed to be in the neighbourhood of $2,500,000,000, would rank second to the U.S., and the United Kingdom, with $2,360,000,000, third. The U.S. total of $22,829,000,000 did not include metal that was held in that country physically but the title to which resided elsewhere. This is the so-called "earmarked" gold, and at the end of Nov. 1947 it amounted to $3,573,800,000.

In most countries it is illegal to buy or sell gold at a premium over the statutory price. As a result of inflation and the chronic weakness of many currencies, however, the practice became fairly widespread during the year, with the price ranging generally from $42 to $50 or its equivalent and occasionally much higher, as compared with the official U.S. purchase price of $35.

It is traditional, because of the metal's fixed price, that gold mining is prosperous in bad times and nonprosperous in periods of boom and high prices. This, coupled with the shortage of dollars, explains the action taken in Nov. 1947 by Canada in paying a bounty of $7 an ounce on all gold produced in excess of that for the previous year.

Jan. 24, 1948, was a notable anniversary in the annals of the gold mining industry in the U.S. It was just 100 years earlier that gold was discovered at Sutter's Mill, Calif., a discovery which was the signal for the most excited gold rush in the country's history. (*See* also Federal Reserve System.)

Table I shows the significant changes in the gold position of the U.S. in 1947 and the principal influences producing them. (E. H. Co.)



GOLD PRODUCTION: world total and output of the principal producing countries, as compiled by *The Mineral Industry*

Table I.—*Analysis of Changes in Gold Stock of United States*

(In millions of dollars)

Period	Gold stock at end of period	Increase in gold stock	Net gold import or export (—)	Earmarked gold: decrease or increase (—)	Domestic gold production
1936	*11,258	1,132.5	1,116.6	— 85.9	131.6
1937	*12,760	1,502.5	1,585.5	—200.4	143.9
1938	14,512	1,751.5	1,973.6	—333.5	148.6
1939	17,644	3,132.0	3,574.2	—534.4	161.7
1940	21,995	4,351.2	4,744.5	—644.7	170.2
1941	22,737	741.8	982.4	—407.7	169.1
1942	22,726	—10.3	315.7	—458.4	125.4
1943	21,938	—788.5	68.9	—803.6	48.3
1944	20,619	—1,319.0	—845.4	—459.8	35.8
1945	20,065	—553.9	—106.3	—356.7	32.0
1946	20,529	464.0	311.5	465.4	51.2
1947—January	20,748	219.3	—16.8	196.1	7.6
February	20,330	†—418.2	20.4	—684.5	5.5
March	20,463	132.5	153.6	203.5	5.5
April	20,774	311.5	44.1	272.0	6.2
May	20,933	159.0	129.7	13.1	7.2
June	21,266	333.4	200.2	119.0	6.1
July	21,537	270.6	219.2	26.7	7.3
August	21,766	228.8	111.7	42.3	7.0
September	21,955	189.4	109.6	153.1	7.0
October	22,294	339.0	‖450.8	—4.0	‡
November	‖22,615	‖320.4	‡	§82.8	‡

*Includes gold in the Inactive Account amounting to 27 million dollars on Dec. 31, 1936, and 1,228 million on Dec. 31, 1937.
†Change reflects primarily gold subscription to International Monetary Fund.
‡Not yet available.
§Gold held under earmark at the Federal Reserve Banks for foreign account including gold held for the account of international institutions amounted to 3,573.8 million dollars on Nov. 30, 1947. Gold under earmark is not included in the gold stock of the United States.
‖Preliminary.
From *Federal Reserve Bulletin*, Dec. 1947.

World Production.—Production data are lacking for so many countries in Europe, Asia, Africa and Oceania that world totals can be no more than rough estimates, but Table II shows outputs so far as they were available at the close of 1947 from the major producers.

Table II.—*World Production of Gold*

(Thousands of fine ounces)

	1941	1942	1943	1944	1945	1946
United States	4,832	3,583	1,381	1,022	929	1,462
Canada	5,345	4,841	3,651	2,923	2,697	2,833
Mexico	800	801	632	509	419	421
Central America	302	324	280	271	244	218
South America	1,747	1,604	1,442	1,354	1,259	1,202
India	286	260	252	188	168	132
Belgian Congo	561	500	439	364	341	331
Gold Coast	885	784	565	534	475	587
Southern Rhodesia	790	760	657	593	568	545
South Africa	14,407	14,127	12,804	12,280	12,225	11,918
Australia	1,497	1,154	751	658	635	2
Total (est.)	40,160	36,300	29,160	26,700	26,300	27,800

United States.—Mine production of gold increased from 954,572 oz. in 1945 to 1,574,505 oz. in 1946 and to 2,090,013 oz. in 1947. Monthly outputs were increasing regularly but had attained only half the rate prevailing in 1941.

Canada.—Canadian production rose from 2,696,727 oz. in 1945 to 2,832,554 oz. in 1946.

The improved output continued into 1947 with a total of 3,035,161 oz.

South Africa.—The production rate in 1947 was about the same as in 1946, slightly less than 1,000,000 oz. monthly.

(*See* also EXCHANGE CONTROL AND EXCHANGE RATES; MINERAL AND METAL PRODUCTION AND PRICES.) (G. A. Ro.)

Gold Coast: *see* BRITISH WEST AFRICA.

Golf. The United States enjoyed in 1947 one of its most successful golf years after 1934, as attested by an over-all total of 5,121 contestants in the 4 championships conducted by the United States Golf association. The Professional Golfers' Association of America practically covered the calendar in its tournament schedule. Meanwhile, public-links and daily-fee golfers were multiplying their prewar numbers by at least ten, World War II having stimulated interest among thousands of war-plant workers who found the game an ideal outlet for exercise.

Highlights of the year 1947 were the several successes scored by U.S. golfers in international play. Frank Stranahan, husky Toledo, O., amateur, missed winning the British open title by one stroke. Willie Turnesa and Dick Chapman, teammates on the victorious United States Walker cup team and both former holders of the U.S.G.A. amateur crown, went to the final of the British amateur, with Turnesa rallying from a five-hole deficit to beat Chapman in the final.

The United States Walker cup team normally would have met the British in the United States, but because of unusual conditions in the United Kingdom, the U.S.G.A. agreed to accept the responsibility of sending the U.S. golfers overseas. The matches at St. Andrews, Scotland, found the visitors no better than even after the Scotch foursomes at a 2–2 score. The Britons fought hard through the early stages of the singles, but the U.S. contestants, led by Marvin (Bud) Ward of Spokane, Wash., came back to win 6 of the 8 singles for an 8–4 triumph.

The U.S. men were not long home when the prodigious Mrs. Mildred (Babe) Didrikson Zaharias, later voted the woman athlete of the year, became the first woman of the U.S. to win the British women's championship. Her victory marked the 17th consecutive win for the gifted Texan, who shortly after resumed her professional status.

The international professional Ryder cup series appeared doomed to postponement until Robert A. Hudson, Sr., Portland, Ore., wholesale grocer and packer, bid for it and secured it for the Portland Golf club in November. Once again, the U.S. ran away with the contest, winning 11–1. Only Sam King, who defeated Herman Keiser of Akron, O., was able to score a point for the invaders.

While U.S. golfers were scoring overseas, two others were crossing the northern border and bringing back Canadian championships, Stranahan winning the amateur and Grace Lenczyk the women's. The Canadian open was captured by the remarkable Arthur d'Arcy (Bobby) Locke. The South African, having beaten Sam Snead of Virginia in an exhibition series in South Africa wherein he took 12 of 16 matches, accepted Snead's invitation to try U.S. courses. He won six tournaments, including the Goodall man-to-man competition and finished well up in such fixtures as the Masters' and the Western.

Leading money winner of the year was the popular and colourful Jimmy Demaret of Texas, whose total earnings of $27,936.83 topped Locke's $24,327.50. Demaret, who on Easter Sunday, became the third man in history to win the treasured Masters' championship twice, also captured the P.G.A.'s Vardon trophy for low-scoring average, beating out Ben Hogan by a fraction of a stroke.



LEW WORSHAM teeing off on the 17th hole during the U.S. national open golf tournament at St. Louis, June 15, 1947. Worsham won the title from Sam Snead by a single stroke on the last hole

Pacing all women golfers among the amateurs was 112-lb. Louise Suggs of Atlanta, Ga. The little southerner first accomplished what no other woman in the history of the Women's Western Golf association ever had done—to win the western open and amateur two years in a row. She encored the open title by defeating her clubmate, Dorothy Kirby, 4 and 2, at Atlanta, then came back later in the summer to run away from young Carol Diringer of Ohio, 9 and 8, in the amateur. By this time she had become the favourite for the women's national title, and fulfilled the prediction by winning the championship, 2 up, from Miss Kirby.

The U.S.G.A. open at St. Louis, Mo., produced the third play-off in the last three years in which it was held. Lew Worsham, former sailor from Virginia, appeared to have the title won after Locke, Ward and Ed (Porky) Oliver had faltered. Worsham, a comparative newcomer, finished with a regulation 72-hole score of 282, which was tied by Snead.

In the 18-hole play-off, Worsham won 69–70 on the 18th green, by sinking his 29½-in. putt after Snead had missed his 30½-in. putt.

The U.S. amateur, which in 1947 returned to the British all-match-play system employed in 1934–35–36, saw Robert (Skee) Riegel, sometime resident of both Los Angeles, Calif., and Philadelphia, Pa., beat out Johnny Dawson, 45-year-old Chicagoan, by a 2 and 1 margin, on Pebble Beach's foggy shores. The public-links title went to Wilfred Crossley, onetime New Englander from Atlanta, Ga., who defeated Avery Beck of Raleigh, N.C., 6 and 5. They were the survivors of the largest U.S.G.A. entry of the year, 2,633 golfers having sought admission.

The Professional Golfers' championship was won by Jim Ferrier, the Australian who had become a United States citizen. Ferrier proved that the putter is mightier than the driver by winning the Detroit final from hard-hitting Melvin (Chick) Harbert, 2 and 1.

The national intercollegiate championships were captured by Dave Barclay of the University of Michigan and Shirley Spork of Michigan Normal college. (C. Bt.)

Gonorrhoea: *see* VENEREAL DISEASES.
Gorizia: *see* TRIESTE, THE FREE TERRITORY OF.

Government Departments and Bureaus.

The following are the leading officers of the more important government departments and bureaus of the United States. The date for the information is Dec. 31, 1947.

Department or Bureau	Name	Post
Department of State	*Marshall, George C.	Secretary
	*Lovett, Robert A.	Under-Sec'y
	Bohlen, Charles E.	Counselor
	Armour, Norman	Asst. Sec'y
	Thorp, Willard L.	Asst. Sec'y
	Norton, Garrison	Asst. Sec'y
	Saltzman, Charles E.	Asst. Sec'y
	Peurifoy, John E.	Asst. Sec'y
Department of the Treasury	*Snyder, John W.	Secretary
	Wiggins, A. L. M.	Under-Sec'y
Bureau of the Comptroller of the Currency	Delano, Preston	Comptroller
Treasurer of the U.S.	Julian, William A.	Treasurer
Bureau of Customs	Johnson, William R.	Commissioner
Bureau of Internal Revenue	Schoeneman, George J.	Commissioner
Bureau of Narcotics	Anslinger, Harry J.	Commissioner
Bureau of the Mint	Ross, Mrs. Nellie Tayloe	Director
U.S. Savings Bonds Division	Clark, Vernon L.	Nat'l Director
*U.S. Coast Guard	Farley, Joseph F., Adm.	Commandant
National Military Establishment	*Forrestal, James	Sec'y of Defense
Joint Chiefs of Staff	*Leahy, Wm. D., Fleet Adm.	
	*Eisenhower, Dwight D., Gen. of the Army[1]	
	*Denfeld, Louis E., Adm.	
	*Spaatz, Carl, Gen.	
War Council	*Forrestal, James	Chairman
Munitions Board	Hargrave, Thomas J.	Chairman
Research and Development Board	Bush, Dr. Vannevar	Chairman
Department of the Army	*Royall, Kenneth C.	Secretary
	Draper, William H.	Under-Sec'y
Women's Army Corps	Hallaren, Mary A., Col.	Director
Department of the Navy	*Sullivan, John L.	Secretary
	Kenney, W. John	Under-Sec'y
Chief of Naval Operations	*Denfeld, Louis E., Adm.	Chief of Naval Operations
Women's Reserve of the U.S. Naval Reserve	Hancock, Joy B., Capt.	Director
*U.S. Marine Corps Headquarters	Vandegrift, Alexander A., Gen.[2]	Commandant
Women's Reserve of the U.S. Marine Corps Reserve	Hamblet, Julia E., Maj.	Director
Department of the Air Force	*Symington, W. Stuart	Secretary
	Barrows, Arthur S.	Under-Sec'y
Department of Justice	*Clark, Tom C.	Att'y-Gen.
Solicitor General	Perlman, Philip B.	Solic. Gen.
*Federal Bureau of Investigation	Hoover, J. Edgar	Director
Bureau of Prisons	Bennett, James V.	Director
Immigration and Naturalization Service	Miller, Watson B.	Commissioner
*Post Office Department	*Donaldson, Jesse M.	Postmaster Gen.
Department of the Interior	*Krug, Julius A.	Secretary
Bureau of Land Management	Johnson, Fred W.	Director
Office of Indian Affairs	Brophy, William A.	Commissioner
Geological Survey	Wrather, William E.	Director
Fish and Wildlife Service	Day, Albert M.	Director
Bureau of Reclamation	Straus, Michael W.	Commissioner
National Park Service	Drury, Newton B.	Director
Bureau of Mines	Boyd, James	Director
Division of Territories and Island Possessions	Davis, James P.	Director
Department of Agriculture	*Anderson, Clinton P.	Secretary
	Dodd, Norris E.	Under-Sec'y
*Agricultural Research Administration	Lambert, W. V.	Administrator
Bureau of Animal Industry	Simms, Bennett T.	Chief
Bureau of Agricultural and Industrial Chemistry	Howard, L. B.	Chief
Bureau of Dairy Industry	Reed, O. E.	Chief
Bureau of Entomology and Plant Quarantine	Annand, P. N.	Chief
Bureau of Plant Industry, Soils and Agricultural Engineering	Salter, Robert M.	Chief
Bureau of Human Nutrition and Home Economics	Stiebeling, Hazel K.	Chief
Office of Experiment Stations	Trullinger, R. W.	Chief
Bureau of Agricultural Economics	Wells, O. V.	Chief
Extension Service	Wilson, M. L.	Director
*Farm Credit Administration	Duggan, Ivy W.	Governor
*Farmers Home Administration	Lasseter, Dillard B.	Administrator
Forest Service	Watts, Lyle F.	Chief
Office of Foreign Agricultural Relations	Wheeler, L. A.	Director
Production and Marketing Administration	Gilmer, Jesse B.	Administrator
Commodity Credit Corporation	Gilmer, Jesse B.	President
Federal Crop Insurance Corporation	Geissler, Gus	Manager
Rural Electrification Administration	Wickard, Claude R.	Administrator
Soil Conservation Service	Bennett, Hugh H.	Chief
Department of Commerce	*Harriman, W. Averell	Secretary
	Foster, William C.	Under-Sec'y
Bureau of the Census	Capt, James C.	Director
Bureau of Foreign and Domestic Commerce	Taylor, Amos E.	Director
*National Bureau of Standards	Condon, E. U.	Director
*Coast and Geodetic Survey	Colbert, Leo O.	Director
Inland Waterways Corporation	Trimble, South, Jr.	Chairman of the Board
*Civil Aeronautics Administration	Wright, Theodore P.	Administrator
*Patent Office	Kingsland, Lawrence C.	Commissioner
Weather Bureau	Reichelderfer, Francis W.	Chief
Department of Labor	*Schwellenbach, Lewis B.	Secretary
	Morse, David A.	Under-Sec'y
Bureau of Labor Statistics	Clague, Ewan	Commissioner
Apprentice-Training Service	Patterson, William F.	Director
U.S. Employment Service	Goodwin, Robert C.	Director
Women's Bureau	Miller, Frieda S.	Chief
Division of Labor Standards	Connolly, William L.	Director
Wage and Hour and Public Contracts Divisions	McComb, William R.	Administrator
*Federal Security Agency	Ewing, Oscar R.	Administrator
U.S. Office of Education	Studebaker, John W.	Commissioner
U.S. Public Health Service	Parran, Dr. Thomas	Surgeon General
Social Security Administration	Altmeyer, Arthur J.	Commissioner
Food and Drug Administration	Dunbar, Paul B.	Commissioner
*Office of Vocational Rehabilitation	Shortley, Michael J.	Director
Bureau of Employees' Compensation	McCauley, William	Director
*Federal Works Agency	Fleming, Philip B., Maj. Gen.	Administrator
Public Buildings Administration	Reynolds, W. E.	Commissioner
Public Roads Administration	MacDonald, Thomas H.	Commissioner
Bureau of Community Facilities	Field, George H.	Commissioner
Independent Offices		
Atomic Energy Commission	*Lilienthal, David E.	Chairman
Civil Aeronautics Board	*Vacancy*	Chairman
*Export-Import Bank of Washington	Martin, Wm. McC., Jr.	President
*Federal Communications Commission	Coy, Wayne	Chairman
*Federal Deposit Insurance Corporation	Harl, Maple T.	Chairman
*Federal Mediation and Conciliation Service	Ching, Cyrus S.	Director
*Federal Power Commission	Smith, Nelson Lee	Chairman
*Federal Reserve System, Board of Governors of the	Eccles, Marriner S.	Chairman
*Federal Trade Commission	Ferguson, Garland S.[3]	Chairman
General Accounting Office	Warren, Lindsay C.	Comptroller General
*Government Printing Office	Giegengack, A. E.	Public Printer
Housing and Home Finance Agency	Foley, Raymond M.	Administrator
Home Loan Bank Board	Fahey, John H.	Chairman
Federal Housing Administration	Richards, Franklin D.	Commissioner
Public Housing Administration	Egan, John Taylor	Act'g Commissioner
Indian Claims Commission	Witt, Edgar E.	Chief Commissioner
*Interstate Commerce Commission	Aitchison, Clyde B.[4]	Chairman
Library of Congress	Evans, Luther H.	Librarian
National Advisory Committee for Aeronautics	Hunsaker, Dr. Jerome C.	Chairman
*National Archives	Buck, Solon J.	Archivist
National Capital Park and Planning Commission	Grant, U. S., III, Maj. Gen.	Chairman
*National Labor Relations Board	Herzog, Paul M.	Chairman
*National Mediation Board	Douglass, Frank P.	Chairman
National Security Council	Souers, Sidney W.	Exec. Sec'y
Central Intelligence Agency	Hillenkoetter, Roscoe H., Rear Adm.	Director
National Security Resources Board	Hill, Arthur M.	Chairman
*Office of Selective Service Records	Hershey, Lewis B., Maj. Gen.	Director
Railroad Retirement Board	Kennedy, William J.	Chairman
*Reconstruction Finance Corporation	Goodloe, John D.	Chairman
U.S. Commercial Company	Schieck, DeWitt C.	President
Federal National Mortgage Association	Goodloe, John D.	President
*Securities and Exchange Commission	*Vacancy*	Chairman
*Smithsonian Institution	Wetmore, Alexander	Secretary
Tax Court of the United States	Turner, Bolon B.	Presiding Judge
*Tennessee Valley Authority	Clapp, Gordon R.	Chairman
U.S. Civil Service Commission	Mitchell, Harry B.	President
U.S. Maritime Commission	Smith, Wm. W., Vice Adm.	Chairman
U.S. Tariff Commission	Ryder, Oscar B.	Chairman
*Veterans' Administration	*Gray, Carl R., Jr.	Administrator
Executive Office of the President		
Bureau of the Budget	Webb, James E.	Director
Council of Economic Advisers	Nourse, Edwin G.	Chairman
Office of Government Reports (in liquidation)	*Vacancy*	Director
Emergency Agencies		
Office for Emergency Management (in Executive Office of the President)		
Office of Defense Transportation	Johnson, J. M.	Director
Philippine Alien Property Administration	Henderson, James McI.	Administrator
Office of Housing Expediter	Woods, Tighe E.	Act'g Housing Expediter
Philippine War Damage Commission	Waring, Frank A.	Chairman
*United Nations Relief and Rehabilitation Administration	Rooks, Lowell W., Maj. Gen.	Director General
War Assets Administration	Larson, Jesse	Act'g Administrator
Quasi-Official Agencies		
*American National Red Cross	O'Connor, Basil	Chairman, Central Committee
*Pan American Union	Lleras Camargo, Alberto	Director General
†National Academy of Sciences and National Research Council	Richards, Alfred N.	President, National Academy of Sciences
	Bronk, Detlev W.	Chairman, National Research Council

*See separate article.
[1]Resigned Feb. 7, 1947. Succeeded by Gen. Omar N. Bradley.
[2]Succeeded by Maj. Gen. Clifton B. Cates, effective Jan. 1, 1948.

*See separate article.
†See Societies and Associations.
[3]Succeeded by Robert E. Freer, effective Jan. 1, 1948.
[4]Succeeded by William E. Lee, effective Jan. 1, 1948.

Great Britain.—His majesty's chief officers of state and the permanent officials of the more important of the government departments of Great Britain at the close of 1947 were these:

Ministry or Department	Name	Post
Admiralty, Board of	Hall, Viscount	First Lord
	Lang, Sir John G.	Permanent Secretary
Agriculture and Fisheries, Ministry of	Williams, Thomas	Minister
	Vandepeer, Sir Donald	Permanent Secretary
Air Ministry	Henderson, Arthur	Secretary of State
	Barnes, Sir James H.	Perm'nt Under-Sec'y
Assistance Board	Soulbury, Lord	Chairman
	King, Sir Geoffrey	Secretary
*Bank of England	Catto, Lord	Governor
	Nevill, W. H.	Secretary
Burma Office	Listowel, the Earl of	Secretary of State
	Monteath, Sir David	Perm'nt Under-Sec'y
Cabinet Office	Brook, Sir Norman	Perm'nt Sec'y and Sec'y of the Cabinet
Civil Aviation, Ministry of	Nathan, Lord	Minister
	Overton, Sir Arnold	Permanent Secretary
Colonial Office	Jones, Arthur Creech	Secretary of State
	Lloyd, Sir Thomas	Perm'nt Under-Sec'y
	Calder, Sir John Alex.	Crown Agents
	Downie, Harold	
Commonwealth Relations Office	*Noel-Baker, Philip	Secretary of State
	Machtig, Sir Eric	Perm'nt Under-Sec'ys
	Carter, Sir Archibald	
Customs and Excise, Board of	Croft, Sir William	Chairman
Defence, Ministry of	Alexander, Albert V.	Minister
	Wilson Smith, Sir Henry	Permanent Secretary
Duchy of Lancaster, Office of the	Pakenham, Lord	Chancellor
Education, Ministry of	Tomlinson, George	Minister
	Maud, Sir John	Permanent Secretary
Food, Ministry of	Strachey, John	Minister
	Liesching, Sir Percivale	Secretary
Foreign Office	*Bevin, Ernest	Secretary of State
	Sargent, Sir Orme	Perm'nt Under-Sec'y
Fuel and Power, Ministry of	Gaitskell, Hugh T. N.	Minister
	Fergusson, Sir Donald	Secretary
Health, Ministry of	Bevan, Aneurin	Minister
	Douglas, Sir William	Secretary
Home Office	Ede, James Chuter	Secretary of State
	Maxwell, Sir Alexander	Perm'nt Under-Sec'y
Information, Central Office of	Fraser, Robert	Director General
Inland Revenue, Board of	Gregg, Sir Cornelius	Chairman
Labour and National Service, Ministry of	Isaacs, George	Minister
	Ince, Sir Godfrey	Permanent Secretary
Law Officers' Department	Shawcross, Sir Hartley	Attorney-General
	Soskice, Sir Frank	Solicitor-General
Lord High Chancellor's Department	Jowitt, Viscount	Lord High Chancellor
	Napier, Sir Albert	Permanent Secretary
Lord Privy Seal	Addison, Viscount	
National Insurance, Ministry of	Griffiths, James	Minister
	Phillips, Sir Thomas	Permanent Secretary
Paymaster-General's Office	Marquand, Hilary A.	Paymaster-General
Pensions, Ministry of	Buchanan, George	Minister
	Parker, Sir Harold	Permanent Secretary
*Post Office	Paling, Wilfred	Postmaster General
	Birchall, Sir Raymond	Director General
Privy Council Office	Morrison, Herbert	Lord President
	Leadbitter, Sir Eric C. E.	Clerk of the Council
Scientific and Industrial Research, Department of	Morrison, Herbert	Pres. of the Committee of Council
	Appleton, Sir Edward	Secretary
Scottish Office	Woodburn, Arthur	Secretary of State
	Milne, Sir David	Perm'nt Under-Sec'y
Stationery Office	Scorgie, Sir Norman	Controller
Supply, Ministry of	Strauss, George Russell	Minister
	Rowlands, Sir Archibald	Permanent Secretary
Town and Country Planning, Ministry of	Silkin, Lewis	Minister
	Sheepshanks, Sir Thomas	Permanent Secretary
Trade, Board of	Wilson, James	President
	Woods, Sir John H. E.	Permanent Secretary
Transport, Ministry of	Barnes, Alfred	Minister
	Jenkins, Sir Gilmour	Secretary
Treasury	*Attlee, Clement	First Lord
	*Cripps, Sir Stafford	Chancellor of the Exchequer
	Bridges, Sir Edward	Permanent Secretary
War Damage Commission	Eve, Sir Malcolm	Chairman
	Trustram	
War Works Commission	Eve, Sir Malcolm	Chairman
	Trustram	
War Office	*Shinwell, Emanuel	Secretary of State
	Speed, Sir Eric B. B.	Perm'nt Under-Sec'y
Works, Ministry of	Key, Charles	Minister
	Emmerson, Sir Harold	Permanent Secretary

*See separate article.

Government Expenditures and Government Receipts: *see* BUDGET, NATIONAL.
Government Printing Office: *see* PRINTING OFFICE, U.S. GOVERNMENT.
Governors and Premiers, British: *see* BRITISH EMPIRE.
Grain: *see* BARLEY; CORN; OATS; RICE; RYE; WHEAT.
Granite: *see* STONE.
Grapefruit: *see* FRUIT.
Grapes: *see* FRUIT.

Graphite. Graphite production is rather widely distributed, with significant outputs in at least a dozen different countries. The United States output is relatively small and the bulk of the supply is obtained by imports. The salient data on the production and supply of natural graphite in the United States are as follows, in short tons:

	1942	1943	1944	1945	1946
Production	7,120	9,939	5,408	4,888	5,575
Shipments	7,253	9,597	5,768	5,334	4,844
Imports	43,752	28,713	26,053	36,132	33,136
Flake	6,031	5,311	6,191	2,883	3,337
Lump, chip, dust	4,152	1,012	1,568	5,207	56
Amorphous	33,569	22,390	18,294	28,042	29,743
Mexico	23,933	21,679	17,269	25,879	24,389
Ceylon	13,209	480	1,688	2,166	3,730
Madagascar	5,850	5,655	6,271	6,665	3,200
Exports	4,095	3,010	2,230	1,308	2,313

The graphite industry in the United States was never healthy and even under war demand operated only with considerable difficulty. Peacetime outputs were negligibly small and war outputs covered only a fraction of the demand. While the 1946 output was greater than in 1945, it was much less than in 1943, and in addition shipments lagged well behind production.

(G. A. Ro.)

Gravel: *see* SAND AND GRAVEL.

Gray, Carl R., Jr. (1889–), U.S. railway executive and administrator of veterans' affairs, was born on April 14 in Wichita, Kan., and was educated at the University of Illinois. He worked for several railroads until the U.S. entry into World War I. He joined the army in 1917, and was mustered out in 1919 with the rank of lieutenant colonel, after which he worked for Montgomery Ward and several other midwest firms in a managerial capacity until 1928 when he became an industrial manager for the Chicago and North Western railway. By 1937 he was an executive vice-president of the Chicago, St. Paul, Minneapolis and Omaha line.

He was called into the armed forces in 1942 and the following year went overseas to take charge of military transportation in the European theatre. In Sept. 1945, he was elevated to the rank of major general and made director general of the military railway service, European theatre. With the war over, he was relieved of duty in Feb. 1946 and returned to his old civilian post until Nov. 21, 1947, when Pres. Harry S. Truman announced that Gray had accepted the government post of administrator of veterans' affairs.

Gray Markets: *see* BLACK MARKETS.
Great Books: *see* HUTCHINS, ROBERT MAYNARD.

Great Britain & Northern Ireland, United Kingdom of. An independent kingdom in northwestern Europe, the United Kingdom comprises the main island of Great Britain, with numerous smaller islands off the English and Scottish coasts, and the six northeastern counties of Ireland. It is a constitutional monarchy, with a king and parliament of two houses, the house of lords consisting of about 800 hereditary peers, 24 spiritual peers, 16 Scottish representative peers, a number of Irish representative peers (in 1947, 8; vacancies no longer filled) and a few life peers who have held high judicial office; and the house of commons, numbering 640 members, elected by universal suffrage. Area: 93,371 sq.mi. (excluding Channel Islands, 75 sq.mi.;

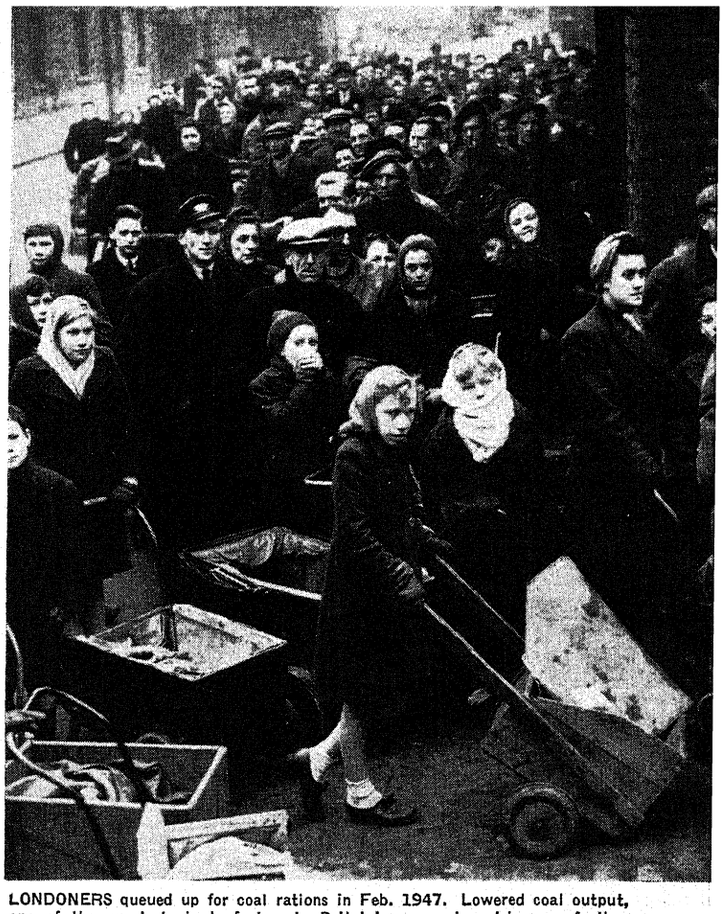
Isle of Man, 221 sq.mi.); pop. (est. June 30, 1947, members of the armed forces excluded): 48,367,000; England and Wales 42,006,000; Scotland 5,022,000; Northern Ireland 1,339,000. Cap.: London (pop. est. June 30, 1947): city and metropolitan police districts 8,244,370; city and metropolitan boroughs only, 3,862,000. Chief towns: Glasgow (June 30, 1938) 1,131,500; Birmingham (est. 1945) 1,001,600; Liverpool (est. 1939) 864,000; Manchester (est. 1945) 624,300; Sheffield (est. 1938) 520,000; Leeds (est. 1938) 494,000; Edinburgh (June 30, 1946) 463,100; Belfast (Jan. 1, 1939) 443,500; Bristol (est. 1938) 415,000; Hull (est. 1938) 318,700. Language: English is almost universally spoken, but in Wales (according to the 1931 census) 3% of the population spoke Welsh only and 31% spoke both languages; in Scotland 15% spoke Gaelic only and 2.7% spoke both languages; in the Isle of Man 528 spoke English and Manx. Religion: National Episcopal established church in England, Presbyterian established church in Scotland. King: George VI; prime minister: Clement R. Attlee.

History.—The year 1947 was one of repeated disappointments and steady perseverance, introduced by a winter of exceptional cold aggravated by a breakdown in fuel and electricity supplies. It ended on a note of almost unrelieved austerity. Supplies to the home consumer were cut to the minimum as a result of the virtual exhaustion of the nation's dollar resources, and an energetic production drive was initiated. All political parties were as one in demanding a return to the "Dunkirk spirit" of sacrifice and in promising the country a long period of hard exertion and small reward. The marriage of Princess Elizabeth to Prince Philip, duke of Edinburgh, on Nov. 20, though celebrated with restrained festivity, came as a welcome tonic to the public spirits and was an occasion of joy throughout Britain.

The Dollar Crisis.—On Feb. 22 the government issued a White Paper on the economic state of the country. At the end of 1946 Britain was exporting at the rate of about 115% of the 1938 level and importing at the rate of about 70%. Nevertheless, the adverse balance of trade, principally because of the almost complete disappearance of invisible exports, amounted to £450,000,000. In 1947 imports were to be increased to between 80% and 85% of the 1938 level. The government set an export target of 140% of the 1938 level to be achieved by the end of 1947. On March 27 the prime minister announced that an interdepartmental planning staff would be formed under Sir Edwin Plowden as chief planning officer. His powers were confined principally to the collection and distribution of information.

During the year exports fell far short of the government's hopes. During the first six months they never rose above 102% of the average quarterly volume for 1938, and in the third quarter they rose only to 114%. Meantime prices of U.S. raw materials increased with the demand and the government's import program proved far more costly than had been expected. British political commitments overseas were also a heavy burden. Finally, on July 15, Britain's commitment, under the terms of the Anglo-American loan agreement, to convert sterling at request into any currency specified by the holder, came into operation.

In May Hugh Dalton, the chancellor of the exchequer, revealed that Britain's war debts amounted to £3,000,000,000. The danger that these immense sterling assets would be withdrawn and converted into dollars made it necessary to conclude agreements with the principal creditor countries, Argentina, Brazil, Egypt, India and Iraq. These agreements provided in all cases for the freezing of a large part of the accumulated sterling assets, and for the release of small amounts for current expenditure. They did not affect the obligation to convert



LONDONERS queued up for coal rations in Feb. 1947. Lowered coal output, one of the greatest single factors in Britain's economic crisis, was further decreased by wildcat strikes in September

sterling not frozen, and on July 15 a run on sterling began. Since the dollar shortage was universal most holders of sterling sought conversion into dollars. The government was accordingly forced on Aug. 20 to suspend the entire Anglo-American loan agreement, including the convertibility clause. Out of £1,100,000,000, £1,000,000,000 were used up to Aug. 29, when the remainder was frozen. On Dec. 5 the remainder of the loan was made available to Britain.

New Economic Policy.—On Aug. 13 a bill was passed enabling the government to extend the powers conferred by the Supplies and Services (Transitional Powers) act of 1945, to deal with the dollar crisis. On Sept. 29 Sir Stafford Cripps was appointed minister for economic affairs, with the duty of directing and coordinating the activities of the ministries concerned with production. On Oct. 7 Clement R. Attlee announced a complete reshuffle of his cabinet. From Aug. 6 onward new import cuts were announced, including a total suspension of imports of food, films and tobacco from the U.S., and new export targets were fixed. Britain was to aim at exporting at the rate of 143% of the average monthly volume of exports in 1938 by the middle of 1948, and at 164% by the end of 1948. The new program was intended to reduce the dollar deficit to £250,000,000 annually by the end of 1948. Raw materials were to be strictly rationed under a scheme which would give a high priority to the export industries. On Aug. 21 the minister of agriculture announced a plan for increasing home agricultural production by £100,000,000 by the year 1951–52.

Trade Discrimination.—In pursuit of the policy of nondiscrimination, laid down by the Anglo-American loan agreement, Britain agreed in August to the terms of the draft charter of the International Trade and Employment organization, and concluded a number of trade agreements embodying the most-favoured-nation clause. It was, however, possible for the government to divert trade, by means of bulk purchases, to the

soft-currency countries, and ministers stressed that this policy was necessary until the dollar crisis was over. Early in September talks were held between commonwealth representatives in London. Dominion governments announced plans for saving dollars and increasing production in order to help Britain, and on Oct. 9 South Africa announced a loan of £80,000,000 in gold.

Fiscal Policy.—The first budget of 1947, introduced by Dalton on April 15, was balanced at £3,451,000,000, and showed a surplus of £269,633,000; but this was composed largely of non-recurring assets (*e.g.*, sales of war material, etc.). The only direct dollar-saving expedient in the budget was an increase of 50% on the tobacco duty. By the autumn it was clear that a more stringent fiscal policy was necessary, and Dalton introduced an emergency budget on Nov. 12. Its chief purpose was to put some check upon inflation, by retaining the existing scale of subsidies of food and clothing, increasing the purchase tax on a large range of articles, raising the price of beer and spirits and doubling the profits tax. In October Sir Stafford Cripps revealed plans by which capital expenditure was to be cut by £200,000,000, so that labour and materials could be diverted into the export industries.

The day after introducing his supplementary budget, Dalton resigned from his position as chancellor of exchequer, and Sir Stafford Cripps, minister for economic affairs, was appointed to succeed him. This unexpected change was announced a few hours after Dalton had apologized to the house of commons for what he described as "a grave indiscretion" on his part. In answer to a question about a newspaper (the *Star*) forecast on the budget, he said that as he was entering the chamber to make his budget speech he replied to questions put to him by the lobby correspondent of that newspaper.

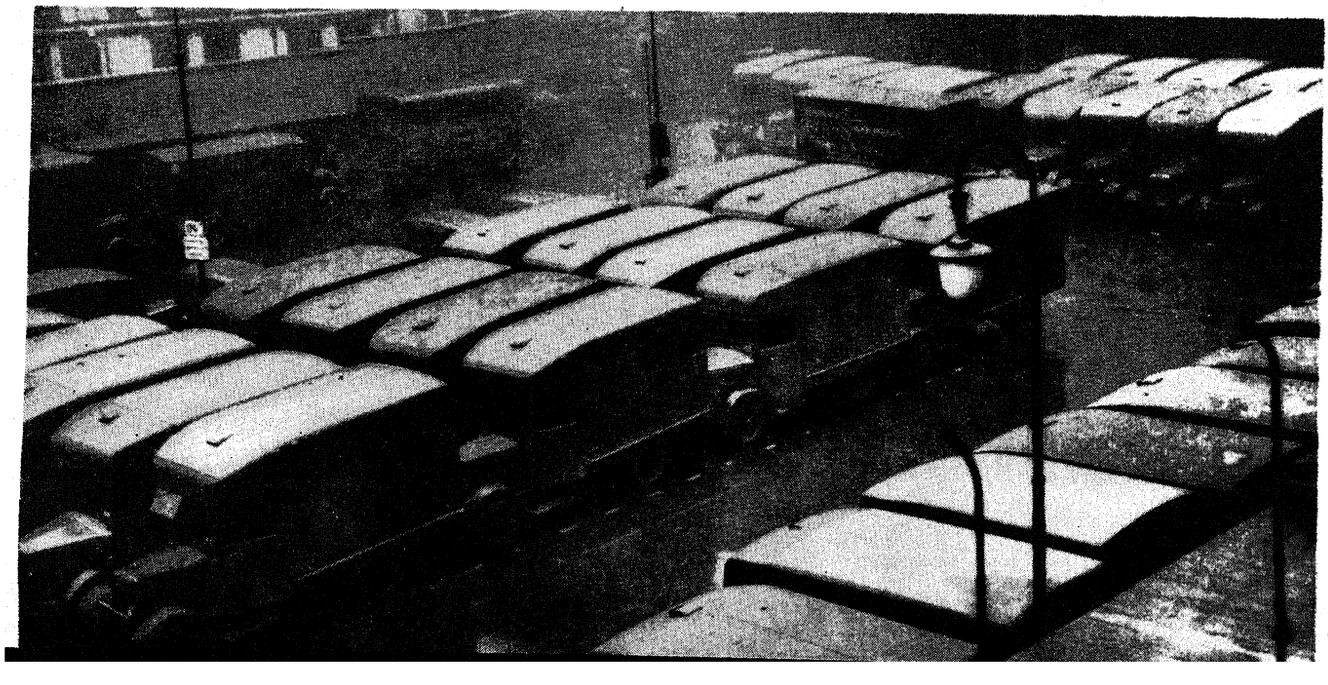
Coal.—On Jan. 1 the mines became national property under the Coal Industry Nationalization act of 1946. A long period of exceptionally cold weather in February and March disorganized the transport of coal, and stocks proved inadequate. On Feb. 10 the government suspended supplies of industrial electricity over a large part of England for about a fortnight. It was estimated that the breakdown of industry involved resulted in a loss of £300,000,000 in national production. On May 5 the five-day week in the mines promised by the government in 1946 came into operation. By the middle of October 159,000,000 long tons of coal had been produced, as compared with 155,000,000 in 1946. This left the nation about a week behind its target of 200,000,000 long tons for 1947. The weekly average figures for output per manshift rose from 1.03 in 1946 to 1.11 in Oct. 1947. The net increase in the number of persons employed in the mines was 23,100. On Oct. 14 the government's coal production target for the six months (Nov. 1, 1947–May 1, 1948) was announced as 101,250,000 tons, as compared with a production of 97,500,000 tons the previous winter. In August a protracted unofficial strike in south Yorkshire pits revealed considerable dissatisfaction with the administration of the Coal board, and eventually ended in the miners' favour. Further disputes broke out in Scotland and south Wales, and the government considered the advantages of a greater measure of decentralization in the control of the mining industry. The target, however, was practically reached, the output for 1947 being 199,700,000 long tons as compared with 191,790,000 in 1946. Throughout the year Emanuel Shinwell, minister of fuel and power, was subjected to intense criticism from the opposition, until he left the cabinet on Oct. 7 to become minister of war.

Housing.—The original housing target of 240,000 was abandoned as a result of the coal crisis; 125,513 houses were completed by Sept. 30 and 267,100 were under construction. The government announced its intention to complete the latter as soon as possible, but could set no new target because of cuts in the import of timber.

Palestine.—On Feb. 14 the London conference between the government and representatives of the Arab states ended in the rejection of Ernest Bevin's proposals for a five-year transitional British administration in Palestine, accompanied by the gradual transfer of power to local and democratically elected assemblies. The Jewish agency had refused to participate in the conference. Faced with this deadlock the government referred the question to the United Nations assembly, which in May appointed a committee of nine to report on the position in Palestine. The committee presented a majority and a minority report to the assembly in September, the former recommending partition and the latter the creation of a federal state in Palestine. The Jewish agency agreed in principle to partition but both proposals were rejected by the Arabs. In a speech to the assembly on Sept. 26 Arthur Creech Jones, the British colonial secretary, announced Britain's intention to terminate the mandate and withdraw from Palestine at the earliest practicable date. Speaking in the house of commons on Dec. 12, Foreign Secretary Bevin stated that May 15, 1948, was the latest date Britain would accept for the surrender of the mandate. (*See* PALESTINE.)

Commonwealth and Empire.—On July 2 Attlee announced

BRITISH TRUCKS, used in carrying mail, are shown lined up at a London post office during the teamsters' strike which halted shipments of food and mail in Jan. 1947



that the dominions office would be renamed the commonwealth relations office. On June 25 the colonial secretary announced the creation of a colonial development corporation with borrowing powers up to £100,000,000. One of its chief objects was to be the encouragement of food production in the colonies. (*See* also BRITISH EMPIRE and separate articles.)

Foreign Affairs.—On March 4 an Anglo-French military alliance was signed at Dunkirk, pledging both countries to assist each other in resisting German aggression and in preventing Germany from preparing for aggressive war. On Jan. 27 Bevin announced the breakdown of the Anglo-Egyptian negotiations for the revision of the 1936 treaty, resulting from the failure of the two governments to agree on the meaning of the clause in the draft treaty which related to the Sudan. In September Egypt denounced the 1936 treaty and appealed to U.N. to secure the immediate withdrawal of British forces. The U.N. Security council failed to reach any decision and the dispute remained on the agenda.

The main preoccupation of British foreign policy during the year was Germany. On April 17 Lord Pakenham was appointed chancellor of the duchy of Lancaster, with responsibility for British administration in Germany, and the control commission was incorporated in the foreign office. On Aug. 29 it was announced that the British and U.S. authorities had decided to increase the level of steel production permitted in western Germany to 10,700,000 metric tons. The level agreed upon for the whole of Germany in 1946 was 5,800,000 tons. The Soviet Union persistently accused the western powers of trying to establish a western German state under their protection. Bevin replied that no decision of this kind would be taken until every chance of reaching agreement on a central authority for Germany was exhausted.

Throughout the year Britain and the U.S. consistently protested against undemocratic conduct by eastern European governments, and in September the U.S.S.R. protested to U.N. against "war-mongering" by Britain, the U.S., Turkey and Greece. In July the British and French governments summoned a European economic conference in Paris to assess Europe's need for U.S. economic aid under the Marshall plan and to discuss plans for economic co-operation. The conference ended in the appointment of a series of technical committees. On Sept. 1 each of the powers represented at the conference informed the U.S. government of its needs. Pre-occupation with the immediate dollar crisis made it impossible to formulate any long-term plans for co-operation.

The winding-up of the Indian empire and the creation of the two dominions of India and Pakistan (*qq.v.*) was attended by massacres in the Punjab so bloody as to obscure the relative ease with which the change had been brought about in the rest of the country.

Parliament.—The following important legislation was passed during the year: a bill for the nationalization of the electricity industry; a bill for the nationalization of transport; a town and country planning bill giving the government and local authorities increased power over the use to which land is put; a national service bill, imposing one year's compulsory national service on all men between the ages of 18 and 26; and a bill enabling a subject to sue the crown. (T. E. U.)

Education.—In 1945–46: primary (up to 11 years): England and Wales: departments maintained and assisted by local authorities 23,991, scholars 3,735,680; Scotland: schools 2,087, scholars 375,757; Northern Ireland: schools 1,649, scholars 186,664; secondary: England and Wales: schools 4,366, scholars 1,268,531; direct grant secondary schools 189, scholars 85,372; Scotland: schools 983, scholars 354,286; Northern Ireland: schools 76, scholars 21,021; universities (1945) students: England 37,443; Wales 2,750; Scotland 10,571; Northern Ireland 2,663.

Finance.—Budget (est. 1947–48): revenue £3,451,000,000; expenditure £3,181,367,000. Actual 1946–47: revenue £3,341,223,358; expenditure £3-927,345,955. Notes in circulation (Sept. 1947) £1,359,000,000. Public debt (internal and external, Dec. 31, 1946) £24,785,000,000. Gold and U.S. dollar reserves (June 1947) £591,000,000. Exchange rate (1947) £1=402.7 U.S. cents.

Trade, Communication, Agriculture.—Roads (March 31, 1938): England and Wales (class I) 20,627 mi., (class II) 13,070 mi.; Scotland (class I) 6,632 mi., (class II) 3,967 mi.; Northern Ireland (class I) 1,273 mi., (class II) 1,933 mi. Railways (Dec. 31, 1938): Great Britain, track open to traffic excluding sidings 20,007 mi.; Northern Ireland, standard gauge 633 mi., narrow gauge 121 mi. Freight (1946) 285,373,900 short tons; passengers (1946) 1,221,600,000. Airways (1946): British Overseas Airways corporation: passengers carried 150,000; freight and mail ton mi. 59,365,788; British South American airways, passengers carried 5,041; freight and mail ton mi. 1,143,501; British European airways: (Aug.–Nov. 1946), passenger mi. flown 18,341,911; aircraft mi. 1,458,404. Shipping (excluding foreign-owned vessels on bareboat charter or requisition): vessels of 1,600 gross tons or more (Sept. 1947) 17,-

Table I.—*Estimated Revenue and Expenditure 1947–48*

	£	£
Revenue		
Income tax	1,073,000,000	
Surtax	80,000,000	
Death duties	155,000,000	
Stamp duties	57,000,000	
Profit tax and excess profits tax	202,000,000	
Other duties	1,000,000	
Total inland revenue		1,568,000,000
Customs	736,960,000	
Excise	634,040,000	
Total customs and excise		1,380,000,000
Motor vehicle duties	50,000,000	
Sale of surplus war stores	95,000,000	
Surplus receipts from certain trading services	55,000,000	
Wireless licences	11,000,000	
Crown lands	1,000,000	
Receipts from sundry loans	21,000,000	
Miscellaneous	270,000,000	
Total other revenue		503,000,000
Total revenue		3,451,000,000
Expenditure		
Interest and management of national debt	525,000,000	
Payment to Northern Ireland exchequer	23,000,000	
Miscellaneous consolidated fund services	8,000,000	
Total		556,000,000
Supply services		
Defense: Army	372,972,000	
Defense: Navy	182,935,000	
Defense: Air	211,482,000	
Defense: Ministry of Supply	100,300,000	
Defense: Total		867,689,000
Pensions: Army	15,028,000	
Pensions: Navy	13,765,000	
Pensions: Air	2,518,000	
Pensions: Total		31,311,000
Civil		
Central government and finance	13,150,000	
Foreign and imperial	61,832,000	
Home department, law and justice	34,386,000	
Education and broadcasting	183,976,000	
Health, housing, town planning and national insurance	387,647,000	
Trade, industry and transport	188,784,000	
Works, stationery, etc.	79,211,000	
Pensions	100,609,000	
Contribution to local revenues	66,412,000	
Supply, food and miscellaneous services	582,019,000	
Total		1,698,026,000
Post office vote (excess over revenue)	2,688,000	
Tax collection, customs and excise and inland revenue (including pensions £1,988,000)	25,653,000	
Total		28,341,000
Total expenditure		3,181,367,000
Surplus of revenue over expenditure		269,633,000
		3,451,000,000

Table II.—*Overseas Trade 1939–47*

(In million £)

	1939	1940	1941	1942	1943	1944	1945	1946	1947
Imports	885.5*	1,152.1*	1,145.1	996.3	1,232.6	1,306.9	1,103.7	1,297.7	1,787.5
Exports	439.5	411.1	365.4	269.4	232.2	265.0	399.2	911.7	1,137.1
Re-exports	46.0	25.9	12.7	4.6	6.1	15.7†	50.3	50.3	59.2

*Including munitions.
†Including relief to liberated countries.

Table III.—*Agricultural Crops and Acreage*

(In thousands)

Crops	1939 Short tons	1939 Acres	1946 Short tons	1946 Acres	1947 Short tons	1947 Acres
Wheat	1,842	1,766	2,061	2,066	1,884	2,162
Barley	999	1,013	2,000	2,211	1,832	2,059
Oats	2,243	2,427	3,025	3,570	2,755	3,309
Rye	11	14	44	55	24	36
Potatoes	5,854	704	11,164	1,423	9,029	1,330
Sugar beets	3,942	345	5,004	437	5,064	395
Turnips and swedes	11,285	712	11,362	758	10,200	725
Mangolds	4,557	216	6,776	305	4,908	272
Hops	15	19	17	21	66	32
Flax	54	23	115	53	—	—

312,000 gross tons; vessels of 500–1,599 gross tons 878,000 gross tons; under construction (100 gross tons and more) 1,904,000 gross tons. Shipping (net tonnage with cargo, first eight months of 1947): entered 1,182,000; cleared 1,261,000. Motor vehicles licensed (May 1947): cars 1,859,000; cycles and tricycles 469,000; buses, coaches and taxis 108,600; tram cars 5,800; vans and lorries 578,000; general haulage tractors 2,800; other goods vehicles 5,300; agricultural vans and trucks 32,800; agricultural tractors and engines 160,200; vehicles exempt from duty 70,400; total 3,292,000. Wireless receiving set licences (May 1947): radios 10,782,000, television 18,850. Telephone (March 1945): exchanges 5,574; call offices 52,169; telephones 3,888,626. Livestock on agricultural holdings (June 1947): cattle 9,559,000; sheep 16,754,000; pigs 1,629,000; poultry 69,900,000.

Table IV.—*Commodity Production*

(In thousand short tons)

Product	1938	1945	1946	1947
Coal	253,518	203,840	212,343	214,805
Iron ore*	13,269	15,900	13,628	12,172
Steel	11,648	13,220	14,792	13,978
Aluminum (virgin)	25.8	35.7	35.2	32.1
Superphosphate	476	1,016	1,077	1,073.8
Wool	55	40.8	43.4	36.2
Sea fisheries	1,172	550	996	1,086.2
Beef and veal	681	617	630	564.9
Mutton and lamb	239	151	166	128.1
Pork, bacon and ham	367	136	128	82.1
Butter	22.7	8.7	12.0	7.6
Cheese	48	25	27.9	18.6
Margarine	233	455	369	393.1

*Average metal content 30%.

(*See* also BUSINESS REVIEW.)

Great Lakes Traffic: *see* CANALS AND INLAND WATERWAYS.

Greece. A kingdom in the southern part of the Balkan peninsula. Area (without Dodecanese): 50,147 sq.mi. (41,328 mainland); pop. (Oct. 1940): 7,344,860; (est. Dec. 31, 1946): 7,150,000. Chief towns (1940 census): Athens (cap. 481,225); Peiraeeus (205,404); Salonika or Thessalonike (226,147); Patras (79,570); Volo (54,919). Languages (1940 census): Greek 7,065,716; Turkish 133,671; Macedonian Slav 99,946. Religions (1940 census): Greek Orthodox 7,090,192; Roman Catholic 29,136; Moslem 134,722. King: Paul I; prime ministers: Demetrios Maximos (Jan. 24–Aug. 29, 1947); Constantin Tsaldaris (Aug. 30–Sept. 7, 1947); Themistocles Sophoulis.

History.—The outstanding events during 1947 were the enunciation in the United States of the Truman doctrine and the publication of the report of the United Nations Balkans Investigation commission. The consequence of these two events was the transfer from Great Britain to the U.S. of the main burden of financial aid to Greece. Great Britain continued to maintain in Greece a military mission for the training of the Greek army and a police mission for the training of the police and gendarmery. The U.S. mission for aid to Greece advised the Greek government on all economic matters and supervised the spending of the sums voted by the U.S. congress for general relief, reconstruction and the equipment of the Greek forces. A military mission headed by Maj. Gen. William C. Livesay cooperated with the Greek army command in an advisory capacity.

The U.N. Balkans Investigation commission, established by the resolution of the Security council Dec. 19, 1946, assembled in Athens on Jan. 29, 1947, and subsequently visited various places and examined a large number of witnesses in Greece, Yugoslavia, Bulgaria and Albania, proceeding on April 7 to Geneva, Switzerland, where it drafted its final report. This report, which was submitted to the Security council on June 25, was approved by eight countries (Australia, Belgium, Brazil, China, Colombia, Great Britain, Syria and the U.S.) but rejected by the U.S.S.R. and Poland. France, while accepting the facts as stated in the majority report, did not subscribe to the conclusions on the ground that the drawing of conclusions was a matter for the Security council. The findings of the majority on the commission were: (1) that Yugoslavia, and to a lesser extent Albania and Bulgaria, supported the guerrilla warfare in Greece; (2) that Yugoslavia had established a camp at Bulkes where Greeks were subjected to political indoctrination aiming at overthrow of the Greek government, and were sent back to Greece to join the rebels after receiving political and military training; (3) that Albania had established a camp at Rubig where political and military training for Greek refugees was provided; (4) that Bulgaria facilitated the crossing of frontiers by Greek guerrillas, provided hospital facilities for them and supplied them with arms; (5) that Yugoslavia and Bulgaria openly supported a Macedonian separatist movement (the report qualified this finding with the comment that Greek persecution of Macedonian Slavs provided "a fertile breeding ground" for such a movement). The report blamed both sides for numerous minor violations of frontiers and made a number of recommendations, including the establishment of a permanent commission in the troubled area.

In the discussion of the report by the Security council, the U.S. resolution supporting the implementation of the commission's recommendations was finally put to vote on July 29. Nine countries supported it, with Poland and Russia voting against it. The U.S. reaction to this use of the veto by the U.S.S.R. was the inclusion of the Greek question on the agenda of the U.N. general assembly, which on Oct. 21 adopted (by a vote of 40 to 6, with 10 abstentions) a U.S. resolution calling upon Albania, Bulgaria and Yugoslavia on the one hand and Greece on the other to: (1) establish normal diplomatic and good-neighbourly relations among themselves; (2) establish frontier conventions for the control of frontiers and the pacific settlement of frontier disputes; (3) co-operate in the settlement of problems arising from the presence of refugees in the four states, and (4) study the practicability of concluding agreements for the voluntary transfer of minorities. This resolution also provided for the establishment of a commission with headquarters in Salonika to observe compliance by the four governments concerned with the recommendations, and to assist these governments in the implementation of such recommendations. The commission held its first meeting in Athens on Nov. 25.

In the economic sphere, active U.S. interest in Greek affairs was initiated by the dispatch to Greece in January of a mission headed by Paul Porter to examine economic conditions generally, and to consider what measures were necessary for reconstruction of the country. On March 3, the Greek government sent to the U.S. government an urgent appeal for financial aid and for equipment for the armed forces. On March 12, in a speech to a joint session of congress, President Truman announced that "Greece must have assistance if she is to become a self-supporting and self-respecting democracy. The United States must supply that assistance." For this reason, President Truman asked congress to grant $350,000,000, and to give permission for U.S. military and civil personnel to go to Greece. President Truman's proposal was approved by congress on May 22; a U.S. mission headed by Dwight P. Griswold arrived in Athens on July 14, 1947, and took up the task of the administration of this aid. A number of agreements were subsequently signed between the mission and the Greek government regulating execution of the aid program. On Nov. 17 it was announced that a joint U.S.-Greek general staff would be formed to direct military operations against the rebels and that U.S. officers would be attached in an advisory capacity to Greek operational units.

The political situation in Greece went through a number of significant developments during the year. On Jan. 24, the exclusively Populist government of Constantin Tsaldaris gave way to a broad-based coalition under the premiership of Demetrios Maximos in which all the other parties represented in the chamber of deputies were included with the exception of the Liberal



Above: TROOPS building military emplacements at a Greek army outpost established near the Bulgarian border during the summer of 1947



Right: CAPTURED GUERRILLAS, under surveillance by troops of the regular Greek army, being transported to Kozànē in western Macedonia, after large-scale raids at Grevena in Aug. 1947

Below, left: ATHENIAN WOMEN waiting outside Parliament house for latest casualty lists from the fighting areas of northern Greece in July 1947

Below, right: GREEK RESIDENTS of Levkohori, near the Bulgarian border, amid the rubble of the eighth raid on their village by guerrilla bands in 1947





party, which remained in opposition. This opposition broke up on Aug. 29 as the result of dissensions between the co-operating parties, and was succeeded for a brief period by another one-party government under Tsaldaris. The Liberal leader, Themistocles Sophoulis, was eventually prevailed upon by the British and U.S. representatives in Athens to agree to participate in the government, and on Sept. 7 a Liberal-Populist coalition government was formed under the premiership of Sophoulis, with Tsaldaris as deputy premier and minister of foreign affairs.

On Sept. 14, this government enacted a new amnesty act by which any rebel surrendering to the authorities within 30 days would not be prosecuted for offenses committed by him in so far as they related to rebellion or sedition, and would be immediately set free. The response to this amnesty, which was subsequently extended for a further month to Nov. 14, was not encouraging—the total number of persons who gave themselves up amounted to 9,066—and on the expiry of the amnesty the government announced that vigorous military measures would be taken to suppress the rebellion.

Despite the improved political situation, the internal state of Greece deteriorated considerably during the year from the point of view of security and public order. Guerrilla activities increased, and several large-scale attacks were launched by armed bands on many frontier towns. The most serious of these attacks was made on July 13 by a band of about 1,500 rebels which entered Greek territory from Albania and attacked Konitsa. The attack was eventually driven back across the frontier by Greek armed forces sent to that area. At the same time the Athens police found evidence of a communist plot to create disturbances in the capital, and a large number of arrests were made, about 15,000 people being deported to the Aegean Islands as a preventative measure under the emergency powers accorded to the government by parliament. In October an emergency press law was passed giving the judicial authorities power to order the suspension of any newspaper inciting to rebellion; the communist newspapers *Rizospastis* and *Eleftheri Ellada* were suspended.

On Dec. 24 a broadcast proclamation (coming, according to the Greek government, from Belgrade) announced the formation of the "provisional democratic government of Free Greece" with Gen. Markos Vafeiades as prime minister. The aim of the rebel government was to achieve a "speedy liberation of the country from foreign imperialists and their lackeys." All the ministers of the rebel government were known members of the Greek Communist party. On Dec. 26 the Greek government outlawed the Communist party and all its organizations; about 500 communists were arrested in the Athens area.

On April 1 King George II died suddenly of a heart attack and was succeeded by his brother Paul. The smoothness with which the change of reign was effected showed that the question of the monarchy was generally regarded as having been finally settled.

In October the peace treaty with Italy was ratified, with effect as from Oct. 28. The ratification marked the formal incorporation of the Dodecanese Islands (*q.v.*) into the kingdom of Greece. The peace treaty with Bulgaria was also ratified by Greece in October. (A. A. P.)

Education.—(1938) Primary schools 8,339, scholars 985,018; high schools 407, scholars 92,687; universities 2, students 7,230; institute of technology, students 521.

Banking and Finance.—Budget (est. April 1, 1946–March 31, 1947): revenue Dr.1,401,783,000,000; expenditure Dr.1,576,714,000,000; (est. April 1, 1947–June 30, 1948, 15 months) revenue Dr.2,753,000,000,000; expenditure Dr.2,960,000,000,000. Bank note circulation rose from Dr.364,000,000,000 (April 1946) to Dr.779,000,000,000 (April 1947). Exchange rate (official): $1 = 5,000 drachmas.

Trade and Communications.—(1946) Imports Dr.435,444,000,000; exports Dr.201,174,000,000. Total amount of United Nations Relief and Rehabilitation administration supplies (July 1, 1945–June 30, 1947) $350,500,000 ($46.7 per head of population). Railways open to traffic (Dec. 31, 1946) 1,388 mi. Motor vehicles licensed (trucks, Dec. 31, 1946) 10,450. Gross tonnage of shipping (Dec. 1946) 556,601. Greece had 43,000 telephones, 8,694 mi. of telegraph lines and 45,000 radio receiving sets in 1946.

Agriculture.—Production in thousands of short tons (1946): wheat 848; rye 55; barley 176; oats 110; maslin 44; maize 176; rice 3.3; pulses 57; potatoes 168; sesame seed 3.3; cotton 44; tobacco 44; olive oil 90; currants and raisins 88. Livestock pop. (Dec. 1946): horses 210,000; mules 115,000; cattle 600,000; sheep 6,000,000; goats 3,130,000; pigs 400,000; donkeys 325,000; water buffalo 56,000; poultry 7,500,000.

Green, William (1873–), U.S. labour leader, was born March 3, in Coshocton, O. He spent much of his youth as a miner, and at the age of 27 was a subdistrict president of the United Mine Workers of America. He was elected president of the American Federation of Labor, 1924. Under Green's administration, the A.F. of L. remained predominantly a crafts union. When the Committee for Industrial Organization (later known as the Congress of Industrial Organizations), a group of ten unions affiliated with the A.F. of L., opened its campaign to establish industrial unions, Green refused to sanction the operation. This led the C.I.O., then under the guidance of John L. Lewis, to break away from the parent body in 1937.

During World War II, Green abided by the promise he had made to President Franklin D. Roosevelt to observe labour peace for the duration. After the war, he took violent exception to the "monstrous" Case strike-control bill in 1946 and to the Taft-Hartley law in 1947. He called the latter law a "tragic mistake" (July 9) and predicted that labour would hand the Republicans their "worst defeat" in the 1948 presidential elections if Robert A. Taft were the party's candidate. On Sept. 1, 1947, Green urged all U.S. workingmen to defeat in the 1948 federal elections all candidates with an antilabour record; to implement this program, the A.F. of L. organized (Dec. 5) Labor's Educational and Political League, a group similar to C.I.O.'s Political Action committee, and supported by voluntary contributions. On Oct. 13, Green rejected C.I.O. President Philip Murray's bid for joint political action, asserting that agreement on "organic unity" must come first.

Greenland. The world's largest island (839,782 sq.mi., about 705,000 sq.mi. covered by an ice cap), in the North Atlantic ocean, northwest of Iceland. A Danish possession, it came under temporary United States protection in 1941. Capital, Godthaab. A population of 21,066 (Dec. 31, 1944) is scattered in small settlements on the west coast, with about 1,000 on the east coast; 492 in all are listed as Europeans (largely Danes) and the rest are native Greenlanders. Seats of the governors are Godthaab in the south and Godhavn in the north.

History.—The year 1947 was filled with rumours and denials and suspicions regarding Greenland. It was rumoured that the United States wanted to buy the island, and that the Danish request for discussion with Norway of their 1924 Greenland treaty was related to the question of sale to the United States; Copenhagen denied that there had been any such discussion, and Washington denied it. It was rumoured that uranium had been found in Greenland, and the rumour was given some significance because it was mentioned by Comm. Donald B. MacMillan, veteran Greenland explorer who had led his 25th trip to the far north during the summer. It was rumoured that the United States was establishing a new defense base in Greenland; the state department denied it.

Only a few facts were clear. The basic fact was that the arctic was of primary strategic importance in the new air age and in a time of Russian-U.S. tension. The communists both in Russia and in Denmark were forcing discussion of Greenland, and of the United States-Danish treaty of 1941 by which the

United States had assumed certain responsibilities in the island, gained certain rights and protected Danish sovereignty there during World War II. In May a request was made by Denmark to the United States for talks about a revision of this treaty. In his reply Secy. of State George C. Marshall renewed a pledge of willingness to consider revision, and stated specifically: "Greenland remains of the greatest importance as a link in the defensive system of the United States and of the Western Hemisphere." Experiments of an undisclosed nature were conducted on the island by the United States during the summer. In mid-October the Danish foreign minister, Gustav Rasmussen, arrived in the U.S. to discuss withdrawal of U.S. troops. On Nov. 17 Eske Brun, of the Greenland office in Copenhagen, announced that U.S. soldiers had evacuated their air base at Angmassalik, Greenland.

Trade and Finance.—Greenland's most important export is cryolite, which is used in the manufacture of aluminum; the world's only large commercial mine is in southern Greenland (62,231 short tons exported in 1939). There are 16,000 sheep and a meat factory at Julianehaab, and during 1947 about 350,000 kr. was spent to build a shrimp plant there; also 120,000 kr. to improve salt fishing. One wooden ship was in service between Greenland and Denmark, and a steel ship was being built, to be ready in 1949. The Greenland administration was allowed 5,000,000 kr. in the tentative Danish budget for 1948–49. (1 krone = 20.877 U.S. cents in 1947.) (F. D. S.)

Grenada: *see* WINDWARD ISLANDS.

Grindstones: *see* ABRASIVES.

Griswold, Dwight Palmer (1893–), U.S. government official and politician, was born on Nov. 27 in Harrison, Neb. After having been graduated from the University of Nebraska in 1914, he worked in his father's bank. Griswold was an army captain during World War I, serving in the Mexican border patrol. After the war, he returned to banking until 1922 when he became editor and publisher of the *Gordon Journal*, a weekly, in Gordon, Neb. In 1940, running on the Republican ticket, he was elected governor of Nebraska. He was twice re-elected, but lost his party's nomination for a fourth term in 1946. He then went to Germany as civilian director of internal affairs and communications in the U.S. zone.

On June 5, 1947, Pres. Harry S. Truman named Griswold to head the Greek aid program. Arriving in Greece on July 14, he set to work immediately to patch up the Greek economy. But this task was complicated by political dissension in the country. However, after the formation on Sept. 7 of a Liberal-Populist coalition government headed by the aged Themistocles Sophoulis, Griswold stepped up the flow of supplies to the Greek army and also gave strong support to the Sophoulis policy of conciliation and amnesty for guerrillas.

However, Griswold was not entirely satisfied with the Greek army's conduct of the war against the guerrillas as was evident in his statement of Nov. 7 that the regular army had received sufficient arms and matériel to end the rebellion.

Gromyko, Andrei A. (1909–), soviet diplomat, was born July 5 in the village of Stayre Gromyki in the Gomel region of the U.S.S.R. He graduated from the Minsk Institute of Agricultural Economics in 1934, and in 1939 he became counsellor in the U.S.S.R. embassy in Washington. Gromyko succeeded Maxim Litvinov in Aug. 1943 as soviet ambassador to the United States and also to Cuba. He headed the U.S.S.R. delegation at the Dumbarton Oaks conference in 1944, attended the San Francisco conference in 1945 and was named chief soviet delegate to the United Nations organization.

One of the U.N.'s "stellar" attractions, by virtue of his steadfast role as the "lone dissenter," Gromyko staged his celebrated walkout (March 27, 1946) from the council sessions during the Iranian debate. On April 10, he was made permanent soviet delegate to the security council, and on Dec. 29 it was disclosed that he had been promoted to deputy foreign minister.

In 1947, Gromyko took issue with the U.S. plan for international control of atomic energy, contending (March 5) that it was directed against the independence of other nations. On May 19, he said the U.S. monopoly in atomic energy development was an "illusion" and predicted that other nations in time might also achieve dominance in production of atomic weapons.

He was equally vehement in his denunciations of attempts made by the western powers to limit use of the veto in the U.N. security council. He also opposed the so-called Truman doctrine, warning Sept. 27 that U.S. policy in the Balkans might lead to a collapse of the United Nations, and the U.S. "Little Assembly" plan, declaring on Oct. 17 that "the word compromise is not in the Soviet glossary on this issue."

Guadeloupe: *see* FRENCH OVERSEAS TERRITORIES.

Guam. Largest island of the Marianas group in the Pacific, Guam is in 13° 26′ N. lat. and 144° 39′ E. long. and is about 5,100 mi. from San Francisco and 1,350 mi. from Yokohama. Area, 206 sq.mi.; pop. (1947), 24,139; military and civil service personnel totalled 36,388. Capital, Agaña (10,004).

Guam is administered by the U.S. navy. The governor is a naval officer appointed by the president of the United States. The congress of Guam, a popularly elected two-house legislature, has advisory powers only. Natives serve as associate justices of the court of appeals and as commissioners of municipalities. Guam has unorganized territorial status, and the native Chamorros are nationals of the United States. Rear Adm. Charles A. Pownall was governor in 1947. In May 1947 a civilian committee appointed by the navy department recommended citizenship for the natives and advised that consideration be given toward establishment of a civilian agency for administration of Guam and other Pacific possessions.

Industry and Trade.—Copra production, formerly the main industry, had not recovered in 1947 from heavy damages suffered during World War II. Fruits, vegetables and grains are grown for home consumption. All manufactured products are imported from the United States. Of the natives 25% were employees of the U.S. government in 1947. The 587 small business enterprises owned by Guamanians had gross sales of $938,600 in 1946.

Finance and Education.—Government receipts from May 31 through Dec. 31, 1946, amounted to $178,261.87, while government pay rolls for the last six months of 1946 aggregated $1,117,026.40.

Of the children of school age 95% (est.) were enrolled in school. There were 19 elementary schools, 1 junior high school and 1 senior high school. A small number of natives are sent to the United States at the expense of the naval government for higher education.

Little progress was made in the reconstruction of towns and villages damaged by the war. Plans called for improved housing and modern sanitation. Claims for war damages totalled $7,859,770.50.

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Guatemala. A Central American republic bounded by Mexico, British Honduras, Honduras and El Salvador. Area: 45,452 sq.mi.; pop. (1945 est.), 3,546,624, of whom more than half were Indians, the remainder largely of mixed blood. Capital, Guatemala City (1946 est. pop.), 225,000. Other urban centres (1940 census) are: Antigua Guatemala (12,601), Chiquimula (10,868), Comalapa (10,461), Mazatenango (14,227), Puerto Barrios (15,784), Quezaltenango (33,538) and Zacapa (14,443). Language: Spanish; religion: predominantly Roman Catholic. President in 1947: Juan José Arévalo.

History.—The Arévalo administration weathered a stormy year in 1947 by resorting to drastic political measures. The cabinet was reorganized twice, in January and in June, because of

ministerial resignations; a public demonstration in March protested the new electoral law (under which the administration secured majorities in the January congressional elections) and an attempt to overthrow the government in September was discovered and immediately crushed. All opposition was effectively throttled as the result of new legislation restricting political activities considered by the government as dangerous to public security.

The ministry of national defense, on March 4, cancelled all licences for carrying firearms. The alien act was modified on March 16 to give the president increased authority to deport foreign agitators; and a new law, effective April 30, imposed stringent censorship on public expression through the press and radio. The death penalty, affecting persons attempting to overturn the government, was abolished by congress on Sept. 13. On Sept. 17, however, constitutional liberties affecting freedom of the press and assembly were suspended by presidential decree when an alleged plot against the existing administration was discovered. Two soldiers and a civilian were arrested. Charges that the Communist party was behind the attempt were denied in October by President Arévalo.

In its foreign affairs Guatemala accepted a British proposal to submit the dispute over British Honduras (Belize) to the jurisdiction of the International court, but on condition that the case be judged on its equity rather than on its purely legal merits. The new government in Nicaragua was denied recognition in June, and in July diplomatic relations were suspended with the Trujillo administration of the Dominican Republic. Ratification of an agreement with El Salvador for the construction of an international bridge over the Paz river (signed May 25, 1946) was published on March 18. Fifteen hundred Salvadorean families were invited by President Arévalo to settle on and develop assigned farm lands in Guatemala.

Education.—The government's program of expanding educational facilities (2,784 schools enrolled 152,274 students in 1943) continued in 1947 with the extension of compulsory military training from one to two years. The first year was being used mainly in teaching draftees to read, write and speak Spanish. The University of San Carlos had an enrolment of 1,620 students under 250 professors in 1945. For public education during the fiscal year 1946–47, the national budget allocated $3,609,821. There were 39 motion picture theatres in the country with a total seating capacity of 16,500 as of Jan. 1, 1947.

Finance.—The monetary unit is the quetzal, maintained at par with the U.S. dollar. The budget for 1946–47 estimated revenues at $28,125,174, including a treasury surplus of $625,000 from the previous year and a reserve of $1,000,000 in U.S. war bonds. As of Jan. 1, 1947, the public debt was $2,186,735, while the margin of income over expenditures during the first three months of 1947 was $2,469,111.

Trade and Resources.—Exports for 1946 totalled $36,678,000 ($30,436,000 in 1945), and imports were valued at $36,201,000 ($23,349,000 in 1945). About three-quarters of the trade was with the United States. The leading shipments in 1946 were: coffee (829,272 bags of 132 lb.), bananas (10,649,313 stems), chicle (3,296,000 lb.), cabinet woods, chiefly mahogany (2,250,000 bd.ft.), ordinary woods, chiefly pine (3,650,000 bd.ft.), cinchona bark (495 tons), essential oils, chiefly citronella and lemon grass, (327,431 lb.). Livestock in 1945 included 640,063 cattle, 365,912 sheep and 40,317 goats. Coffee production for the 1947–48 crop year was estimated at 1,080,000 bags. Permission for petroleum exploration in more than 1,200,000 ac. in Petén province was granted to a private company in July 1947.

Communications.—In 1945 railroad lines, mostly public, totalled 723 mi., and of the 4,800 mi. of highways, 2,400 mi. were improved. There were 2,373 automobiles, 322 buses and 2,016 trucks. In 1947 air transportation continued to expand, and the government laid plans for river traffic development. Rail transportation between Puerto Barrios and the interior bogged down, however, causing severe congestion in that port during the early months. There were 4,079 mi. of telegraph lines, 2,327 telephones and 8 government radio broadcasting stations serving about 5,000 receiving sets. (*See* also BRITISH HONDURAS.)

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Guggenheim Memorial Foundation: *see* SOCIETIES AND ASSOCIATIONS.

Guiana, British: *see* BRITISH GUIANA.

Guiana, Dutch: *see* SURINAM.

Guiana, French: *see* FRENCH OVERSEAS TERRITORIES.

Guinea: *see* FRENCH OVERSEAS TERRITORIES; PORTUGUESE COLONIAL EMPIRE; SPANISH COLONIAL EMPIRE.

Gustavus V (1858–), king of Sweden, of whom a biographical account will be found in the *Encyclopædia Britannica,* ascended the throne in 1907 and long before 1947 had attained the rank of Europe's oldest living monarch. In June he celebrated his 89th birthday and in December, with much ceremony, the 40th anniversary of his reign.

Gustavus was the grand old king, still interested in sport as well as in statecraft (he hooked two 15-lb. pike on his birthday). On Jan. 26 the king's eldest grandson, Prince Gustavus Adolphus, 40, was killed in an aeroplane crash in Copenhagen, Denmark. This prince's father, Crown Prince Gustavus Adolphus, is next in line for the throne, and after him, the dead prince's one-year-old son, Prince Carl Gustav (there are four older sisters). The king's youngest brother, artist Prince Eugen (82) died on Aug. 18 in Stockholm, Sweden—which left three brothers: Carl (86), Oscar Bernadotte (88) and the king.

(F. D. S.)

Gymnastics. Already a veteran of two previous Olympic games, Frank Cumiskey of Union City, N.J., advanced toward a third berth by winning the all-around championship in the A.A.U. gymnastic tournament. Cumiskey's dominance led the Swiss Gymnastic society of Union City to its 17th national team title with 56.5 points. The Acrotheater team from the University of Chicago finished second with 23. The nationals, held at Dallas, Tex., attracted 175 men and 41 women entries and brought a new record of 3.4 seconds in the 20-foot rope climb by Garvin E. Smith of Los Angeles City college.

Helen Schifano of the Elizabeth, N.J., Turners dethroned Philadelphia's Clara Schroth as the women's champion. She scored 230.6 points to Miss Schroth's 225. (M. P. W.)

Gynaecology and Obstetrics. The use of caudal, saddle block and nerve block analgesias in obstetrics continued to have their advocates during 1947, but their popularity seemed to be waning. Demerol as an obstetric analgesic and mild amnesic agent for the first and second stages of labour continued to find new followers.

The routine use of prenatal vitamin K to counteract the bleeding tendency of the newborn was dealt a severe blow by Edith L. Potter, who presented the seemingly justified conclusion that no decrease in infant or foetal mortality could be expected to result from the routine administration of vitamin K to all women during labour.

Electrotherapy for various gynaecological and obstetrical conditions such as control of labour, treatment of cervical stenosis, restoration of postpartum muscular tone, development of infantile uteri, etc., continued to have many advocates in foreign literature, especially French. Few others, however, had found convincing reason to adopt these measures.

The toxaemias of late pregnancy, although occurring much less frequently in most clinics, were often discussed during the year. The most logical explanation for the decreased incidence of late pregnancy toxaemias was better prenatal care; not only the better medical management of pregnancies but also the importance of proper diet was more generally understood by the public. With reference to the aetiology of late toxaemias, the weight of evidence now pointed to a dietary deficiency, not only during pregnancy but also during the years preceding pregnancy. High protein and high vitamin (especially the B complex) diet apparently plays a role in preventing and treating late toxaemias. This undoubtedly was not the last word but seemed established as one of the major factors in toxaemias.

General use of the antibiotics caused a further decrease in maternal mortality caused by infection. In spite of plasma and the availability of blood for transfusion, haemorrhage was the leading cause of maternal mortality in most statistics presented on this subject during 1947.

Meigs' syndrome, originally thought to be characteristic of fibroma of the ovary, was found also in association with other solid ovarian tumours. Cases were described with carcinoma (without pleural metastasis), granulosa cell tumour, thecoma and Brenner tumour. There was still no clear-cut knowledge of the mechanism involved, although there had been much conjecture and experimental work on the problem.

The efficacy of penicillin in the treatment of syphilis in the pregnant woman rendered the use of the arsenicals and heavy metals obsolete. Mary S. Goodwin and J. E. Moore and others pointed out that the incidence of abortion in women under penicillin therapy was no greater than in clinic patients generally. The concentrated seven to ten day treatment program, in addition to a hitherto unsurpassed efficacy as agreed by syphiologists and pediatricians alike, had immeasurably greater value from a social and practical standpoint than did the old prolonged therapy.

M. E. Davis and Edith L. Potter demonstrated intrauterine respiration by injecting thorotrast into the amniotic fluid and demonstrating it in the lungs of the foetus as found on X-ray. This supported the classic work of Franklin F. Snyder and Morris Rosenfeld on foetal respiratory movements.

Herbert Thoms, one of the leading exponents of external pelvimetry, had discarded his previous opinions and decided that even outlet digital measurements were unreliable. This, with his previous opinion that inlet measurements were often misleading, suggested that no external digital measurement was of much value. He suggested a general pelvic survey including careful palpation and two flat X-ray films, one showing the birth canal from above, downward from which certain inlet and midplane measurements may be determined, and a second film taken laterally, from which certain inlet, midplane and outlet measurements may be obtained.

Major defects in congenitally anomalous babies born of mothers who suffered rubella (German measles) in the first three months of pregnancy were associated with only one constant locus of anomaly, a hypoplastic adrenal cortex. This suggested but did not prove that the deficiency of adrenal cortex is responsible for all developmental anomalies secondary to maternal rubella. Other filterable virus diseases were being incriminated as a cause for congenital anomalies, but none with such frequency as rubella.

D. N. Danforth pointed out that the cervix is predominantly fibrous in nature, being composed of only about 15% smooth muscle, but the uterine tissue above the cervix is predominantly smooth muscle. He believed that it is this fibrous nature of the cervix which explains why it is refractory to stimuli which cause such tremendous growth and contractile response elsewhere in the same uterus.

Increased knowledge of the Rh factor and of the sensitivity of negative mothers to the antigen suggested to several workers that it might be possible to desensitize the mothers to this antigen. Experimental work in progress was not reported, but high hopes were held for favourable results.

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(P. T.)

Gypsum. Gypsum production is widely scattered in small amounts among approximately 50 different countries, but the United States produces nearly half the total and Great Britain, Canada and France account for more than another third. World production is estimated to have been 11,400,000 short tons in 1946, about the same as in 1937, as compared with a peak of 14,300,000 tons in 1929 and a war period low of 7,700,000 tons in 1945.

United States.—The basic data of the gypsum industry of the United States are shown in the following table in thousands of short tons.

Data of Gypsum Industry in the U.S., 1940–46
(Thousands of short tons)

	1940	1941	1942	1943	1944	1945	1946
Mine output	3,669	4,789	4,698	3,878	3,761	3,812	5,629
Imports	1,405	1,348	394	231	342	509	1,457
Supply	5,104	6,136	5,092	4,109	4,104	4,320	7,087
Sales	4,632	5,760	4,953	4,186	3,838	3,987	6,381
Crude	929	1,321	1,458	1,234	1,056	1,148	1,641
Industrial	123	152	145	164	200	158	207
Building	3,580	4,287	3,360	2,788	2,582	2,681	4,532

Demand for gypsum was sharply increased in 1946 by the revival of building activity and the domestic production jumped to 18% above the war construction peak and failed to equal the 1925 record high by only a few thousand tons. The 1946 output advanced 48% over 1945 and 50% over the low of 1944. Imports expanded even more sharply, almost doubling in 1946, and exceeding the former 1929 high by 41%. The combined domestic output and imports gave an available supply which topped all previous records.

The building trades took 69% more gypsum in 1946 than in 1945 while sales of crude gypsum increased 43% and industrial gypsum 31%.

Canada.—Gypsum production more than doubled in 1946, increasing from 839,717 short tons in 1945 to 1,833,717 tons in 1946.

The rate of production continued to increase in 1947, the total through August being 1,480,973 tons. (G. A. Ro.)

Haakon VII (1872–), king of Norway, of whom a biographical account will be found in the *Encyclopædia Britannica*, was born Prince Charles of Denmark, second son of Frederick VIII (and brother of Christian X). Upon the separation of Norway from Sweden he was elected king by the Norwegian storting (Nov. 18, 1905) and took the old Norse name of Haakon, and that of Olav for his son, the crown prince. Haakon married Maud (1869–1938), youngest daughter of King Edward VII of England.

As usual, King Haakon held himself in the background during 1947, but he worked diligently at the problems of reconstruction of Norway and was a steadfast rallying point for citizens of all parties. He received a royal visit in October from his nephew Frederick IX of Denmark and Queen Ingrid. In November, he journeyed to London for the marriage of Princess Elizabeth. Like many a simple citizen, he had his salary raised to help meet rising costs of living—from 700,000 kroner to 1,000,000 kroner (about $220,000). Haakon's 75th birthday (Aug. 3) was celebrated both in Norway and by Norwegians around the world; especially impressive was the festival arranged by the storting at famous Eidsvold in September. A popular contribution was taken to buy the king a yacht—but only after the king had indicated he would give the money to charity and the people demanded that this gift should be really for Haakon himself.

(*See* also NORWAY.)

(F. D. S.)

Haiti. A West Indian republic occupying the western third of the island of Hispaniola or Haiti. Area, 10,748 sq.mi.; pop. (1941 est.) 2,719,000. Racial distribution is estimated to be 95% Negro and almost all of the remainder mulatto. An estimated 1,600 foreigners, approximately 575 of whom were North Americans, lived in the country in 1946. The capital is Port-au-Prince (pop. est., 125,000); other cities are Gonaïves (20,000), Les Cayes (15,000), Cap Haïtien (15,000), Jacmel (10,000), St. Marc (10,000), and Jeremie (8,000); only about 10% of the total population is urban. French is the official language, but a patois called creole is widely spoken. The official religion is Roman Catholicism but many persons in remote areas practise the folk religion of voodoo. President in 1947: Dumarsais Estime, inaugurated Aug. 16, 1946.

History.—The year 1947 began almost simultaneously with the taking effect of Haiti's 11th constitution, which went into operation Dec. 23, 1946. The new law provided for a unitary government subdivided into five territorial departments. The legislative branch is bicameral, including a chamber of deputies of 37 members elected on a population basis, and a senate of 21 members chosen by departments; deputies and senators serve, respectively, for four and six years. The executive branch is headed by a president, elected by the chamber of deputies and the senate joined in national assembly, serving a six-year term and not eligible for immediate re-election. He is assisted by secretaries of state, who must be at least five in number.

The United States and Haiti on Jan. 3, 1947, agreed to extend to June 30, 1948, the program of aid to agriculture begun in 1944. Under terms of the extended agreement, the United States would contribute $50,000 and technical and administrative assistance to the extent of $175,000 and the Haitian government would contribute $175,000. President Estime on April 12 swore in a new cabinet. Some suggestions of political discontent were heard during 1947 but the administration remained in control.

Education.—Literacy is estimated at only 8% of those more than ten years of age. Educational statistics are of doubtful accuracy. Figures for 1946 indicated about 850 primary schools with approximately 85,000 pupils, 35 intermediate schools with about 6,000 enrolled and 6 schools of higher education, though these latter were not organized as a university.

Finance.—The monetary unit is the gourde, fixed by law at 20 cents U.S. currency. Government receipts in the first ten months of the fiscal year beginning Oct. 1, 1946, were 54,437,854 gourdes; expenditures in the same period were 48,172,294 gourdes. The unobligated treasury balance July 31, 1947, was 9,319,473 gourdes compared with 5,250,306 gourdes one year earlier. The government early in the year announced a new sugar export tax amounting to 17.4% ad valorem; the previous tax had averaged 13.2%. President Estime on May 19 announced an internal loan designed to pay off United States bondholders; this was followed by passage of a "financial liberation law," published in *Le Moniteur* July 14, to implement the government's policy. It authorized the floating of an internal loan of $10,000,000 in order to retire all outstanding A and C bonds of United States loans of 1922–23, the balance to be used for a program of economic rehabilitation. It was assumed that completion of the retirement would terminate the executive agreement of Sept. 13, 1940, with the United States. The above-mentioned obligations, as of June 30, 1947, amounted to 26,924,051 gourdes. The only remaining regular foreign debt was a public works contract of 1938, with a 1947 balance of 13,350,000 gourdes; in addition Haiti had a contingent obligation in connection with an Export-Import bank loan of $5,000,000 in 1941 to S.H.A.D.A. (Société Haitiano-Américaine de Developpement Agricole) for agricultural development.

Trade.—Exports from Oct. 1, 1946, to June 30, 1947, were valued at 120,136,000 gourdes compared with 114,117,000 for the entire fiscal year 1945–46. Imports during the same nine months were valued at 100,826,000 gourdes compared with 79,608,000 for the whole year 1945–46.

Agriculture.—Sugar production in 1946–47 was 49,284 short tons, of which 20,519 tons were allocated for domestic consumption; the balance was earmarked for sale to Great Britain. Production of molasses in 1946–47 was 2,510,958 gal., of which all but about 150,000 gal. was designed to be sold to the United States. Production of lint cotton in 1947 was 1,680,000 kg. compared with 2,447,715 kg. in 1946; the large drop was accounted for by excessive rainfall and extensive boll weevil damage; the 1936–46 annual average was 3,441,594 kg. The rice crop in 1947 was expected to be normal and corn prospects were considered good. Sisal production in the first six months of 1947 was 19,040,111 lb.; that figure included 14,469,627 lb. of line fibre, 463,418 lb. of white tow and 4,107,066 lb. of flume tow. Anticipated production of sisal for the second half of 1947 was 23,175,000 lb. The estimate of coffee production for 1947–48 was 403,600 bags of 60 kg. (1946–47: 400,000 bags).

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(R. H. FN.)

Hammer Throw: *see* TRACK AND FIELD SPORTS.

Hand-ball. The annual national A.A.U. four-wall championship was held in 1947 at the St. Louis, Mo., Y.M.C.A. A great array of past and defending champions competed, but it remained for comparative youngsters to displace the older stars thus bringing to an end a great era of prewar champions. Gus Lewis, formerly of Buffalo, but in 1947 representing the Hollywood, Calif., Athletic club won first place by defeating Robert Brady of the Elks club, San Francisco, in the singles, and Sam Haber and Joe Samson of Brooklyn dethroned Frank Coyle and Edward Linz of New York in the doubles.

National Four-Wall Rankings for 1947

Singles	Doubles
1. Gus Lewis, Hollywood, Calif.	1. Sam Haber and Joe Samson, Brooklyn, N.Y.
2. Robert Brady, San Francisco, Calif.	2. Frank Coyle and Edward Linz, New York, N.Y.
3. Walter Plekan, Buffalo, N.Y.	3. Milton Lappin and Leo Dressler, Detroit, Mich.

National One-Wall Rankings for 1947

1. Victor Herschkowitz, Brooklyn, N.Y.	1. S. Geller and S. Gluckler, New York, N.Y.
2. Morton Alexander, Brooklyn, N.Y.	2. R. Banks and L. Lassman, New York, N.Y.
3. M. Rosenfeld, New York, N.Y.	3. V. Levy and A. Schwartz, New York, N.Y.

(FR. RO.)

Harbours: *see* RIVERS AND HARBOURS.

Harriman, William Averell (1891–), U.S. diplomatist and government official, was born on Nov. 15, the son of E. H. Harriman, railroad magnate. After graduating from Yale university in 1913, he entered railroading, eventually becoming chairman of the Illinois Central and the Union Pacific railroads as well as a partner in Brown Brothers, Harriman and Co. He entered the government in the early New Deal days, serving in a number of agencies. In March 1941 he was sent to Great Britain as lend-lease administrator, and he was ambassador to the U.S.S.R. from Oct. 1943 until his resignation in Feb. 1946. Appointed ambassador to Great Britain on March 23, he served in this post until Sept. 22 when Pres. Harry S. Truman named him successor to Henry A. Wallace as secretary of commerce. The following day, Harriman expressed the view that his department should remain out of foreign politics. On June 22, 1947, Harriman was named by the president to head one of three committees formed to study the effect of the foreign aid program on the U.S. domestic economy. The 19-man group of civilians headed by Harriman in its reports issued Nov. 8, estimated that the cost of the European recovery program through 1951 would range from $12,000,000,000 to $17,000,000,000, and warned that insistence by the U.S. that recipient nations adopt the U.S. free enterprise system would constitute "unwarranted interference" in their internal affairs.

Hartley, Fred Allan, Jr. (1903–), U.S. politician, was born on Feb. 22 in Harrison, N.J., and attended Rutgers university, New Brunswick, N.J. A Republican, Hartley entered politics at the age of 20. Six years later, he was elected to the house of representatives, the youngest member of the 71st congress.

Re-elected nine consecutive times, Hartley became chairman of the powerful house education and labour committee after the G.O.P. victory in the 1946 national elections. At the time he declared that the party victory in 1946 had given the Republi-

can leaders a mandate "to protect the public from violence, loss of output and class hatred due to increasing labour disputes . . ."

In line with this philosophy, he submitted to congress the Hartley labour bill. Although passed by the lower house in April 1947, it was criticized as unnecessarily harsh in the senate and after innumerable debates in joint committees, a compromise measure, known as the Taft-Hartley labour law, emerged.

Although voted by both houses, the Taft-Hartley bill was vetoed June 20 by Pres. Harry S. Truman who contended the measure would increase rather than lessen labour strife. However, the house promptly overrode the veto the same day, and the senate, on June 23.

Some time later, Hartley announced his decision to retire from politics after the close of the 80th session, but he denied (July 29) that fear of a defeat at labour's hands had impelled his decision.

Harvard University. Founded in 1636, Harvard university in Cambridge, Mass., is the oldest institution of higher learning in the United States.

In 1947, all nine faculties were teaching about 50% more students than normally. Three-fourths of these students were veterans. During the year, the university was concerned with several new educational programs. Harvard college was applying experimentally the principles of a faculty committee report on "General Education in a Free Society" (1945). In the fall 1,366 students were participating voluntarily in 15 courses concerned primarily with the students' preparation for responsible citizenship.

The faculty of arts and sciences created two new departments: social relations, to promote closer collaboration among sociologists, social and clinical psychologists and social anthropologists; and engineering sciences and applied physics, to bring the knowledge of pure physics to bear on problems of practical significance. The new departments serve both undergraduates and graduate students.

New projects started or completed during 1947 included: the Lamont library for undergraduates; a new cyclotron; the Computation laboratory, to house large-scale calculating machines. Gifts during the academic year 1946–47 totalled $7,648,848.18. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (W. M. PN.)

Hawaii. The territory of Hawaii consists of a group of eight large islands and numerous islets in the Pacific ocean between latitude 18° 55′ and 22° 15′ N. and between 154° 50′ and 160° 30′ W. longitude. The total area is 6,433 sq.mi. The islands are of volcanic origin. From southeast to northwest, they are Hawaii, Kahoolawe, Maui, Lanai, Molokai, Oahu, Kauai and Niihau. In addition, stretching northwestward beyond Niihau more than 1,100 mi. is an archipelago of rocks, reefs and shoals which includes Midway (longitude 177° 22′ W.). Likewise, 960 mi. south of Honolulu and included as a part of the city and county of Honolulu lies Palmyra, a coral atoll consisting of 55 islets, 5 mi. long and 2½ mi. wide. The largest island in the territory and the youngest, geologically, is Hawaii, with an area of 4,021 sq.mi. The capital of the territory is Honolulu, situated on the island of Oahu. It is a completely modern city with a population (1947 est.) of 268,913, exclusive of military and naval personnel. The population of the territory in 1940 was 423,330 and had expanded to an estimated 525,477 in 1947, exclusive of military and naval personnel. The racial composition of this population, in addition to the native Hawaiians and the Caucasians from the mainland, is Japanese, Chinese, Korean, Filipino and Portuguese. However, 86% of the population is native-born. Hawaii's chief crops and the bases of its industry are sugar and pineapples.

Ingram M. Stainback took office as governor on Aug. 24, 1942, and was reappointed July 13, 1946. Joseph R. Farrington was territorial delegate in congress in 1947.

History.—On March 19, 1947, the U.S. house public lands committee unanimously approved Hawaii's statehood bill; on June 30 the house of representatives passed it by a vote of 196 to 133 and sent it to the senate.

Early in December the senate public lands committee directed the chairman of the subcommittee on territories and insular affairs, Senator Guy Cordon of Oregon, to hold hearings in Hawaii on the subject of statehood and report findings to the second session of the 80th congress as soon as possible.

The Sugar act of 1948 passed in the 80th congress would permit sugar plantations to schedule operations with confidence, for the annual quota for Hawaii of 1,052,000 tons of sugar gives the territory a level of production upon which to base sound economic practices of planting and harvesting. Hawaii's normal production is about 1,000,000 tons. Three marginal sugar plantations were closed during the year.

Finance.—The net bonded debt of the territory on June 30, 1947, was at a record low mark of $10,996,000, a reduction during the fiscal year of $3,741,000. Sinking fund assets totalled $2,973,326, leaving a net indebtedness of $8,022,674, a 72% reduction in eight years.

On the basis of gross income-tax collections, total business transacted in the territory in the first six months of 1947 was $545,722,854, while in the like interval of 1946 the total was $480,132,492. Cash on hand and in banks on June 30, 1947, amounted to $34,857,363, as compared with $36,331,622 on the same date in 1946.

Production.—Hawaii's production of sugar for the first 11 months of 1947 totalled 853,965 tons. This represented an increase of 211,248 tons over the same period of 1946. The number of cases of solid pineapple packed during the year ended May 31, 1947, increased about 13% over the 1946 fiscal year. The juice packed was approximately 5% less.

Trade and Commerce.—For the first 10 months of 1947, bank clearings were up 13.2% and retail sales 15.1%.

Shipment of goods to the continental U.S. for the first six months of 1947 was valued at $87,290,063. Goods purchased from the mainland in the same period amounted to $183,715,499. Total trade with the continent from January to June was $271,005,562. (I. M. S.)

Hay. The U.S. crop of all kinds of hay in 1947 was larger in total tonnage and in yield than in 1946 and exceeded the 10-year (1936–45) average. Total production was estimated at 102,500,000 tons, compared with 100,739,000 tons in 1946 and a 10-year average of 94,490,000 tons. Acreage harvested was 75,291,000 in 1947; 74,173,000 in 1946 and 72,373,000 average during 1936–45. Average yield in 1946 was 1.36 tons per acre.

About one-third of the total crop was alfalfa, another third mixed clover and timothy and about one-eighth wild hay.

The large new crop together with the large carry-over on farms provided one of the largest supplies of hay on record. The quality of the new crop, however, especially alfalfa, was low because of rains during the harvest season. Late cuttings were better, especially in the far western states. The leading hay states were: Wisconsin 6,918,000 tons, New York 6,300,000 tons, California 6,098,000 tons, Minnesota 5,687,000 tons and Iowa 5,154,000 tons.

The price of hay at the farm stood at an average of $17.50 per ton in Jan. 1947, declined slowly to $15.10 in July, then advanced to $18.10 in December. The price for all hay varied greatly in different regions, from $29.00 per ton in North Carolina in December to $9.90 in North Dakota. Alfalfa prices varied from $38.00 per ton in North Carolina to $14.50 in North Dakota.

Hayseed.—Production of the six major seed crops (alfalfa, red, alsike and sweet clover, lespedeza and timothy) was estimated at 457,300,000 lb. in 1947, 20% less than was harvested in 1946.

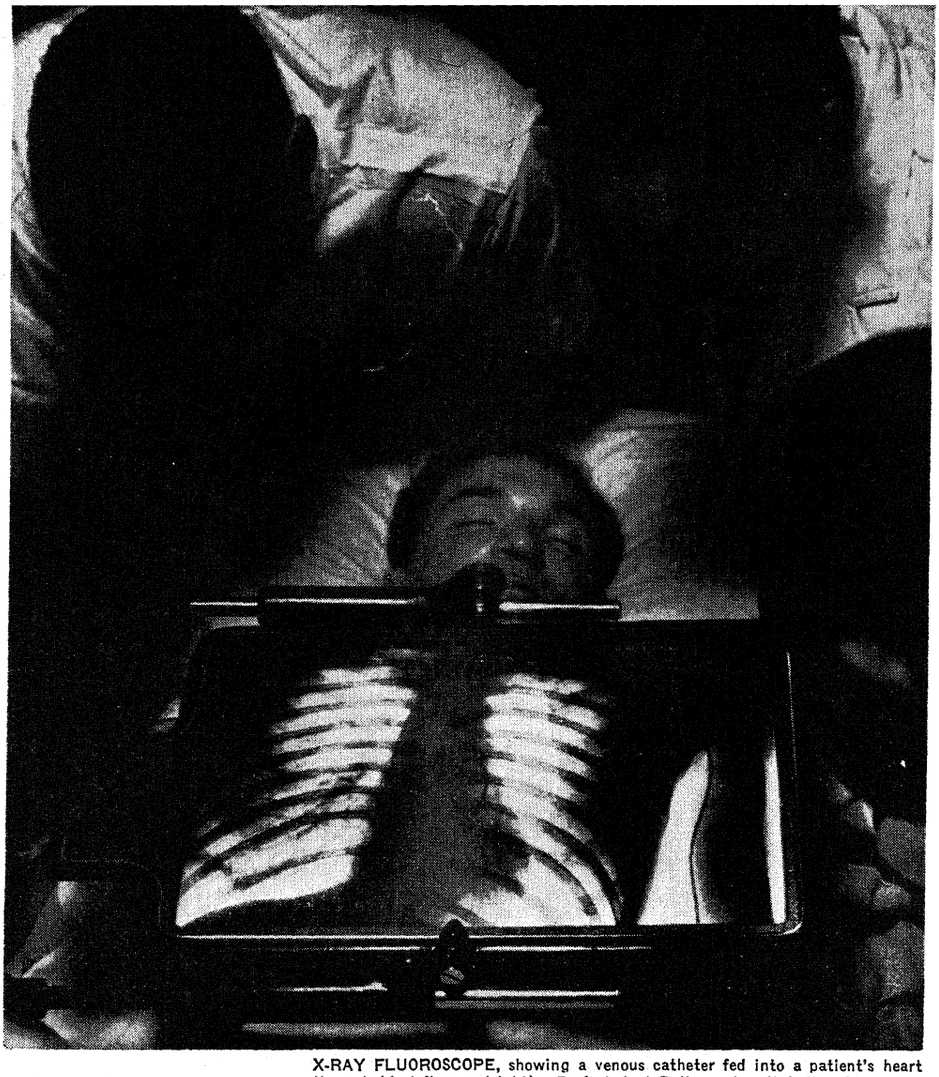
The alfalfa seed crop at 1,699,400 bu. was the second largest on record, exceeded only in 1946. Red clover seed output was the smallest in five years, 1,194,800 bu. compared with 2,141,800 bu. raised in 1946. Alsike clover yielded 366,200 bu. of seed, about 18% less than in 1946 but above average. Sweet clover returned the second smallest crop in 24 years, amounting to 564,400 bu. The lespedeza seed crop of 153,960,000 lb. was the smallest in seven years. Timothy returned a large crop of 1,641,400 bu., 24% above that of 1946 and 10% above average. The Sudan grass seed crop was small, only two-fifths of the ten-year average of 50,302,000 lb.

Redtop grass seed, mostly grown in Illinois and Missouri, yielded a crop of 15,900,000 lb. The strong demand for all kinds of hay tended to reduce seed harvest of all varieties. (*See* also ALFALFA; SOYBEANS.)

(J. C. Ms.)

Health, Industrial: *see* INDUSTRIAL HEALTH.

Hearing Aids: *see* DEAFNESS.



X-RAY FLUOROSCOPE, showing a venous catheter fed into a patient's heart through his left arm (right). Perfected at Bellevue hospital, New York, the device was used in 1947 to draw blood from inside the heart to obtain more accurate diagnoses in circulatory diseases

Heart and Heart Diseases.

The scientific exhibit of the centennial meeting of the American Medical association in 1947 presented late advances in knowledge of the heart and of its diseases. A notable exhibit dealt with the most common noncyanotic kinds of congenital defects—chiefly, opened ductus arteriosus and aortic coarctation, both of which could now be corrected surgically in youth. Another booth was devoted to cyanotic types of congenital defects, in particular the tetralogy of Fallot. The pioneers in this field, Alfred Blalock and Helen Taussig of Baltimore, had operated successfully on hundreds of children, now pink, who had been blue before operation.

The serious problem of rheumatic heart disease continued to point up the need for adequate, world-wide community programs to put into effect what was already known about the disease. Many researches were in progress during 1947. Remarkably encouraging results were secured by the curative effects of adequate amounts of penicillin in the great majority of cases of subacute bacterial (malignant) endocarditis, a disease implanted on many cases of congenital and rheumatic heart defects and formerly almost always fatal.

Cardiovascular syphilis fortunately had already begun to yield to advances in the prevention and early treatment of syphilis itself. The cardiovascular diseases of middle age and older were attacked by studies of changes in the coronary arteries. Other research concerned hypertension and hypertensive heart disease and their management by diet and sympathectomy.

The two chief laboratory methods of cardiovascular examination, electrocardiography and X-ray study, were improved by the use of the unipolar and precordial leads in electrocardiography and with catheterization of the heart, diodrast studies and electrokymography. The last-named technique opened a new field of investigation. Devised by George C. Henny, Bert R. Boone and W. Edward Chamberlain of Philadelphia, it records by "magic eye" and galvanometer the movement of the heart border or change in density of the heart shadow seen on the fluoroscopic X-ray screen.

The American Heart association with its many affiliated local groups throughout the country emphasized the growing development of world-wide interest in the study and treatment of heart disease and of the need for establishing community public health programs in this field.

Registration of the pulmonary blood pressure by use of the cardiac catheter and Hamilton manometer was another significant development of 1947. The application of this technique by Lewis Dexter of Boston made it possible in 1947 to discover the reason for previous surgical failure in the case of a young man with chronic constrictive pericarditis and to point the way, after discovery of considerable pulmonary hypertension, to his cure by resection of the pericardium posteriorly from the left ventricle and left auricle, where constriction had produced an effect like mitral stenosis on the decorticated (freed) right ventricle.

(P. D. W.)

Helicopter: *see* AVIATION, CIVIL.

Helium. The production of helium in the United States was reported in 1947 for the first time after the fiscal year 1939–40, when 9,450,855 cu.ft. were recovered. War demand increased output to 16,173,430 cu.ft. in 1940–41, 29,962,530 cu.ft. in 1941–42, 58,951,155 cu.ft. in 1942–43 and a peak of 137,268,144 cu.ft. in 1943–44, dropping back to 128,440,909 cu.ft. in 1944–45 and 63,403,345 cu.ft. in 1945–46. These figures are to be compared with a prewar output that averaged around 5,000,000 cu.ft. annually.

During the war years, the prewar plant at Amarillo, Tex., was enlarged and four other plants were erected. Data on these plants had not been made public but it was known that production capacity had been increased severalfold. One of the war plants was dismantled, but the remaining plants had a capacity in excess of 250,000,000 cu.ft. per year. The Amarillo plant and one at Otis, Kan., and a third at Shiprock, N.M., had been placed in a standby condition leaving only the plant at Exell, Tex., in operation.

It was announced late in 1946 that industrial consumption of helium was expected to exceed 1,000,000 cu.ft. a month, and sales to private users were reported at 1,367,880 cu.ft. in Oct. 1947. (G. A. Ro.)

Hemp. The U.S. hemp crop for fibre was all grown in Wisconsin in 1947. About 5,200 ac. were planted and 4,900 ac. harvested; the total crop amounted to 4,655,000 lb. Five hemp mills were operated in 1947 under government control.

The hemp seed crop, all grown in Kentucky, amounted to 291,000 lb. compared with a crop of 212,000 lb. in 1946. The 1947 acreage was 600 ac. and the yield 485 lb. per acre. Output was smaller than expected because of floods on lowlands. (J. C. Ms.)

Highways: *see* ROADS AND HIGHWAYS.

Hirohito (1901–), emperor of Japan, was born April 29, the son of Emperor Yoshihito. For his early career, see *Encyclopædia Britannica.* On Pearl Harbor day, Dec. 7, 1941, he proclaimed the nation at war with the United States and the British empire. During the early part of World War II, when Japan was amassing victories, the emperor remained in semi-seclusion. Toward the end of the war, however, he admitted in an imperial rescript that the situation was "truly grave." After the Potsdam declarations, the atomic bombings and Russia's entry into the war, the Japanese indicated they were willing to end the conflict provided the emperor retained his prerogatives. President Truman answered (Aug. 11, 1945) that Hirohito would be permitted to retain his throne for the time being, subject to the authority of the supreme Allied commander. Thus Hirohito on Aug. 15 (Tokyo time), 1945, broadcast to his subjects that he had ordered acceptance of the "provisions of the joint declaration" of the Allied powers. He later blamed Hideki Tojo, former premier, for "misusing" his war rescript, and pledged that any social reforms in Japan would be made by constitutional means. In a rescript issued Jan. 1, 1946, the emperor declared to be false the "conception that the emperor is divine and that the Japanese people are superior to other races and fated to rule the world."

In 1946, the emperor made several tours among his subjects as an "ordinary mortal"; later the new constitution (promulgated Nov. 3) reduced the throne to the status of a national symbol. The following year, Hirohito was absolved of war guilt charges by Joseph B. Keenan, chief Allied prosecutor, who stated (Sept. 25, 1947), that a "thorough investigation" convinced him there was no available evidence to support these charges. In a speech at Hiroshima Dec. 7 (Pearl Harbor anniversary), Hirohito urged Japan to work for peace and never contribute to another Pearl Harbor.

Hispanic America: *see* ARGENTINA; BOLIVIA; BRAZIL; BRITISH GUIANA; BRITISH HONDURAS; CHILE; COLOMBIA; COSTA RICA; ECUADOR; FRENCH OVERSEAS TERRITORIES; GUATEMALA; HONDURAS; NICARAGUA; PANAMÁ; PARAGUAY; PERU; SALVADOR, EL; SURINAM; URUGUAY; VENEZUELA.

Hispaniola: *see* DOMINICAN REPUBLIC; HAITI; WEST INDIES.

Hockey: *see* ICE HOCKEY.

Hodgson, William Roy (1892–), Australian diplomat, was born at Kingston, Victoria, on May 22 and was educated at the School of Mines, Ballarat, and at the Royal Military college, Duntroon. In World War I he served in the 2nd field artillery brigade, A.I.F., and took part in the Gallipoli landings, 1917. He was attached to the general staff at Melbourne from 1921 until 1934, when he became assistant secretary, department of external affairs. In the following year he was appointed secretary, and in 1945 became Australian minister to France. He was adviser on foreign affairs to the Australian delegation at the Imperial conference, 1937. He attended the Australian-New Zealand aviation conference, Oct. 1944; the civil aviation conference at Chicago, 1944; San Francisco conference, 1945, and the United Nations general assembly, London 1946.

In March 1947 Hodgson succeeded Paul Hasluck as permanent Australian representative to the United Nations, where he was acting representative, during the absences of Herbert Evatt, on the Security council. In June 1947 he was chairman of the Atomic Energy commission, and also a member of the Commission on Conventional Armaments.

Hogs. The number of hogs in the United States on Jan. 1, 1947, was estimated at 59,901,000 head, 7% less than the 61,301,000 head reported a year earlier and 32% below the wartime peak of 83,852,000 head in 1944. The total pig crop of 1947 was 84,138,000 head, about 1% above the 1946 total. The government asked for an increase of 15%, but growers were cautious in view of the high price of corn. Much of the increase in production during World War II was due to new producers raising hogs with purchased feeds. As feed prices rose the new producers were forced out of business and there was a great drop from 1943 to the prewar level in 1944. Hog production being largely dependent on the corn supply, the strong demand for grain for export directly reduced the pork output.

Hog slaughter in 1947 was below the level of 1946 during the first half of the year and did not increase during the rest of the year because of the great pressure to conserve grain. The total slaughter of 1946 was 17,900,000 head.

Prices of hogs to producers were supported at $15.60 per cwt., Chicago basis. The actual average received by producers was $21.80 per cwt. in Jan. 1947, rose to $26.40 in March, held steady at about $24.00 until September when the average rose to $27.20, then declined to $24.20 in December. These high prices were attributed to the prospect of a smaller corn crop, the government drive to save grain for export and the general price level increase.

The goal for 1948 represented a sharp reduction from that of 1947; the spring pig crop was to be 6% below that of 1947 at 50,000,000 head.

World hog production in 1947 was below the 1946 level; increases in the United States did not offset the declines in Argentina, Brazil and Europe. The hog slaughter of Europe

was less than one-half of pre-World War II levels, and Australia and New Zealand only three-fourths. South America was producing more than in prewar years. Canada had a decline of about 4,000,000 head in commercial hog slaughter, although total production was still 25% above prewar levels. A long packing-house strike delayed slaughter seriously. (*See* also MEAT.) (J. C. Ms.)

HOLC (Home Owners' Loan Corporation): *see* HOUSING.

Holland: *see* NETHERLANDS.

Home Building, Federal: *see* HOUSING.

Home Economics.

The American Home Economics association membership reached 17,504 in 1947—866 more than in 1946. The following ten-point program of work was agreed upon at the national annual meeting in June 1947:

(1) Intensive study of problems of the family and institution groups.
(2) Improvement and extension of home-making instruction.
(3) Further improvement of professional education and stimulation of continued professional growth.
(4) Encouragement of investigations and research for the development of functioning programs in home economics and for the contribution of new knowledge in all areas of home economics.
(5) Interpretation of home economics to members, administrators, potential recruits, parents, various organizations and agencies and to the general public.
(6) Interpretation of consumer needs to education, business, civic and governmental agencies and, conversely, interpretation of the work of these groups to the consumer.
(7) Support and promotion of legislation to improve family welfare on local, state, national and international levels.
(8) Development of an active program of recruitment of workers to include effective vocational guidance.
(9) Improvement in the professional standards and status of home economics.
(10) Study of better ways and means of interpreting home economics to visitors, students and professional workers from other countries.

The association's program for 1947 included co-operation or affiliation with the following groups: Guidance of Rural Growth; National Council on Family Relations; International Federation of Home Economics Instruction; National Council of Family Life; United States information centres in occupied areas; the National Conference on Family Life; and Women's Joint Congressional committee. Continued support was given to International Scholarships for Foreign Students to study in the United States. Five scholarships were awarded to graduate students during 1947—two from China, two from India and one from the Netherlands.

Members of various committees of the association represented it at conferences called under the auspices of the commission for international educational reconstruction; the U.S. national commission of the United Nations Educational, Scientific and Cultural organization; the Institute of International Education for Advisers of Foreign College Students; and the International Scientific Management congress.

Guided by its legislative committee, the association supported appropriations for the bureau of human nutrition and home economics, the women's bureau, the office of education and the division of labour standards. The school lunch program, rent control, housing; and the flammable fabrics bill were also supported.

The Association sponsored a consumer interests program, a program of criteria for evaluating college programs of home economics, and an apprentice training program for graduate home economists planning to enter business.

Bureau of Human Nutrition and Home Economics.—The food research program of the bureau of human nutrition and home economics during 1947 emphasized studies of the nutritive contributions of different foods to the diet, comparative costs, and nutritional requirements. The bureau investigated methods whereby these facts could be applied by families in different circumstances to the purchase of food, the preparation of healthful meals and the preservation and care of food in the home. Facts were collected and analyzed regarding the quantities of different foods and other goods and services consumed by families in various regional and economic groups.

In textiles, the bureau studied the comparative usefulness and cost of fabrics and garments differing in material, construction, design and finish.

Housing studies included research in the needs of families for efficiency and comfort and the development of plans for rural houses, including adequate work and storage centres. Selection, care and use of household equipment was also stressed.

Although its budget was reduced in 1947 by $246,000, the bureau distributed 5,250,000 copies of 118 technical bulletins in addition to charts and photographs.

Home Economics Extension Service.—A total of 3,075,189 homes were assisted during 1947 by the home economics extension programs—an increase of 4.92% over the averages for the preceding 5-year period. The membership of home demonstration clubs reached 1,162,346, an increase of 7.67% over the average for the same previous 5-year period. This total was in addition to 2,157,883 girls enrolled in 4-H club projects which came under the guidance of extension leaders. During the year, 629,305 families were assisted through projects dealing with family relations and child development; 608,122 through projects in home management and family economics; 793,481 in buying food, clothing, household equipment and supplies; 2,194,574 with clothing and textile problems; 2,995,513 with health and safety projects including improved diets, child feeding, prevention of colds and other health measures.

Land-Grant Colleges.—A subcommittee of heads of home economics departments of land-grant colleges developed a plan for regional organization parallel with that of the experiment station directors. Regional programs were set up for studies in the fields of nutrition and housing, and the projects approved were allotted funds for research. The subcommittee also set up criteria for judging research projects in home economics. Spurred by the lack of well-trained leaders and researchers within the field, the subcommittee studied methods of developing home economics research in land-grant colleges. (*See* also FOOD RESEARCH.)

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(E. DN.)

Home Loan Bank Board: *see* HOUSING.

Home Owners' Loan Corporation: *see* HOUSING.

Honduras.

A republic of Central America bounded by Guatemala, El Salvador and Nicaragua. Area: 59,160 sq.mi.; pop. (1945 census), 1,200,542, including approxi-

mately 35,000 tribal Indians. The capital is Tegucigalpa (pop. 55,715 in 1945). Other principal cities are San Pedro Sula (22,116) and La Ceiba (12,185); smaller urban centres are Puerto Cortés (approx. 8,000), Choluteca (5,000), Santa Rosa (6,000) and Tela (9,000). Religion: Roman Catholic. Language: Spanish. President in 1947: Gen. Tiburcio Carías Andino.

History.—Political information emanating from Honduras during 1947 was meagre and mostly from anti-administration sources. Rumours of unrest included a futile attempt by exiles from Nicaragua to occupy El Paraíso on Jan. 9, a shift in the garrison command at La Ceiba in April, and official persecution of the opposition press, especially on April 25 at San Pedro Sula.

Speculation on potential candidates for the Oct. 1948 presidential election continued, but without any clarification by June. The leading contenders for administration support were Juan Manuel Gálvez, minister of national defense and former attorney for the United Fruit Co., Gen. Abraham Williams, the vice-president, and Pres. Carías Andino himself. José A. Funes, the only congressman who opposed the 1936 coup d'état, which placed Gen. Carías Andino in power, was considered the most likely choice of the opposition.

Education.—In 1946, 60,574 students (approximately 45% of the children of school age) received instruction from 2,116 teachers. The 26 secondary schools enrolled 5,226 and the national university, 433. The 1946–47 budget allotted 950,734 lempiras for public education. As of Jan. 1, 1947, there were 30 motion picture theatres with a total seating capacity of 21,000.

Communications.—The banana area of the north was served by 922 mi. of railroad; the main towns by 1,201 mi. of highway and 63 airfields. The government operated 2,646 mi. of telephone and 16,497 mi. of telegraph lines. There were 1,542 mi. of privately-operated telegraph lines and four commercial radio broadcasting stations.

Finance.—The monetary unit is the lempira, officially valued at 49.02 cents U.S. on Sept. 15, 1947. The budget for 1946–47 estimated expenditures and revenues to balance at 14,482,493 lempiras, national defense taking the largest appropriations. As of June 30, 1946, the external debt amounted to 2,723,875 lempiras; internal, 10,666,335.

Trade and Resources.—Exports during 1946 were valued at $14,100,000 and imports at $19,600,000. For the first five months of 1947, exports totalled $7,300,000 and imports $13,500,000. The main shipments in 1946 were bananas (14,183,557 stems), silver (approximately 3,000,000 troy oz.), gold (approximately 21,000 troy oz.), coconuts (approximately 10,000,000 units) and coffee (approximately 160,000 bags of 132 lb.). Banana exports were up 30% during the first quarter of 1947.

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Honduras, British: *see* BRITISH HONDURAS.

Honey: *see* BEEKEEPING.

Hong Kong: *see* BRITISH EMPIRE.

Hoover, Herbert Clark (1874–), U.S. statesman and 31st president of the United States (1929–33), was born Aug. 10 in West Branch, Ia. For his earlier career see *Encyclopædia Britannica.*

Hoover headed several food investigating missions for President Harry S. Truman in 1946 and 1947. His 1947 mission, announced on Jan. 22, was to study and recommend solutions for meeting food and collateral problems in central Europe. In his numerous reports on his findings, Hoover recommended prompt increase of food rations to German people in the Anglo-U.S. zones and immediate restoration to full production of German light and heavy industries; emergency relief to Austria and placing of relief to foreign countries on a repayment rather than a gift basis. He blamed the Soviet Union (May 26) for the economic paralysis of Germany and Japan and warned (June 15) that continued "over-exporting" of the national resources would impair U.S. economy.

On July 16, President Truman selected Hoover to head a bipartisan commission to survey operations of the federal government and recommend ways to simplify its vast structure. Formally accepting the post Sept. 29, Hoover said it would be his "last public service."

Hops. U.S. production of hops was estimated at 50,098,000 lb. in 1947, compared with 53,171,000 lb. in 1946 and a ten-year average (1936–45) of 40,742,000 lb. Acreage was 39,700, about the same as in 1946 but above the ten-year average of 33,990. The average yield was above average, 1,262 lb. per acre. The Washington crop was good but that of Oregon light and below average. Spread of the mildew disease in Oregon greatly reduced the harvest. California production was slightly smaller than in 1946. The price of hops in the open market was 68 cents per pound in Jan. 1947 compared with 23 cents parity; it declined to 64 cents by midyear and to 60 cents in December. (J. C. Ms.)

U.S. Hop Production by States, 1947, 1946 and 10-Year Average

(In pounds)

State	1947	1946	Average 1936–45
Washington	20,358,000	19,720,000	12,685,000
Oregon	16,150,000	18,800,000	17,180,000
California	13,590,000	14,651,000	10,878,000

Hormones: *see* ENDOCRINOLOGY.

Horse Racing. Although lacking the pari-mutuel handle of the year before, many were the noteworthy accomplishments of horse racing in the United States during 1947. Among them were a record attendance of an estimated 110,000 at the Kentucky Derby; a record prize pool of $53,934,075 for 3,134 racing programs; and a new all-time money winner in Stymie, who boosted his grand total to $816,060 and gave promise of becoming the first equine millionaire in 1948.

Armed, Calumet Farm's six-year-old gelding, was rated the outstanding horse of the year. He won $376,325 with 11 first places in 17 starts. His most lucrative triumph was in the Special at Belmont park, Long Island, N.Y., where he defeated Assault by eight lengths to capture the $100,000 prize. Other leading money winners of 1947 and their totals were: Stymie, $299,775; Phalanx, $269,250; But Why Not, $225,300; Bewitch, $213,675; and On Trust, $208,575. A record number of 22 horses won more than $100,000 each during the year.

With Armed leading the way, Calumet Farm, owned by Warren Wright of Chicago, Ill., became the first racing establishment to win $1,000,000 in a single campaign. Calumet Farm colours accounted for $1,402,436 in 1947 and contributed the champion two-year-old colt in Citation and the champion two-year-old filly in Bewitch.

Three new tracks operated in 1947—Lincoln Downs, Lincoln, R.I., Golden Gate fields, Albany, Calif., and Sunshine park at Oldsmar, Fla. The 21 states in which there was thoroughbred racing in the U.S. amassed a total revenue of $90,846,537 during the year. The pari-mutuel turnover was $1,685,462,181, approximately $145,000,000 less than in the record year of 1946. Total attendance in the 21 U.S. racing states was 25,991,153.

Winner of the 73rd running of the Kentucky Derby was Maine Chance Farm's Jet Pilot. Phalanx, owned by C. V. Whitney, was rated the best of the three-year-olds however, on his $269,250 winnings for the year. Phalanx scored 6 victories in 16 starts, topped by the Belmont Stakes. Faultless won the Preakness. But Why Not was voted the best filly in the three-year-old division on her 7 triumphs in 13 engagements. She scored her biggest successes at Arlington park, Arlington Heights, Ill. with victories in the Matron and Classic.

Scoring eight successive successes while racing in the Kentucky and Chicago areas, Calumet Farm's Bewitch became the leading two-year-old of the year. She won $213,675 in annexing such features as the Debutante, Hyde Park, Arlington Lassie, Princess Pat stakes and the Washington Park Futurity.

Other winners of outstanding stakes run in 1947, with net

value to winner, included: Santa Anita Handicap, Olhaverry, $98,900; Santa Anita Derby, On Trust, $81,750; Belmont Futurity, Citation, $78,430; New York Handicap, Rico Montre, $73,700; Hollywood Gold Cup, Cover Up, $73,500; Empire City Gold Cup, Stymie, $73,000; American Derby, Fervent, $70,950.

As a contract rider for Calumet Farm stables, Douglas Dodson rode the Warren Wright crest as the leading money-winner of all times. His mounts earned $1,429,949. He scored 141 firsts, 100 places and 75 shows in 647 tries. Johnny Longden led in number of wins—316—and finished second in the money circle with $1,304,025. Two other jockeys also were over the $1,000,000 line, Eddie Arcaro, steering home $1,221,479 worth of winners, and Ted Atkinson scoring with $1,070,260.

William Molter, west coast trainer, repeated as the leading conditioner of the year with 155 winners. Money honours, however, went to Horace A. "Jimmy" Jones, who topped the list with the saddling of $1,334,805 worth of mounts for Calumet Farm. Molter was second with $833,970.

Bull Lea, chief sire of the Calumet Farm stables, easily added to the Warren Wright monopoly when his get earned $1,259,418 in 1947. Next in line was Alibhal, whose offspring accounted for $833,397 in winnings. The longest-priced winner of the season was Toby J., a 225-to-1 shot at Tanforan, San Bruno, Calif. The biggest daily double pay off came Aug. 27 at Dade park, Owensboro, Ky., $7,711.20.

The "sport of kings" was saddened by the death of Man o' War, most famous of all thoroughbreds, on Nov. 1, 1947, near Lexington, Ky. He died of a heart attack at the age of 30. Other prominent horses who died during 1947 were: Beau Pere, 20 and Blue Larkspur, 21. (M. P. W.)

Canada.—During the 329 days of horse racing in Canada in 1947 a total of $48,519,909 was wagered at 36 meetings, a decrease of $147,835 from the amount wagered at 305 days' racing at 33 meetings in 1946. Prize money paid in 1947 totalled $2,323,675, an increase of $508,585 over 1946.

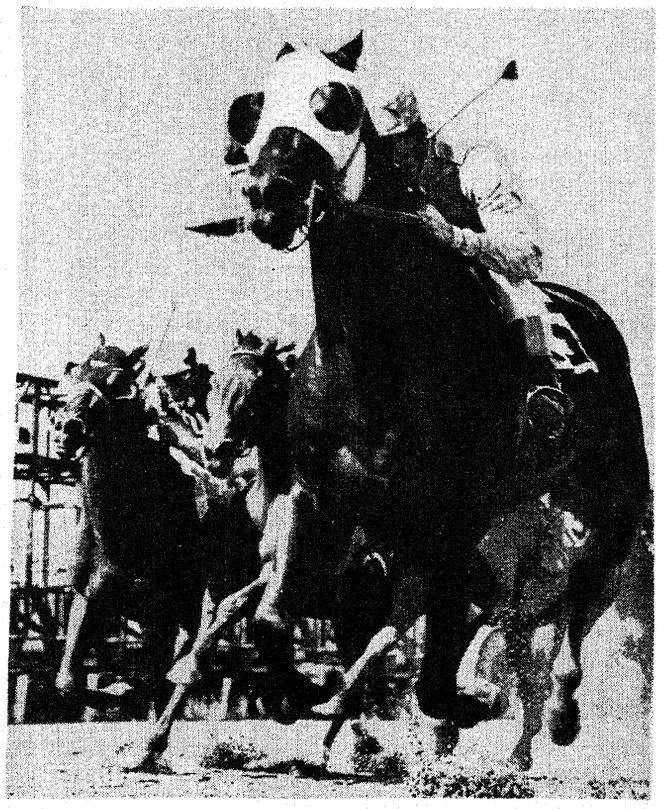
Of the total of $48,519,909 wagered in 1947, Ontario accounted for $29,034,232 in 126 days' racing; British Columbia was second with $8,895,929 wagered during 70 days' racing; Manitoba was third with $4,134,448 wagered at 28 days' racing; Alberta fourth, with $3,220,272 during 40 days' racing; Quebec fifth with $2,491,268 and 50 days' racing; Saskatchewan sixth with $743,760 wagered during 15 days' racing.

From every dollar wagered at race meetings the dominion government took 5%, the tax deducted by the provinces ranged from 5% to 10% and each racing association was allowed a percentage ranging from 7% down to 3% according to the total amount wagered. In Canada, all betting at race meetings for what is known as running horses, must be under the pari-mutuel system supervised by the department of agriculture. (C. Cy.)

Great Britain.—The first of the classic races, the Two Thousand Guineas, resulted in an easy victory for A. J. Dewar's Tudor Minstrel, who won by eight lengths from Saravan and Sayajirao in a field of 15 starters. He started favourite for the Derby (1½ mi.) but met with his first defeat, Baron de Waldner's French-bred Pearl Diver winning by four lengths from Migoli and the maharaja of Baroda's Sayajirao. This latter colt was a consistent performer, but took some time to come to his best form; this was found in the St. Leger, which he won by a head from the French horse Arbar, with Migoli third.

Both the One Thousand Guineas and Oaks were won by Mme. Pierre Corbière's French filly Imprudence; but although the French horses, Souverain, Chanteur II and Field Day, filled the first three places in the Ascot Gold Cup, their successes were on the whole less sweeping than in the previous year. Sir John Jarvis's Reynard Volant put up a fine performance in winning the Ascot Stakes (2½ mi.), Mrs. F. Senior's Trimbush gained his fifth success of the season in defeating the French Laurentis in the Doncaster Cup (2¼ mi.), and Capt. D. Fitzgerald's Whiteway won the Cesarewitch (2¼ mi.). The Royal Hunt Cup, Stewards' Cup at Goodwood, and the Cambridgeshire, three of the most popular races over shorter distances, were won, respectively, by Master Vote, Closeburn and Fairey Fulmar. Chief among the two-year-old colts were Cobbler, whose victory in the Middle Park Plate was his fourth consecutive win, Birthday Greetings, Leader, Pride of India, Black Tarquin, Delirium, My Babu and Anschluss; the best of the fillies were Fair Dinah, Queenpot (both of whom were daughters of Big Game) and Careless Nora.

Gordon Richards was champion jockey for the 20th time with 269 winners in 835 rides. The Aga Khan was both the leading owner and breeder, and Fred Darling, who retired at the end of the season, was the leading trainer. (F. M. Pr.)



ASSAULT (left) starting to move up during the handicap race which he won by three lengths at Aqueduct, N.Y., in June 1947. Winnings in this race brought his life-earnings to $576,670, an all-time record in horse racing to that date

Horses. The horse disappeared more rapidly in the United States during 1946 and 1947 than in any previous years on record. The decline which had been accelerating since the tractor came into use about 1910 was speeded in 1947 by the large number exported, by the larger number of older horses slaughtered and by a reduced rate of breeding. The total number was estimated at 7,251,000 head on Jan. 1, 1947, compared with 8,053,000 head in 1946 and an average of 10,259,000 head for the ten years 1936–45. The decreases were greatest in 1946 in north central states where tractors were increasing most rapidly in number. The number of colts was only 3% of the total, which is not enough to replace the death loss in horses. Horses were the only class of livestock that declined in total value during 1946 due to the fact that the value per head at $59.20 was only $2 more than a year earlier. Total estimated value of horses Jan. 1, 1947, was $429,133,000, the lowest in 79



MORGAN BROOD MARES and their foals trotting to pasture at a farm near Middlebury, Vt., where husbandrymen of the U.S. department of agriculture worked to improve and perpetuate the U.S.-bred Morgan horse in 1947

years of record. The average value of horses sold was steady through 1946 and 1947 at around $56 per head.

Shipment of horses to the stockyards slaughter houses increased in 1946 to more than 21,000 head compared with 13,000 head in 1945 and an average of about 7,000 head in the previous five years. Total receipts at stockyards of both horses and mules for both sale and slaughter was 658,198 head in 1946, 402,130 head in 1945 and an average of about 280,000 head in the previous five years, indicating the increasing rate of liquidation. About 116,000 head of horses and 89,057,000 lb. of horsemeat were exported in the fiscal year 1946–47.

The number of horses in the world likewise was estimated to be declining slowly because of mechanization of farming and interrupted breeding operations during World War II. No adequate world livestock census was available. The best estimates put the total at 75,200,000 head, compared with an average of 94,700,000 during 1934–38. The greatest decline was in the Soviet Union where the total was only half the prewar level. A slight increase was estimated in 1947 in the Soviet Union, Asia and South America. The increase in tractors in the United Kingdom made it possible to reduce the number of horses by one-fifth during the war and these are unlikely to be replaced.

Mules.—The number of mules in the U.S. was estimated at 2,773,000 head on Jan. 1, 1947, compared with 3,010,000 a year earlier. The rate of decline was about 20% in the north central states but only 3% in the south Atlantic states. Average value advanced during the year from $133 to $141 per head. The market price of mules was $106 per head in Jan. 1947, rose to $109 in July, then declined again to $96 in December. Exports amounted to 23,000 head in the fiscal year ending June 1947, compared with 4,000 head shipped in 1946. The U.S. army use of mules had practically ceased. World estimates of the number of mules indicated a slight decline in all countries except Spain. (*See* also SHOWS, ANIMAL.) (J. C. Ms.)

Horse Shows: *see* SHOWS, ANIMAL.

Horticulture.

In July 1947 congress passed a bill amending the quarantine act of 1912 by giving the U.S. department of agriculture authority to limit the entry of nursery stock as a means of preventing the introduction of additional plant pests and diseases. In October the secretary of agriculture announced a public hearing to consider regulatory action under this amendment. At this hearing, held in November, representatives of various state boards and of nursery and florist organizations recommended severe limitations and regulations, to be imposed at the earliest possible moment. Strong opposition to such action was expressed by representatives of horticultural and garden organizations and institutions, by plant and seed establishments and organizations in the U.S. and by representatives of the British and Canadian governments. It was argued by these protestants that the action proposed would, in effect, constitute a tariff and prove a serious obstacle to the efforts of other countries to re-establish their economies and attain recovery with a minimum of aid from the U.S. A decision was being awaited with great anxiety by such countries as England, France, Belgium, Denmark and the Netherlands.

In effect, August 1, the department of agriculture placed restrictions on the importations of cut flowers from most countries into continental U.S., Puerto Rico and Hawaii. Countries not affected were Canada, Labrador and Newfoundland. This action was taken because of the greatly increased movement of cut flowers by aeroplane. Cut flowers found to be carriers of insects or diseases must be destroyed or shipped out of the country unless adequate treatment could be given. The department began to require permits in advance for shipping in the flowers of gardenias, camellias, rhododendrons, roses and lilacs.

Congress enacted legislation providing federal control of weed killers, rodenticides and pest control devices. Labels "Poison" must appear on preparations containing poisonous substances.

The Dutch elm disease was found to be spreading rapidly in many eastern states, requiring the removal of large numbers of infected trees.

Aeroplane spraying of woodlands was extended to control the gypsy moth, this method having been found effective, quick and reasonably inexpensive, one-half pound of DDT dissolved in one gallon of oil being sufficient to cover an acre.

New soil treatments were found successful in controlling Japanese beetles, thus reducing the rapidity of their spread, but quarantine measures were continued in all or parts of 14 eastern states.

It was found that 2,4-D could be used effectively in controlling crab grass when applied to germinating seedlings but less so when used on mature plants.

Progress was made in the development of selective weed killers for various crops, including gladioli, but they need to be used when the weeds are small. By this method the weeds are killed, but the crops are not injured, the amount of hand labour required thus being greatly reduced. This method gave promise of lowered costs in the production of certain food crops.

Lily bulbs were again reported coming into the U.S., although in a limited way. Before World War II, importations from Japan totalled 25,000,000 annually. Production of these bulbs increased rapidly on the Pacific coast, but the 1947 crop probably did not exceed 10,000,000. A limited number of Madonna lily bulbs were shipped into the U.S. from northern France.

Prepared lily of the valley pips began arriving in the U.S. from Denmark. These indications of a slow recovery in commercial horticulture abroad did not change the fact that in most countries the emphasis was on the production of food crops for home use and for seed. However, an abnormally cold winter, followed by severe drought, caused heavy losses, in some instances 50%, in the northern countries. Italy was better off, with a surplus of vegetable seeds, which were sold to other European countries in competition with shipments from the U.S. Indications were that the European seed business, once very large, was well on the way to recovery. The Netherlands concentrated on the cultivation of bulbs for shipments abroad as the best method of solving its economic ills, but a very hard winter caused considerable damage to tulips. An extremely hot summer followed, with production falling below normal. Most of the other bulbs fared better, but much damage was suffered by the iris crop.

Interest in ornamentals was revived in England to such an extent that spring and fall shows were on a scale and standard comparable with prewar years. Attendance and receipts were large.

The propagation of roses was continued in England, Ireland and France, new varieties being sent to the United States to compete with originations there. The All-America Rose winners announced for distribution in 1948 were Diamond Jubilee, buff; Nocturne, dark red; San Fernando, bright red; Taffeta, carmine rose; Pinkie, light rose pink.

Reports from Canada, which has a large seed business, indicated a reduced crop of vegetable seeds, especially in British Columbia, but a satisfactory yield of flower seeds.

The George Robert White medal of honour for 1947 was awarded by the Massachusetts Horticultural society to Ernest F. Coe, known as the father of the Everglades National park in Florida, which was opened by the government late in 1947. (*See* also BOTANY; VEGETABLES.) (E. I. F.)

Hospitalization Insurance: *see* INSURANCE.

Hospitals. Hospitals during 1947 made progress toward the expansion of existing facilities and met the challenge of problems resulting from high admissions of patients, dangerous shortages of personnel—including nurses, technicians, medical record librarians and others—and difficulties in balancing budgets.

In hospital construction, the federal Hospital Survey and Construction act, commonly known as the Hill-Burton act, encouraged all states to take inventories of their hospital resources, a requirement of the legislation for those states wishing to qualify for a portion of the $75,000,000 grant available for the construction of badly needed new installations. In addition, every state developed a hospital plan based on the number of beds required to serve adequately the health needs of its rural and metropolitan citizens, another requirement of the hospital bill.

Construction on a limited number of hospitals was initiated during 1947, through the help of federal funds. There was also considerable planning for additional hospital facilities to be constructed and financed independently, without the assistance of the government.

Throughout the year, the expansion of U.S. hospital facilities progressed in spite of the fact that special studies revealed that alarming numbers of beds—32,000—were closed because of a shortage of graduate nurses and other professional and technical workers necessary for the proper operation of a hospital. In an attempt to solve the shortage of nursing personnel—a shortage resulting from increased demands for this professional service not only by hospitals but by industry, other institutions and the federal and military services—an extensive national student nurse recruitment program was conducted under the direction of numerous organizations interested in nursing, hospitals and the general field of health. The campaign resulted in the enrolment of approximately 40,000 new student nurses—an increase of one-third over the number recruited in 1946 and the largest number admitted to schools of nursing during any peacetime year.

While many hospitals were obliged to increase their rates during the year to meet increased operating costs, the public continued its demand for hospitalization. There was, however, some indication at the end of 1947 that higher hospital rates were reducing hospital occupancy. Nonetheless, the new rates did not affect significantly the 40,000,000–50,000,000 of the population who held membership in hospital prepayment plans. This tremendous group protected by hospital insurance continued to utilize hospital facilities to the full extent of their needs.

The year 1947 saw some adjustments in premiums charged for prepayment hospital policies, an increase deemed necessary by those hospitals which wished to continue maintaining high standards of service in the face of doubled and tripled advances in their operational costs. In spite of some increases, the percentage of the total population insured under Blue Cross prepayment plans and by commercial hospital insurance policies went up, while enrolment in medical prepayment plans grew at an even more rapid rate.

The shortage of hospital beds and the increased number of physicians in private practice focused attention during the year on the need for a judicious apportionment of hospital beds to staff physicians. There was also an increased interest in the question of the place of the general practitioner on the hospital staff, particularly in view of a trend toward relating the practice of the individual physician to his competency in specialized fields of medicine.

Progress was made toward planning an integrated hospital system which would afford the maximum service to the public with a minimum of investment. In developing a national and state program of this scope, both hospital administrators and representatives from the public health services were drawn together on many common problems and worked hand-in-hand toward the establishment of voluntary patterns for an integrated hospital system. (*See* also VETERANS' ADMINISTRATION.)

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Great Britain.—The National Health Service act, which became law in Nov. 1946, provided for the nationalization of all the hospitals in England and Wales, and was followed by a similar act covering Scotland. The operative date was fixed for July 5, 1948, and the year 1947 was therefore a period of transition. The first important step was the division by the minister of health, Aneurin Bevan, of England and Wales into 14 regional hospital areas based on the well-known undergraduate teaching hospitals. Four of these were centred on London: northwest metropolitan region (Charing Cross, Middlesex, University college, Royal Free and St. Mary's); northeast metropolitan region (the London and St. Bartholomew's); southeast metropolitan region (Guy's and King's college) and the southwest metropolitan region (St. George's, St. Thomas' and Westminster). The remaining ten regional hospital areas were centred on teaching hospitals in the large cities of the provinces:



MENTAL PATIENTS in a U.S. state hospital, photographed in 1947. Eradication of neglect and backwardness in mental hospitals, due to understaffing and lack of qualified personnel, was the aim of the U.S. National Committee for Mental Hygiene in 1947

Newcastle Royal Victoria, Leeds General infirmary, Sheffield Royal infirmary, Addenbrooke's at Cambridge, Radcliffe infirmary at Oxford, Bristol Royal, Cardiff Royal infirmary, Birmingham United and the Queen Elizabeth, Liverpool Royal infirmary and Manchester Royal infirmary.

Members of the first regional boards were appointed by the ministry of health in July 1947, and by the autumn officers had been appointed and the new boards had begun to function. Meantime, however, the hospitals continued to be controlled by their voluntary committees and by the local authorities. Great strains arose from three sources. First, development was hampered by the restrictions imposed on buildings and supplies, and many hospitals were able only in part to overtake arrears in maintenance and repair work. Second, rising prices and the negotiation of national wage scales for employees forced up the cost per bed still further, and figures published in October showed that the cost per bed at London voluntary hospitals had risen from £233 in 1938 to £490 in 1946. The rise continued and compelled many of the voluntary hospitals to seek financial assistance from the ministry of health, though the traditional voluntary support from the public was remarkably well maintained. Third, shortage of nursing and domestic staff became still more acute.

So serious was the shortage that many beds in local authority hospitals had to remain closed in spite of heavy demands; the number of beds available for the sick in the London area during the winter months of 1946–47 fell to a lower level than at any time during World War II, and indeed lower than for many years past; and great anxiety was caused to all responsible for the admission of patients to hospital. A national campaign for part-time nurses met with some success.

A report prepared by a working party on the recruitment and training of nurses, published in September, drew attention to the high percentage of wastage of student nurses during training (estimated to approach 50% of entrants) and attributed this to four principal factors—an obsolete system of discipline, an unsympathetic attitude on the part of the senior staff, defective catering arrangements and excessive pressure of work. The working party therefore recommended: (1) that nurses in training should be accorded full student status; (2) that greater care be taken in the selection of student nurses and the use of psychological methods of selection; (3) that special training courses be devised for senior staff prior to appointment as ward sisters, etc., and (4) the reduction of the training week to 40 hr. In addition it proposed that the training should be made more comprehensive and recommended for all nurses a new two-year basic training course.

These proposals were referred by the ministry of health to the Royal College of Nursing and other interested bodies for comment. They at once incurred much criticism, especially on the ground that elimination of repetitive nursing duties and a shortening of the training period would detract from the practical bias long characteristic of nursing in Great Britain and might easily lead to an academic and at the same time shallow approach. (A. G. L. I.)

Hotels. Except for fires, the record of the hotel industry in 1947 was a projection of trends which began to be apparent toward the end of the preceding year. Demand for rooms continued at high levels, although two or three points below 1946; food sales held up, while beverage business declined. In particular, patronage of entertainment restaurants decreased during the year at an accelerated rate. The disappointing New Year's eve was an emphasis of the decline.

Because of the dubious profit outlook and a tightening money market, there was little new hotel financing and no new hotel construction, with the exception of a small penthouse hotel built on top of a department store structure in a midwestern city. The expansion of large hotel chains proceeded more cautiously, although the smaller chains continued to acquire a number of properties.

Hotel rehabilitation progressed slowly because of shortages of equipment and supplies. Some restaurant remodelling took place; many of the new rooms were well designed. One alteration cost the extraordinary figure of $70 a square foot.

It was significant to analysts that hotels were no longer following the upward curve of business volume. The consumer dollar was being spent more selectively, possibly for two reasons: the increasing availability of heavy consumer goods, and a wave of nostalgic sentimentality that diverted spending toward gift and holiday buying.

The customary lulls in hotel and restaurant activity during Thanksgiving and Christmas were intensified in 1947; new lows in occupancy were recorded, especially at the end of the year.

Hotel management was thus confronted with the problem of curtailing expenses to meet, in some measure, these valleys

of patronage. With an uncertain labour supply and an unpredictable variation in demand for accommodations, it became inadvisable to reduce operating personnel, the method used in depression periods before the war.

Strong resistance, both public and legislative, developed toward increases in hotel room rates and restaurant charges. State police and health powers, not hitherto employed, were called upon in an effort by communities to limit rates, even to a greater degree than those imposed under the war powers of the federal administration. Rental increases were confined to an arbitrary figure of 15%, whether or not this figure applied to buildings offering no services or furnishings whatsoever, or to hotels with elaborate and costly transient accommodations.

By the end of the year, the legality of many ordinances and statutes had not been decided. The result was a confusion of practice that added to the many vexations of determining hotel policy.

The industry could no longer turn to tradition for guidance. Even the problems which were not new had reached such proportions that fresh solutions had to be discovered. Direction was handicapped by lack of an adequate technology. The few trade schools had not adjusted their teaching to meet these altered conditions.

Hotel management was also handicapped by an almost complete absence of new labour-saving machinery. For instance, dish washing, now costing three times as much per 100 units as the prewar figure, was carried on with machines virtually unchanged from the models of 20 years ago. A few hotels ordered pot-washing machines supplied by a concern which had manufactured these devices for other fields of endeavour. The only radically new equipment available was an electronic range which had barely passed the experimental stage. It was extremely costly and in use only in a few hotels.

In general, hotels needed the mechanized efficiency long enjoyed by heavy industry. The resistance to higher room rates, food and beverage prices and the continued increase in labour and other costs made greater efficiencies in hotel operation imperative. This could be accomplished only by extensive study, improvement and expansion in mechanical methods.

As 1947 drew to its close, a number of hotels had engaged experts, some from universities and some from efficiency engineering concerns, to make elaborate time studies and to do job evaluation. Unfortunately, there was no accumulated experience to guide them.

Personnel turnover was running 400% in many large properties, with a minimum cost of $25 for each job change. High wages paid in the manufacturing fields proved a temptation to hotel employees.

In presenting their annual demands, labour officials placed stress upon the cost of living and the widening gap between wage rates in hotels and outside industry. Hotel management recognized that this situation had brought about a crisis that necessitated a complete review of previous hotel practice.

Since prices in hotel restaurants and bars were as high as they could possibly go, it seemed probable at the end of 1947 that transient room charges would have to be revised substantially upward, perhaps to a degree that would bring the "break even" point to the normal level of 67% to 70% occupancy.

(E. By.)

Housing. The acute housing problem in the United States was not solved in 1947 despite increased production and more speedy completions. Although housing starts mounted almost to the number built in the 1925 peak year of housing production, the estimated 825,000 new units did not equal the 900,000 new families. Nor did it add up, along with the 776,200 units (permanent and temporary) built in 1946, to the goal of 2,700,000 set for the two years 1946–47. When this goal was set it was stated that, when met, it would still leave 1,958,000 families without homes and that the families ill-housed would still be ill-housed, for the figures did not include replacements. On this reckoning, at the end of 1947 approximately 3,056,800 families still needed homes and approximately 4,100,000 homes in need of major repair still needed repair or replacement. (12,663,000 of the 41,700,000 dwelling units in the U.S. in 1947 were either in need of repair or without a private bath and flush toilet.)

On the basis of figures compiled by the U.S. bureau of the census, the Institute of Life Insurance reported that more families were living doubled up in 1947 than ever before. The study of population surveys made in April showed that about 2,754,000 married couples or 8.3% of all couples living in private households, were sharing living accommodations with other persons at that time. The high cost of living was also a factor causing home sharing.

Great emphasis was placed upon the necessity of building a large number of homes for rent, but only about 8% of those built were for rent. Building also lagged in many of the larger cities. In the first 8 months of 1947 the number of nonfederal family units started in 46 of 92 large cities surveyed was below that started in the same period in 1946, which was a very low construction year.

Urban construction suffered because high land and construction costs in these areas made it practically impossible for the builder to build within the top cost limit of $1,800 per room set by the Federal Housing administration for FHA insured rental projects. Builders and mortgage investors unprotected by FHA insurance were afraid to put money into rental housing built at high cost when there was a possibility that the properties might have to compete in future years with new improved construction built at lower cost.

Congress enacted no new positive housing legislation in 1947. It ended building controls, relaxed rent control and repealed the 1946 veterans' housing program. The Taft-Wagner-Ellender comprehensive housing bill was reported out by the senate banking committee but was not passed by the senate; it stayed in committee in the house. A very small amount of public housing authorized before the war was permitted to proceed by the passage of the McCarthy bill. Local housing authorities had been unable to start construction on 13,317 urban housing units and 10,000 units in rural sections because construction costs were well above the price limitations set by the old U.S. Housing act. The McCarthy bill authorized cities to go ahead if they were willing to make up added costs out of their own funds.

Representative Donohue (Dem., Mass.) proposed government "subsidy loans" in H.R. 1754 to absorb the difference between what veterans could afford to pay in rent and current cost of building rental housing. Loans would be made both to local housing authorities and to private building sponsors—banks, building and loan associations, veterans' co-operatives, insurance companies, developers. Loans would not have to be repaid until all other charges had been met. If sponsors found it impossible to repay, the loans would become subsidy grants. This legislation, introduced late in the regular session, received sufficient notice to warrant expectations of attention in 1948.

On May 27, President Harry S. Truman sent a message to congress proposing the creation of a new housing agency. Under the Reorganization act of 1945 the president had the power to effect this reorganization unless congress passed a two-thirds vote against it. Opponents of the measure, though vocal, did not muster sufficient votes against it in the senate. Therefore,



AERIAL VIEW of parts of Stuyvesant Town (foreground) and Peter Cooper Village on Manhattan's east side, nearing completion in 1947. Together, the two housing developments were to accommodate 11,250 families, with renting preference given to veterans

on July 27, 1947, the National Housing agency, created as a temporary agency under the president's war powers was superseded by the Housing and Home Finance agency, a permanent housing agency.

Stating frankly that it recognized the serious need for housing in the U.S. but had not yet agreed on a definite long-range housing policy, congress authorized an investigation of all phases of housing just before adjournment of the regular session. In the meantime, congress made severe cuts in the appropriations of all of the units of the Housing and Home Financing agency (HHFA). The office of the housing expediter, which had been separated from that of the administrator of the National Housing agency early in the year, was kept separate by congressional action and was given rent control administration when the Office of Price Administration expired. However, it was given a lean budget and had barely enough staff to administer rent control and no staff to expedite housing construction.

An additional $35,500,000 was appropriated to complete the moving of temporary housing erected during the war from their locations, and re-erecting them to provide shelter for veterans.

Public law 239, approved by the president on July 25, 1947, started the two-year period for the removal of temporary war housing which was provided for by the Lanham act. This meant that all temporary war housing, except that which was needed for orderly demobilization, must be removed by July, 1949.

On Aug. 5 the president approved a $200,000,000 increase in the amount of mortgage insurance permitted under Title VI of the National Housing act. The law permitted the president further to increase the authorization by an additional $200,000,000, bringing the total Title VI authorization to $4,200,000,000. Title VI, the main prop of the emergency-housing program, was given an additional $750,000,000 in the special session, but the discussion at that time cast doubt upon 1948 action to enlarge and extend Title VI beyond its March 31, 1948 expiration date.

Public law 132, continuing the life of the Reconstruction Finance corporation until June 30, 1948, eliminated the authority of the RFC to provide a secondary market by purchasing mortgages guaranteed or insured under the G.I. Bill of Rights.

By the year's end the home builders and consumers were in a dilemma about new housing. They had seen the black market flourish under price control; they had seen building materials bootlegged and houses sold with expensive side-sales. And when all controls were lifted, prices skyrocketed. Price control was imperfect and the free market had not brought the desired relief. Allocation of scarce materials was said to be the answer. Others suggested price control limited to scarce materials. By mid-December, congress had not taken any action.

Action upon rent control was also awaited, for the Federal Rent Control act was due to expire Feb. 29, 1948. Under the provisions of the Housing and Rent act of 1947 passed July 1, landlords and tenants were permitted to agree "voluntarily" to a rent increase not exceeding 15% with a lease running through Dec. 31, 1948. Hotels were exempted and dwelling units completed after Feb. 1, 1947, were exempted from rent control unless their construction had been assisted by allocation of priorities. Eviction controls were eased, and enforcement of rent ceilings was weakened. In his message to congress on signing the bill, President Truman termed the law "most unsatisfactory" and "inadequate." In his message opening the special session of congress on Nov. 17, the president asked congress "to extend and strengthen rent control."

On Sept. 9, the Veterans' administration created a stir by attacking the high percentage of defective or inferior dwellings being sold to veterans and by promising disciplinary action against offending builders and mortgage lenders.

An even greater stir was created on Aug. 27 when a federal grand jury indicted the National Association of Real Estate Boards (N.A.R.E.B.) and the Washington Real Estate board on charges of violating the antitrust laws with "universal conspiracy to restrain trade in the housing field by fixing commission rates for real estate dealers."

Everyone considered housing a serious problem by the year's end. There were few technical solutions at hand. The usual palliatives, subsidies and tax exemptions, were suggested as

means of getting housing built for families of moderate and low income. Some emphasis was placed upon the responsibility of state governments to supply assistance. At least nine states passed veterans' housing legislation in 1947.

American Legion Housing Bill.—The American Legion prepared a bill which was introduced the first week of the special session by Representative Edith Nourse Rogers, Senator Edward Martin and Representative Gordon L. MacDonough. It authorized any five or more veterans to establish "Veterans' Homestead associations" as nonprofit organizations to build, sell, purchase, rent, maintain or operate housing for veterans of World War II. Each member would pay $100 to be applied to his purchase or as rent security on housing limited in cost to $10,000 per unit. Permanent financing was to be provided by 40-year tax-exempt bonds secured by all of the associations' property and guaranteed as to principal and interest by the federal government. Earnings of the homestead association were to be exempt from all taxation. The bill authorized appropriations of $200,000,000 to the Federal Works administration to provide 50% grants for construction of utilities; *i.e.*, highways, schools, playgrounds, bus and fire stations, etc.; $100,000,000 for loans to associations and guarantee of association bonds; and other funds to cover Veterans' administration expenses. The act would be operative for 10 years following the declaration ending war.

The bill, carrying these frank and hidden subsidies was expected to receive favourable action in 1948 because no vocal legislative opposition was anticipated just before the national election. Many feared that, because the bill lacked protective features, veterans might not reap the advantages which the subsidies would warrant but that they might be taken by promoters and by inefficiencies due to inexperience. Efforts were being made to have the bill "tightened" to avoid such possibilities. (*See* also ARCHITECTURE; BUILDING AND CONSTRUCTION INDUSTRY; BUSINESS REVIEW; CENSUS DATA, 1947; FEDERAL WORKS AGENCY; MUNICIPAL GOVERNMENT.) (D. RN.)

Housing and Home Finance Agency.—The Housing and Home Finance agency was established on July 27, 1947, under Reorganization Plan No. 3 of 1947, submitted by the president and approved by the senate. The reorganization plan groups the principal permanent housing functions of the government in a single agency. With establishment of the HHFA, the wartime National Housing agency was abolished.

The HHFA covers remaining war housing responsibilities and housing functions that before World War II were scattered among 13 agencies in 7 departments and independent establishments of the government. It includes the office of the administrator and the following constituent operating agencies: the Federal Home Loan Bank board, the Federal Housing administration, and the Public Housing administration. The FHA and the PHA each have a commissioner as the administrative head of its organization, while the Federal Home Loan Bank board is composed of a bipartisan group of three. All are appointed by the president and confirmed by the senate.

In addition, the plan established the National Housing council on which the administrator, the constituent agencies, and other government departments with direct housing functions are represented. The council includes the administrator of the HHFA, who serves as its chairman, the commissioners of the FHA and the PHA, the chairman of the HLB board, the secretary of agriculture, the chairman of the board of the Reconstruction Finance corporation, and the administrator of Veterans' affairs, or designees of the latter three.

The National Housing council, which meets at least once each month, serves as a medium for securing the most effective use of all the housing functions and activities of the federal government, for obtaining consistency between these activities and the general economic and fiscal policies of the government, and for avoiding duplication and overlapping of activities.

The administrator of the Housing and Home Finance agency is responsible for the general supervision and co-ordination of the functions of the three constituent units making up the new agency. In addition, the administrator is charged by law with the responsibility for the direction and supervision of the management and disposition of federally owned war housing, and for completing the temporary housing program for veterans. Under appropriate delegations, the Public Housing administration carries out the operating responsibilities of managing and disposing of federally owned war housing and of completing the veterans temporary housing program in accordance with the general policies established by the administrator.

Home Loan Bank Board.—This agency supervises the Federal Home Loan Bank system and the Federal Savings and Loan Insurance corporation—two permanent agencies established to encourage economical home financing, and to protect savings. HLBB also directs the liquidation operations of the Home Owners' Loan corporation (85% liquidated by the end of 1947). The Federal Home Loan Bank system was organized in 1932 as a nation-wide home-mortgage credit reserve for member savings and loan associations and other home financing institutions. At the end of the year, there were approximately 3,700 institutions with total resources of approximately $11,000,000,000 affiliated with the system. More than 5,000,000 investors in more than 2,500 savings and loan associations with combined assets of $8,000,000,000 were protected by the Federal Savings and Loan Insurance corporation which insures, up to $5,000, money invested in institutions of this type.

Federal Housing Administration.—This agency was established in June 1934 by the National Housing act "to encourage improvement in housing standards and conditions, to create a sound mortgage market, and to provide a system of mutual mortgage insurance." The FHA does not itself lend money, but insures private lending institutions against loss on residential and property improvement loans meeting FHA standards. From its establishment in June 1934 through the end of 1947, the FHA insured approximately $10,500,000,000 of loans made by private financial institutions and had assisted 8,500,000 U.S. families to obtain better housing. Emphasis during 1947 on encouraging the construction of rental housing brought applications for more than 100,000 new dwelling units for World War II veterans and their families. In 1947 it was also given authority to insure capital advances to manufacturers of prefabricated housing and loans for the purchase of permanent war housing sold by the federal government.

Public Housing Administration.—The major activity of this agency is the low-rent and slum clearance program under the U.S. Housing act, transferred from the U.S. Housing authority. In addition, the PHA has operating responsibility for the management of public war housing during the period of reconversion and demobilization, the disposition of federally-owned war housing, and also the program of providing temporary housing for veterans by relocating and converting surplus war housing and military structures for reuse as veterans' temporary dwellings. An additional appropriation of $35,500,000 during 1947 brought the total funds available for this latter program to $480,627,000. Including the projects financed by local communities and organizations, a total of 260,000 accommodations for veterans would be provided by this program, more than half of which would be located at educational institutions for the use of student veterans. By mid-1947 more than 85% of the total program had been completed. (*See* also LAW.)

(R. M. FY.)

Canada.—The Government's housing target of 80,000 completed units in 1947 reached only 74,000 units, but that was better than 62,500 units in 1946 and 48,000 units in 1945. (The best prewar years, the late 1920s, averaged 57,000 units annually.) Chief bottlenecks continued to be soil pipes, nails, hardwood flooring and wallboard.

In the 12 months to May 1947, prices of building materials increased 7½%, construction wage rates 15%, and construction costs in general 11%. Another major obstacle to the completion of more homes in urban areas was the lack of serviced land, practically all of which had been used by the expanding program.

To encourage construction, the government took various steps. In February, owners of new housing units were allowed depreciation at double rates, amortization periods were extended and priorities on material were broadened. In September, controls covering everything from nails to plywood, from millwork to fittings, were lifted. In December, housing was given steel priority.

The crown-owned Central Mortgage and Housing corporation opened a Better Farm House competition late in the year, organized on a provincial basis, and offered $3,600 in prizes. The Corporation estimated that in 1947 about 130,000 Canadians wanted to rent houses and 45,000 wanted to buy them. (C. Cy.)

Great Britain.—Post-war housing policy in Great Britain was governed by the need to make up the ground lost by the virtual stoppage of house-building during World War II, to replace houses destroyed during the war, and to house the increased number of families requiring separate dwellings. At the end of the war it was estimated that 750,000 dwellings would be required to meet the immediate needs and a further 500,000 to replace slums. By Nov. 1947 accommodation provided totalled 506,972 family units, more than half of which consisted of new permanent and temporary houses and the remainder of existing premises requisitioned by local authorities or converted by private owners, or unoccupied war damaged dwellings which had been repaired.

In view of the heavy demand for houses, the high cost of building and the shortage of materials at the end of the war, some order of priority in housing was necessary, and the government decided that the criterion should be relative need. From prewar experience they considered that the greatest need was to be found among those who wanted houses to rent, and priority was accordingly given to houses built for renting. Local authorities, who built for renting before the war and were in the best position to judge relative need in their areas, thus became the natural agents for the government's policy. By means of government subsidies they were able, in spite of the increased cost of building, to let their houses at rents which those who needed them could afford to pay. The building of houses by private enterprise for sale was controlled by licences, so that the greater part of the available labour and materials was directed into local authorities' schemes. Private builders were, however, still doing most of the house-building, because most local authorities did not actually build their own houses but relied on the private builder working under contract.

In spite of high costs and shortages the postwar council houses were better than those built before the war. Expert consideration was given to the design and equipment of local authority houses during the war and resulted in larger and better-equipped houses in the present schemes. The three-bedroom house for the family of five was the most common type provided by local authorities, but houses of varying sizes were provided for larger or smaller families, as well as for single or old people.

While most of the council houses were of the traditional brick-built type, a place in the program was given to prefabricated methods of building which economized on certain types of labour and materials. A program of temporary prefabricated houses was launched before the end of the war to meet the immediate postwar demand while the building industry was getting into its stride. These houses were supplied by the government and built on land provided and serviced by the local authorities, who paid an annual charge for the houses to the government, controlled the lettings and fixed the rents. In this program prefabrication produced well-built houses whose occupants were well satisfied with them. The government also launched two large schemes for permanent prefabricated houses: a steel-framed house known as the B.I.S.F. (British Iron and Steel federation) and intended for urban areas, and the Airey house, constructed of prefabricated concrete units and designed for rural areas. The B.I.S.F. and Airey houses were of the three-bedroom type. Other types of prefabricated houses were also being provided by local authorities.

Progress on the building of new houses during 1947 was handicapped by the severe winter, the fuel crisis and the continuing shortage of some important building materials. During 1946 efforts had been concentrated on securing a start on housing by every local authority. Though successful, these resulted in the letting of contracts for more houses than could be completed in reasonable time with limited resources of labour and materials, and policy for 1947 was directed toward establishing a more balanced program. A White Paper, published in January, envisaged the completion, by the end of the year, of 240,000 permanent houses out of a cumulative total of 600,000 in tenders approved and licences issued, with 60,000 temporary houses completed in the same period. By the end of March, however, it became obvious, as a result of the severe weather and the fuel crisis, that this program could not be achieved, and efforts were directed to the completion of as many as possible of the houses already under construction. The latest figures (Nov. 30, 1947) showed that 180,154 permanent houses had been completed out of a cumulative total of 512,631 in tenders approved and licences issued. The corresponding figures for Dec. 31, 1946, were 58,206 and 366,222 respectively. Thus, although progress on the completion of houses fell below expectations, a better balance between houses planned and houses completed was achieved in the program as a whole. The temporary house program was well on the way to completion with a total of 135,298 houses finished by Nov. 30.

Europe.—Housing in Europe faced difficulties similar to those of Great Britain, but in many cases greatly increased by war destruction. Countries such as France and the Netherlands were concentrating on the replacement of war-destroyed houses. Working-class housing in most European countries had been provided by subsidized private enterprise and state-aided housing associations and it appeared that these agencies would carry out most of the postwar housing. Their task was made difficult by greatly increased building costs and shortages of materials and labour. These were problems for the consideration of the newly-formed Housing Panel of the Economic Commission for Europe, which held its first meeting in Geneva at the beginning of Oct. 1947. (J. Cw.)

Housing Administration, Federal: *see* HOUSING.
Housing Agency, National: *see* HOUSING.
Housing and Home Finance Agency: *see* HOUSING.
Housing Authority, U.S.: *see* HOUSING.

Houssay, Bernardo Alberto (1887–), Argentine physiologist, was born on April 10 in Buenos Aires, Argentina. He studied pharmacy and medicine in his native city, secured his M.D. degree in 1911

and thereafter was associated with the University of Buenos Aires in various academic posts, becoming at one time director of the Institute of Physiology at the Faculty of Medicine. One of Argentina's outstanding scientists, he was honoured by about 40 universities the world over for his research on diabetes, endocrinology and the toxic effects of snake, spider and scorpion bites.

In 1946, Dr. Houssay fell out with the government of Gen. Juan D. Perón and resigned under pressure his professorship in physiology at the University of Buenos Aires. A year later (Oct. 23, 1947), he was awarded the Nobel prize in medicine jointly with Drs. Carl and Gerty Cori of the United States. Specifically, the Argentine scientist was singled out for his discovery of the significance of the hormone produced by the pituitary gland.

Irked by the honour given to an opponent of the Perón regime, *Epoca,* a government newspaper, charged that the award to Houssay had been made on "political grounds." Dr. Houssay's reaction to this accusation was that "little things" ought not be confused with the "big."

Human Nutrition and Home Economics, Bureau of: *see* AGRICULTURAL RESEARCH ADMINISTRATION.

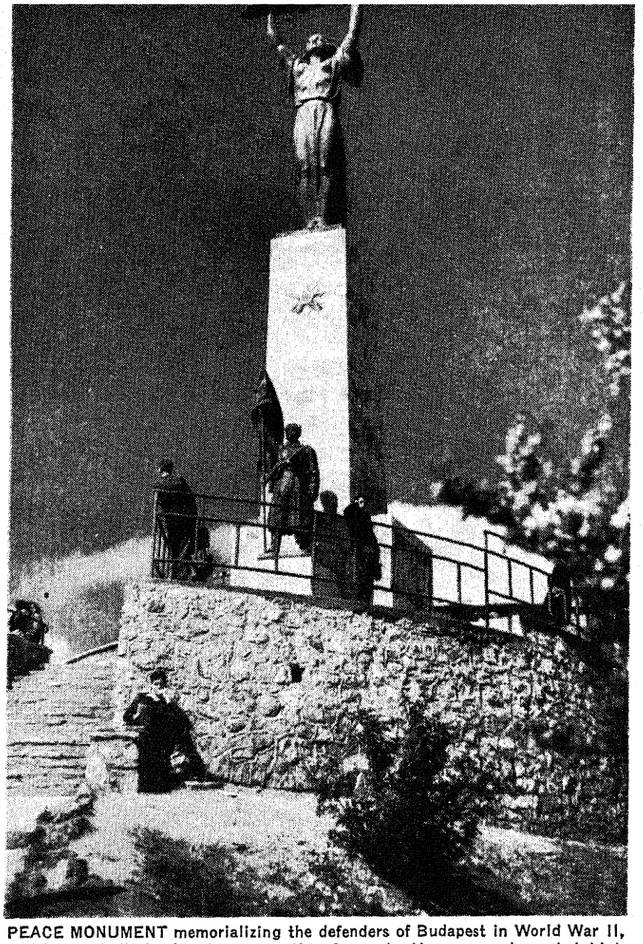
Hungary. A republic of southeastern Europe bounded on the west by Austria, on the north by Czechoslovakia, on the east by Rumania and on the south by Yugoslavia. Area: 35,912 sq.mi. (in 1947). Pop. (1941 census) 9,316,613, (est. 1946) 9,309,000; chief cities (pop. 1941): Budapest (cap., 1,164,963; pop. 1944, 832,800); Szeged (136,752); Debrecen (125,933); Kecskemét (87,269). Languages: Hungarian, with some German, Slovak, Croat, etc. Religion: mainly Christian (Roman Catholic, Greek Catholic and Evangelical) with Moslem minority. President: Dr. Zoltan Tildy; prime minister: Lajos Dinnyes.

History.—In January about 100 arrests were made by the political police, alleging a plot by an organization called the "Hungarian Community" headed by Gen. Lajos Veress de Dalnok. A people's court subsequently sentenced General Veress and the deputy George Donath and others to death; still others were sentenced to hard labour. On appeal in October two of the death sentences were commuted and many of the prison terms were reduced, but Donath was executed on Oct. 3. Foreign observers and Hungarians abroad dismissed the plot as it was presented in its official version—which spoke of an attempt to restore Adm. Nicholas Horthy's regency—as implausible, but the case made it evident that highly placed elements of the former Hungarian armed forces and administration contemplated anticommunist changes in the event of the withdrawal of the soviet forces. The plot had far-reaching political consequences. Parliament refused to waive the immunity of deputy Bela Kovacs, general secretary of the Small Landholders' party, but he was arrested by the soviet authorities. A strongly worded U.S. and British protest against this arrest was turned down by the soviet president of the Allied Control commission in Budapest, Gen. V. P. Sviridov.

In February, at the congress of the Social Democratic party, substantial progress was registered by the socialist group, led by vice-premier Arpah Szakasits, which favoured a close cooperation with the communists. Communist and socialist warnings were given to the Small Landholders' party that unless they collaborated more fully with the left wing parties the coalition would be ruptured.

The political scene was dominated by this impending crisis in the coalition until the last days of May, when Prime Minister Ferenc Nagy, on vacation in Switzerland, was requested to return, on the grounds that the inquiry into the Kovacs case had produced evidence against his closest collaborators and against himself. He refused at first to comply with this request or to resign office, but after communicating several times with Budapest by telephone, he consented to sign his resignation on condition that his son, aged four, who he feared would be retained as a hostage in Hungary, be brought to Switzerland to join him. As soon as the document of resignation was signed, he left for the United States. A joint declaration of Agrarian leaders against soviet interference and communist predominance in southeast Europe was published by Nagy in the United States with Vladimir Maček for the Croat, Milan Gavrilovich for the Serb and G. M. Dimitrov for the Bulgarian Peasant parties. Nagy's successor, Lajos Dinnyes, was appointed on May 31. Several Hungarian government representatives in foreign capitals, including Paul Auer in Paris, Ferenc Gordon in Bern and Istvan Szegedy-Maszak in Washington, did not accept the official explanation that, as Dinnyes was a member of the Small Landholders' party like his predecessor, no substantial change had occurred, and sent in their resignations. Father Bela Varga, president of the national assembly, and other eminent Small Landholder politicians took refuge abroad.

The assembly elected in Nov. 1945 was dissolved and new elections were announced for Aug. 31, 1947. Dezsö Sulyok, leader of those Small Landholders who were dissident or who had been expelled under communist pressure from the party, and who were grouping under a new name as the Freedom party, was barred from the election. Under the leadership of Zoltan Pfeiffer, however, the Freedom party stood for the election under the new name of the Independence party. Other opposition groups were a new Democratic People's party with Christian-social tendencies (led by Istvan Barankovics, a well-known



PEACE MONUMENT memorializing the defenders of Budapest in World War II, which was built by Russian occupation forces in Hungary and erected high above the city on the Buda side of the Danube in April 1947

Catholic journalist), and the Radical party, which had no success in the 1945 election, but whose ranks were now swelled by Karoly Peyer, Social Democratic leader, and veteran Social Democrats who disapproved of the trend of their party. Many disqualifications in the new electoral law reduced the number of electors by about 500,000, and led to protests by the British and U.S. representatives of the control commission. On Aug. 31 the elections took place: 3,007,027 votes (60%) were counted for the government coalition, which retained 269 seats, and 1,989,156 votes (40%) for the opposition, which received 143 seats. Among the coalition parties, the communists increased (in comparison with Nov. 1945) from 17% to 21%, the Small Landholders were reduced from 57% to 15% and the socialists from 18% to 14%. The most favoured among the opposition groups were the People's party (16%) and the Independence party (14.4%).

On Sept. 16 the peace treaty came into force, and the Allied Control commission, presided over by General Sviridov, withdrew, although soviet forces remained to protect the lines of communication with their occupation zone in Austria. The internal scene showed symptoms of tension between communists and socialists; the meeting of European Communist parties in Poland and the establishment of the Cominform in Belgrade in October rendered the position of the Social Democratic cabinet ministers uneasy, because they were regarded as representing links with western socialism and especially with the Labour government in Britain.

In November Karoly Peyer and Zoltan Pfeiffer, deprived of parliamentary immunity, took refuge abroad to avoid arrest; the validity of the mandate of the 49 deputies of the Freedom party was contested. A stricter control was established over Hungarian passports. Meanwhile, the communist leadership itself seemed to undergo an internal crisis. Vice-Premier Matyás Rakosi's illness was officially announced, and authoritative public statements on behalf of the party were usually made by Ernest Gerö, minister of communications.

On Dec. 8 in Belgrade Marshal Tito and Dinnyes signed a treaty of friendship, co-operation and mutual aid between Yugoslavia and Hungary. (B. ME.)

Education.—(1939) Elementary schools 8,103, scholars 1,104,910; higher schools 263, scholars 79,435. (1942–43) Budapest only: nursery schools 111, scholars 11,174; elementary schools 234, scholars 73,483; secondary schools 83, scholars 31,643; universities 2, students 12,858; other colleges 14, scholars 2,454. There were six universities in the whole of Hungary.

Finance.—Revenue (1946–47) 4,045,876,000 florints; expenses, 4,420,685,000 florints. Note circulation (Aug. 1947) 1,754,000,000 florints; gold reserve U.S. $30,000,000; commercial bank deposits 505,000,000 florints; currency: florint which superseded the pengö in 1946. 1 florint=0.0757 g. fine gold.

Trade and Communication.—Foreign trade: imports (1946) 370,800,000 florints; exports (1946–47) 92,400,000 florints; communications: roads (1946) 18,508 mi.; railways (1946) 5,416 mi.

Mineral and Industrial Production.—(July 1946–June 1947) in short tons: coal 956,500; pig iron and ferroalloys 273,600; steel ingots and castings 533,600; cotton fabric 119,200; crude petroleum 709,600.

Agriculture.—(est. production 1947) in short tons: wheat 1,324,000; rye 539,900; barley 448,600; oats 206,500; potatoes 2,105,600; sugar beets 1,357,500; fodder turnips 2,682,000; melons and watermelons 264,480; green paprika 19,400; tomatoes 73,260; onions 53,750; sunflower seed 173,560; tobacco 19,450. Livestock pop. (1947): cattle 1,404,758; horses 456,897; pigs 2,106,417; sheep 474,003; goats 88,618; fowls 7,166,161; geese 859,555; ducks 878,279; turkeys 124,752. (*See* also RUMANIA.)

Hunting: *see* WILDLIFE CONSERVATION.

Hurdling: *see* TRACK AND FIELD SPORTS.

Husseini, Haj Amin el (1900–), Arab politician and grand mufti of Jerusalem, was born in 1900 and educated at El Azhar university in Cairo, Egypt. Husseini, appointed grand mufti of Jerusalem in 1921, was the prime instigator of antisemitic disturbances in Palestine. Forced to flee from the Holy Land in July 1937, Husseini made his way to Rome and Berlin after the outbreak of World War II and broadcast anti-Jewish propaganda over axis radio channels to the middle east. (Husseini denied in a statement made May 12, 1947, that he had ever plotted with the nazis against the Jews.) After Germany's collapse, he crossed into Switzerland, but that country deported him to France. However, he escaped from France under mysterious circumstances and on June 20, 1945, he turned up in Alexandria, Egypt.

In 1947 Husseini, still an exile of Palestine, resumed his role as chairman of the Arab Higher committee and issued violently anti-Jewish statements from Cairo. Opposed to partition of Palestine, he rallied many Moslems to his cause and organized the National Treasury, ostensibly for the purpose of raising defense funds. On Oct. 8 the mufti made a dramatic arrival in Alia, Lebanon, to confer with the Arab League council on military measures to oppose partition.

Hutchins, Robert Maynard (1899–), U.S. educator, was born on Jan. 17 in Brooklyn, N.Y. His father, William James Hutchins (1871–), minister and theologian, was subsequently president of Berea college in Berea, Ky. Hutchins left Oberlin college, Oberlin, O., in 1917 to enlist in the U.S. ambulance corps, winning the *Croce di Guerra* in action with the Italian army. Entering Yale university, New Haven, Conn., in 1919, he received his A.B. in 1921 and his LL.B. (*magna cum laude*) in 1925, subsequently receiving honorary degrees from many colleges and universities. In 1923 he was appointed secretary of Yale university and in 1927 dean of its law school. In 1929, at the age of 30, he became the fifth president (and, in 1945, the first chancellor) of the University of Chicago, where his reforms and proposals for reform made him one of the best-known and most controversial figures in the history of U.S. education.

In 1947, Hutchins returned to his university post after a year's leave of absence in which, as chairman of the board of editors of Encyclopædia Britannica, Inc., he devoted himself to the spread of adult education through the reading and discussion of great books and established the Great Books foundation for the organization of community discussion groups and the training of group leaders all over the U.S. and Canada.

Prior to his assumption of the editorial board chairmanship, Hutchins was chairman of the executive committee of Britannica's board of directors, a director of Encyclopædia Britannica Films Inc., and editor in chief of a set of great books scheduled for publication in the near future.

His university activities in 1947 included the consolidation of the famous Chicago college plan of a four-year liberal arts curriculum beginning with the usual junior year in high school. He announced the establishment of the Cancer Research foundation at the university and completed the establishment of the Institute of Radio-Biology and Biophysics and the Institute of Metals, for research in the physical and biological adaptations of atomic energy. Although he opposed the entrance of the United States into the war in 1940 and 1941, the University of Chicago, under his administration, played a central role in the development of the atomic bomb.

In 1947 he also campaigned, in speeches and writings, for international civilian control of atomic energy and against peacetime military conscription. Calling for immediate world organization and the abandonment of national sovereignty as the only hope of saving civilization from atomic destruction, he headed the Committee to Frame a World Constitution, which completed and circulated among world scholars and political leaders a draft of a world constitution.

Hutchins was also chairman of the Commission on Freedom of the Press, which declared in its report, *A Free and Responsi-*

ble Press, published in 1947 by the University of Chicago Press, that "the press must be accountable. It must be accountable to society for meeting the public need and for maintaining the rights of citizens and the almost forgotten rights of speakers who have no press. It must know that its faults and errors have ceased to be public vagaries and have become public dangers. The voice of the press, so far as by a drift toward monopoly it tends to be exclusive in its wisdom and observation, deprives other voices of a hearing and the public of their contribution. Freedom of the press for the coming period can only be continued as an accountable freedom." (M. S. MR.)

Hygiene, Industrial: *see* INDUSTRIAL HEALTH.

Ibn-Sa'ud (1880?–), king of Saudi Arabia, was born about 1880 in Riyadh, the son of 'Abd-al-Rahmān, leader of the Wahabi sect of Arabs. Ibn-Sa'ud was christened 'Abd-al-'Aziz Ibn-'Abd-al Rahmān Ibn-Faisal Ibn-Sa'ud. For his early career, see *Encyclopædia Britannica.*

In 1933 Ibn-Sa'ud granted concessions for exploitation of his oil-rich lands to U.S. oil companies. The rentals from these leases made him independently wealthy; it was estimated that when Saudi Arabian oil output reached its anticipated peak in the early 1950s, the king would receive about $50,000,000 annually.

Ibn-Sa'ud was neutral during World War II, although he favoured the British. Opposed to the establishment of a Jewish homeland in Palestine, he criticized Pres. Harry S. Truman's appeal for admission of more Jewish immigrants into the Holy Land and in a letter to the president, Oct. 17, 1946, declared that Truman's statement violated previous presidential promises to the Arabs. Early the following year (Feb. 18, 1947), Truman conferred a Legion of Merit medal on the Arabian ruler for services to the Allied cause in the war; the medal was accepted by Ibn-Sa'ud's eldest son, then in Washington.

ICC: *see* INTERSTATE COMMERCE COMMISSION.

Ice Cream. Total U.S. production of ice cream in 1947 was estimated at 622,400,000 gal., 12% less than in 1946, but 42% above the average for 1941–45. The output increased about 80% when the controls of manufacture were removed in Sept. 1945; in 1946 the high record production of 740,470,000 gal. was reached. The amount of milk and cream available was about the same in 1947 as in 1946 but the public demand slackened somewhat as prices rose. Sugar was available in ample amounts.

States of highest production were Pennsylvania, New York, Illinois, California and Ohio. Per capita consumption was estimated at about 18 lb. in 1947 compared with nearly 20 lb. in 1946, and 10 lb. in prewar years. (J. C. MS.)

Ice Hockey. Canada, as usual, scored a "double" in National Hockey league competition. Les Canadiens of Montreal won their fourth straight league title, and the Toronto Maple Leafs captured the Stanley cup with playoff decisions over Montreal, four games to two, in the final. The National Hockey league, the major circuit of the sport, virtually reached the saturation point of its seating capacity with league, team and game attendance records. The six teams played to 99.6% of their seating capacity, with Chicago again leading the circuit with a record total of 521,831 customers for 30 home games. The Chicago Black Hawks also drew the largest crowd to witness a hockey game, a turnout of 20,004 on Feb. 23 for a clash with Boston. The most amazing aspect of the Chicago attendance records was that the Black Hawks were in last place most of the season. In all, the National Hockey league drew 2,424,260 fans, almost 425,000 more than in 1946–47.

Montreal and Toronto finished first and second, respectively, in regular league play, with Boston and Detroit third and fourth, to make up the playoff field. The Canadiens defeated Boston and Toronto eliminated Detroit, both by four games to one, in the semifinals.

Max Bentley of Chicago again closed the season as the leading individual scorer with 29 goals and 43 assists, but relinquished the Hart trophy—emblematic of the league's "most useful" player—to Maurice Richard of Montreal. Richard led the league in goals with 45.

William Durnan of Montreal established a new record by winning his fourth straight Vezina trophy as the league's outstanding goalie. The Calder trophy, awarded the outstanding rookie of the year, went to Howard Meeker of Toronto, while Robert Bauer of Boston won the Lady Byng trophy as the league's most gentlemanly player.

Four members of the Montreal Canadiens were named to the coaches' all-star team—Bill Durnan at goal, Kenneth Reardon and Emile Bouchard at defense and Maurice Richard at right wing. Milton Schmidt of Boston, centre and Doug Bentley of Chicago, left wing, completed the team.

Hershey, Pa., emerged as American league champion with a four-out-of-seven-game victory over Pittsburgh in the playoff final. Hershey won the eastern division race, while Cleveland topped the western sector.

Kansas City, Mo., again won the U.S. Hockey league championship by defeating Omaha, Neb., in the playoff final, four games to one. Kansas City finished second to Omaha in the northern division race, while Dallas, Tex., won the southern division.

Dartmouth college tied the University of Toronto for the intercollegiate hockey crown, their playoff game resulting in a 2–2 deadlock. The Dartmouth team, playing as the Hanover, N.H., Indians, won the National Amateur Athletic union championship with a 6 to 2 victory over Boston Amateur association. Czechoslovakia won the world's amateur hockey title. (M. P. W.)

Iceland. An island republic of the North Atlantic. Area: 39,768 sq.mi.; pop. (census 1940): 121,474; (est. 1945) 126,000. Capital: Reykjavik, the only large town (pop. 1945 est. 46,000). Religion: Lutheran Christian. President: Sveinn Björnsson. Prime minister: Olafur Thors (whose two-year-old coalition government resigned on Oct. 10, 1946, but continued to function on an interim basis until Feb. 3, 1947); after Feb. 3, Stefan Johann Stefansson.

History.—The long government crisis lasted all through the autumn of 1946. It had been inaugurated by Communist opposition to the new agreement with the United States. According to this agreement U.S. military personnel were withdrawn from Keflavik airport, but a small civilian staff remained and Americans were to have rights to use the field as long as the U.S. occupation of Germany continued. On this issue the two Communist ministers left the government, but a new ministry was not formed until Feb. 1947. Replacement of the Communists by the two Progressives gave the administration a shift toward the right.

Iceland's inflation, serious during World War II, became more troublesome in 1947. The price index, using 100 for 1939, was at 285 at the opening of 1946, 302 in Oct. 1946, 310 in Feb. 1947 and 325 in Oct. 1947. One of the pieces of foresight of the war period was to set aside 300,000,000 kr. as a reconstruction fund. This profit from war trade and occupation was

being used in 1947 to buy machinery. The adverse balance of trade was therefore nothing to cause concern. A favourable spring fishing season made prospects bright, but the summer brought disaster. While drought plagued western Europe and much of the U.S., Iceland was soaked with rain; hay would not dry, and farmers with livestock were in a precarious position. Meantime, the summer herring fishing was largely a failure, and Iceland's chief means of obtaining foreign exchange suddenly disappeared. Hence, prices rose and the country had to revoke import licences for all but essential goods.

Before these events had brought discouragement, however, Iceland had contributed to U.N.R.R.A. and in voluntary aid to other countries 27,400,000 kr. since the end of World War II. This was about 215 kr. per capita, a rate higher than that of any other country except the U.S.

The most earnestly debated international dispute was Iceland's demand for the return of manuscripts illustrating Iceland's golden age in literature, collected by Danes and long held in Danish collections. The Danish prime minister finally announced that if Iceland had a moral right to the manuscripts it should have them regardless of juridical rights and without compensation in any form.

Finance.—Monetary unit: króna=15.4 U.S. cents. Notes in circulation (Dec. 31, 1945) 177,410,000 kr.; gold reserve (Dec. 31, 1945) 5,736,000 kr. Bank deposits were 452,421,000 kr. in July 1943. Note circulation jumped from 24,580,000 kr. in Jan. 1941 to 123,810,000 kr. in Aug. 1943; loans in the same period from 92,137,000 kr. to 170,594,000 kr. Gold reserves and bank capital remained in 1946 practically at the 1939 figures. The government budget of 1939 had balanced at about 19,000,000 kr. In 1945 expenditure was 143,000,000 kr. and revenues 165,000,000 kr., giving a surplus of 22,600,000 kr. For 1947 the estimates were: expenditures 146,000,000 kr., revenues 136,000,000 kr.

Trade and Communication.—In 1945 exports totalled 267,261,000 kr. and imports 319,755,000 kr.; 90% of the exports went to Great Britain and most of the rest to the United States while about 65% of the imports were supplied by the United States and 21% by the United Kingdom. Exports were almost entirely fish and fish products (95%); imports consisted chiefly of: fuels and lubricants 26,000,000 kr., metal and mineral products 39,000,000 kr., machinery and appliances 31,000,000 kr., textile products 56,672,000 kr., food products and tobacco 40,000,000 kr. and wood cork and paper 26,000,000 kr. In 1946 and 1947 trade was shifting to the U.S.S.R. because of the inability of Britain and the United States to use Iceland's fish at a good price.

Iceland has no railroads, but in 1944 highways totalled 3,107 mi. There were 1,923 passenger cars, 192 buses, 1,991 trucks and 172 motorcycles. Also in 1944 there were 11,500 telephones and 27,339 radio sets in Iceland.

American Overseas Airlines inaugurated a Washington to Reykjavik service March 17.

Agriculture.—For 1944 the chief crops were: field hay 140,000 metric tons, meadow hay 80,000 metric tons and potatoes 8,000 metric tons. Of the population, 30.6% was engaged in agriculture. The planted and seeded area covered 135,000 ac. Livestock (1944) numbered: sheep 610,000, cattle 40,000, horses 60,000, goats 2,000, hogs 1,000, poultry 75,000 and fur bearers (fox and mink) 5,000.

Fisheries.—Of the population 15.9% was engaged in fisheries, and the total product was 461,314 metric tons (1944).

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Ice Skating. Ken Bartholomew, former G.I. from Minneapolis, Minn., returned to the U.S. throne he occupied in 1942 by winning the national speed skating championship. He dethroned a fellow townsman, Bob Fitzgerald, by winning the final mile event of the nationals after each was tied for first with 140 points. Gerry Scott, also of Minneapolis, won the women's senior speed title. She was intermediate champion in 1946.

Mario Trafeli, 18-year-old Wayne university football player, won the North American speed title, defeating Ray Blum of Paterson, N.J., 90–80. Betty Mitchell of Winnipeg, Man., won both the North American and Canadian senior women's championships. Frank Stack of Winnipeg annexed the men's Canadian title. Al Casale of Bloomfield, N.J., and Marion Hanley of New York city were senior victors in the eastern speed tests, while Blum and Miss Hanley triumphed in the mid-Atlantic championships.

Lasse Parkkinen of Finland won the world's speed crown,



BARBARA ANN SCOTT, of Ottawa, Canada, at Davos Platz, Switzerland, where she took the women's championship title in the European figure skating competition on Feb. 1, 1947

while Aake Segffarth of Sweden won the European championship.

Richard Button of Englewood, N.J., and Barbara Ann Scott of Ottawa, Ont., highlighted the figure skating, both in America and Europe. Button out-pointed Hans Gerschwiler of Sweden in the world's championship but lost the title on the decision of the judges. Miss Scott won the women's world title, with Daphne Walker of England second and Gretchen Merrill of Boston, Mass., third.

Button retained his national figure-skating championship and also added the North American title to his laurels. Miss Merrill captured both the national and North American championships. Other national titlists were: pair—Robert Swenning and Yvone Sherman of New York city; dance—Lois Waring and Walter Bainbridge of Washington, D.C. (M. P. W.)

Idaho. One of the far northwestern states of the U.S., belonging to the group regionally designated as the Pacific northwest and part of the original Oregon territory, Idaho is the 12th largest state with an area of 83,557 sq.mi. It was admitted as a territory by Pres. Abraham Lincoln in 1863 and became a state on July 3, 1890. It is popularly known as the "Gem state." Pop. (1940) 524,873, of which 66.3% was rural, 33.7% urban; (est. 1944) 531,573; (est. 1948) 560,000. The estimated population in leading cities for 1947 was Boise 34,300; Pocatello 24,500; Idaho Falls 19,800 and Twin Falls 16,200. There were 3,537 Indians in the state in 1940.

History.—State officers, all elected for the first four-year term in Idaho's history, were all Republican and took office on Jan. 6, 1947. Gov. C. A. Robins was the first chief executive ever to be elected from the northern panhandle section of Idaho. Other officials were: lieutenant governor, Donald S. Whitehead; secretary of state, J. D. Price; attorney general, Robert E. Smylie (appointed in November to succeed Robert Ailshie, deceased); auditor, N. P. Neilson; treasurer, Leila D. Painter; superintendent of public instruction, Alton Jones. The state senate and house were both of a large Republican majority, and U.S. congressional officers were Sen. Henry C. Dworshak, Republican; Abe McGregor Goff, representative from the first congressional

district, and John Sanborn from the second, both Republicans, and Glen Taylor, Democrat, elected to the senate in 1944 for the six-year term. The state legislature adopted the Peabody institute survey recommendations, which completely revised the public school system of Idaho and gave higher salary increases to teachers.

Education.—The school problems were greatly increased with the reorganization plans adopted by the legislature. The University of Idaho southern branch at Pocatello was granted complete status as a four-year college by the legislature and became known as Idaho State college. Lewiston Normal school in north Idaho was granted similar status and renamed Northern Idaho College of Education and Albion normal became Southern Idaho College of Education with a four-year course. Total school population in elementary, high school and colleges and universities, in both public and parochial schools, totalled 121,904. Elementary enrolment showed a substantial increase in 1947 with 85,982 students and 2,988 teachers. High school enrolment was 30,286 students with 1,318 teachers. Universities and colleges showed an enrolment of 5,636 students with 400 instructors.

Communications.—During the calendar year of 1946 the Idaho highway department expended $5,119,408 for construction of highways and $3,386,994 for maintaining highways. It was estimated that the department would expend $7,800,000 for construction of highways during the calendar year 1947, and $2,700,000 for maintenance.

Social Insurance and Assistance, Public Welfare and Related Programs.—There are two institutions for the insane—one at Orofino and one at Blackfoot; a home for the feebleminded at Nampa; a school for the deaf and blind at Gooding and a state industrial school (reformatory) at St. Anthony, which was put under a new program in charge of M. F. Pratt, who came to Idaho from the famed Boys Town in Nebraska. The state tuberculosis hospital is at Gooding. The penitentiary located at Boise had an average of 213 inmates during the year 1947, with an ultimate capacity of 400.

Agriculture.—Main sources of income in southern Idaho are potatoes, sugar beets, beans, fruit, hay and dairying.

Table I.—*Principal Agricultural Products of Idaho, 1947 and 1946*

Crop	1947	1946
Wheat, bu.	40,449,000	34,846,000
Corn, bu.	1,012,000	1,092,000
Oats, bu.	7,348,000	7,216,000
Barley, bu.	10,767,000	9,345,000
Sugar beets, short tons	1,732,000	1,246,000
Dry beans, cwt.	2,325,000	2,142,000
Dry peas, cwt.	1,998,000	2,106,000
Hay, tons	2,430,000	2,430,000
Potatoes, bu.	29,480,000	41,160,000

Table II.—*Mineral Production in Idaho, 1946*

Production	Unit	Value
Zinc	138,750,000 pounds	$12,205,000
Lead	119,700,000 pounds	12,089,700
Silver	5,985,000 troy ounces	4,835,800
Phosphate	478,000 tons	2,151,000
Gold	41,550 troy ounces	1,454,250
Antimony	11,113,404 pounds	1,055,231
Cadmium	494,501 pounds	475,877
Tungsten	17,271 units WO3	357,202
Copper	1,950,000 pounds	313,950
Mercury	900 flasks	79,200

Mineral Production.—Average figures for 1946 were made available late in 1947, since strikes and portal-to-portal legal procedure had held up the compilation. (C.A. Rs.)

Illinois. A north central state of the United States, admitted to the union in 1818, nicknamed the "Sucker state," sometimes called the "Prairie state." Total area 56,400 sq.mi. of which 55,947 sq.mi. are land. Pop. (1940) 7,897,241, including 3,957,149 males and 3,940,092 females; 7,504,202 white, 393,039 nonwhite. The census bureau estimated Illinois population on July 1, 1947, to be 8,221,000. Population classed as urban in 1940 was 5,809,650, rural not on farms 1,119,488, rural farm 968,103. Chicago (3,396,808) is the largest Illinois city, followed by Peoria (105,087); Rockford (84,637); East St. Louis (75,609); Springfield, the state capital (75,503).

History.—The outstanding 1947 event in state affairs was reapportionment of the state's congressional representation on the basis of the 1940 census. The legislature had refused to redistrict the state since 1901. The new apportionment created 26 districts of approximately equal population and increased the representation of the Chicago area from 10 to 13. Equally important was the equalization of districts in Chicago which had in 45 years reached such a degree of inequality that the 7th district had nearly 1,000,000 inhabitants and the adjoining 5th district only 112,000. Dwight H. Green, Republican, was governor of Illinois in 1947.

Industrial and trade activity were at high rates in 1947. Unemployment relief payments to the temporarily jobless dropped to a low mark of 50,000 per week. Claimants for unemployment aid were 26% less in 1947 than in 1946. A total of 207,000 claimants were paid benefits.

The legislative session of 1947 was notable for spending money. A grand total of $1,008,427,622 was appropriated. The governor's estimated operating budget of $822,164,160 for the 1947–49 biennium was raised to $871,339,600. The general fund was tapped for $15,000,000 for increased operating costs of the various state departments.

At the close of 1947 one-fourth of the state's 915,000 World War II veterans had been paid the bonuses due them under the service recognition law of 1946 which by referendum authorized issuance of $385,000,000 in state bonds to pay $10 for every month of home service and $15 for every month of overseas service. Illinois taxpayers in the year 1946 also paid a total of $3,545,699,996 in federal taxes of all kinds.

Education.—Public schools in Illinois in 1947 had 1,250,000 elementary and high school pupils. Of these, 257,228 were enrolled in Chicago grade schools, a gain of 8,503 over the year before. Illinois is among the states contributing the lowest percentage of state funds to local school bodies. This amount was raised from $54,646,216 in 1946 to $81,778,909 in 1947. The sum of $14,066,159 was appropriated for the state teachers' colleges, and $60,083,000 for the University of Illinois (permanent improvements excluded).

Social Insurance and Assistance, Public Welfare and Related Programs.—Appropriations for public assistance (social welfare) during 1947 totalled $212,957,870; for state institutions (exclusive of permanent improvements) $69,034,745; penal institutions, $12,558,980.

The Illinois old age pension averaged $41 paid to 127,000 pensioners. The state insists that children support aged parents. Total public aid appropriated for the two year period 1947–49 was $212,637,870.

Communications.—The state highway commission placed under contract $33,000,000 worth of highway improvements during 1947. The average before World War II was $21,000,000 per year. In addition, $15,000,000 for the program of farm-to-market roads was contracted for in 1947. The legislature in 1947 appropriated $112,062,256 for state highways, and $114,672,173 for local roads and streets, including farm-to-market roads projects. The Illinois highway system consisted of 13,683 mi. of high-type paved roads connecting with 75,000 mi. of minor feeder roads and lanes, of which 50,000 mi. were unsurfaced. Illinois had 11,760 mi. of railway servicing 80% of the communities of the state.

Banking and Finance.—Banks operating under state charters in Illinois on June 30, 1947, numbered 501. State banks outside of Chicago held $1,341,349,051 of deposits. Within Chicago, state banks held deposits of $1,624,033,930. There were 375 national banks in the state. Total assets of all banks amounted to $11,653,742,000 including U.S. government obligations of $5,886,299,000. Deposits amounted to $8,788,572,000, exclusive of government and interbank deposits.

State tax collections increased in 1947. The sales tax amounted to $137,148,979 for the first 11 months of the year, a gain of $24,500,000 over 1946. State levies on 20,560,510 gal. of alcoholic liquors amounted to $3,419,345. The state debt consisted of $150,000,000 in noncallable bonds due in 1954 and 1959, in addition to the soldier bonus bonds sold and to be issued.

Agriculture.—Because of high prices, Illinois crops of 1947 were worth $1,300,000,000, an all-time high despite reduced yields of corn, oats and soybeans.

Table I.—*Leading Agricultural Products of Illinois, 1947 and 1946*

Crop	1947	1946
Corn, bu.	343,492,000	514,368,000
Soybeans, bu.	65,196,000	75,036,000
Oats, bu.	117,005,000	168,693,000
Wheat, bu.	19,361,000	19,553,000

Manufacturing.—The value of products manufactured in Illinois in 1939 according to the last manufacturing census was $4,794,860,733; the number employed was 688,800; total wages and salaries were $988,453,881. The principal industries and their value were: meat packing $479,501,224; steelworks and rolling mills $207,301,815; petroleum refining $122,933,528; tractors $121,550,621.

Table II.—*Production of Coal and Petroleum in Illinois, 1945, 1944 and 1943*

	1945	1944	1943
Bituminous coal, net tons	72,525,000	76,791,449	72,631,000
Petroleum, bbl.	75,210,000	77,413,000	82,260,000

Mineral Production.—Because of car shortages and frequent shutdowns, Illinois coal production in 1947 was disappointing, falling about 13,000,000 tons under the 1945 figure and 4,000,000 under the 1946 estimated

production of 63,767,000 tons. Only intensive drilling of new wells kept Illinois from showing a greater decline of oil production. Value of Illinois mineral production in 1945 was $332,489,000. (L. H. L.)

Illinois, University of. George Dinsmore Stoddard, who became president of the University of Illinois in July 1946, was formally installed in May 1947.

New records in enrolment were set for the fall semester of 1947 on the university's four campuses: at Urbana-Champaign 19,449; Chicago professional schools of medicine, dentistry and pharmacy 1,381; Chicago undergraduate division at Navy pier 4,550 and Galesburg undergraduate division 1,682—a total of 27,062 resident students.

The university completed during the year one of the largest federal housing programs in the nation, providing living space in 492 temporary buildings for 3,931 persons.

The institute of aeronautics, a pioneering venture launched in 1945 as a horizontal administering unit for all university aeronautical activity, had become in 1947 a leader in this field among institutions of higher learning. Flight instruction, including night flying, was provided at the 762-ac. airport and various research projects were launched.

Operated on a similar basis was the institute of labour and industrial relations, which was engaged in research, extension programs and on-campus instruction. The new bureau of educational research and service gave emphasis to assisting individual school systems.

There was created in 1947 an institute of communications research which planned research and graduate teaching in a wide area.

Under construction in the newest building on the Urbana campus was a betatron designed to generate more than 300,000,000 volts energy and expected to produce cosmic-ray effects in the laboratory. The betatron was invented in 1940 by Prof. Donald W. Kerst of the university's physics department.

Major buildings under construction at Urbana included laboratories for mechanical engineering, electrical engineering and chemistry, and a dormitory for women. All were planned for completion by the fall of 1948.

A university regional planning committee of 40 members, working with community leaders, neared completion of a study and recommendations for development of a 16-county area in southern Illinois, where there was a labour surplus and widespread dependency. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.)

Illiteracy. During the year 1947, intensive literacy campaigns were being developed in all corners of the world. Those in the Latin American countries were particularly rewarding. The National Literacy campaign in Honduras was for the benefit of all illiterates over the age of 15. Honduras was divided into 17 departments. The capital of each of the departments had a literacy commission and every village had its subcommission. Private individuals and teachers were under obligation to teach at least five persons a year. Teachers who participated in the program were given preference for appointments the following year and their work counted toward promotions. When a student could read and write, his teacher applied for an examination for him and a literacy certificate was issued to the student when he had passed the examination.

In Nicaragua all literates between the ages of 15 and 70 were obliged to teach reading and writing to illiterates between the ages of 12 and 50.

Guatemala patterned its literacy campaign after the Mexican Literacy law of Aug. 1944. Penalties enforce the law and awards of merit, including gold medals, stimulate efforts and achievements.

April 16, 1947, marked the beginning of the all-out campaign of the Brazilian ministry of education to reduce illiteracy. The 1940 census showed 52% of the people over 19 years of age were illiterate. Ten thousand teaching centres were organized; the textbooks which were adopted for the program use the system of Frank C. Laubach.

Statistics of the United States office of education showed approximately 10,000,000 adults in the United States who could not read or write. From 20% to 33⅓% of elementary and high school children failed to achieve the reading standards of their respective grades. Among solutions offered in conferences on functional illiteracy were remedial clinics in all public school systems and an intensive adult education program.

Dr. James Yen was the founder of the Mass Education movement in China. His program involved teaching the people how to read and write and also involved giving them knowledge and training to improve their living standard. Health, government, citizenship and agriculture were taught.

Food, clothing and housing problems made educational reform in Germany doubly difficult. There were in 1947 more than 2,000,000 school children between the ages of 6 and 18 in the U.S. zone, and 32,000 teachers. Lack of qualified teaching personnel and the school building shortage impeded educational reform and progress. Of former teachers 70% were denied teaching licences by the German denazification courts. This void had to be filled by inexperienced and inadequately trained teachers.

Japanese statistics stated that 99% of school-age children attended primary school before World War II. The United States Educational mission to Japan concluded that, because of the difficulty of their script, the majority of Japanese people were familiar with only 1,000 characters, which enabled them to read little more than newspaper headlines. The fact that only the most desirable students were selected for secondary school work kept literacy at a low level. The United States Educational mission proposed language reform, decentralization of school administration, new teaching methods, intensive adult education, an upward revision of compulsory education, and co-educational, tuition-free and tax-supported schools. This education was to cover nine years of schooling.

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Illumination: *see* ELECTRICAL INDUSTRIES.

I.L.O.: *see* INTERNATIONAL LABOUR ORGANIZATION.

Immigration and Emigration. Almost 80,000,000 aliens and citizens were admitted to the United States during the fiscal year ended June 30, 1947, while approximately the same number departed. By far the greatest number, 97%, were persons who crossed and recrossed the land borders. Arrivals and departures during 1946 and 1947, exclusive of border crossers, travellers between the U.S. and the insular possessions, and agricultural and railway track labourers admitted from Mexico, were as reported in the table.

Arrivals and Departures of Aliens and Citizens During Fiscal Years Ended June 30, 1946 and 1947

	1947	1946
Arrivals:		
Aliens admitted	513,597	312,190
Immigrant	147,292	108,721
Nonimmigrant	366,305	203,469
U.S. citizens	437,690	274,543
Aliens debarred	4,771	2,942
Departures:		
Aliens	323,422	204,353
Emigrant	22,501	18,143
Nonemigrant	300,921	186,210
U.S. citizens	451,845	230,578

During the fiscal year 1947, 147,292 immigrant aliens were admitted to the U.S. for permanent residence. This represented a 35% increase over the 108,721 immigrants admitted in 1946 and was the largest number admitted in any year after 1930. The principal countries from which these immigrants came were: Canada (23,467); England (20,147); Germany (13,900); and Italy (13,866). Among the immigrants were 17,018 displaced persons who were admitted under the president's directive of Dec. 22, 1945. There were 70,701 quota immigrants admitted, or 46% of the permissible quota of 153,929, and 76,591 nonquota immigrants. The principal groups of nonquota immigrants consisted of 25,736 wives, 101 husbands and 1,375 alien children of citizen members of the U.S. armed forces admitted under the act of Dec. 28, 1945, and 35,309 natives of nonquota countries, chiefly Canada and Mexico. Aliens admitted for temporary stay and resident aliens returning from a brief sojourn abroad totalled 366,305.

There were 323,422 aliens who departed during the fiscal year 1947. Of those who departed 22,501 were emigrants or aliens who left a permanent residence in the U.S. for residence of a year or more abroad. The principal countries to which emigrants went were China (2,249); Great Britain (2,134); Eire (1,851); and France (1,148). The remaining 300,921 aliens who departed were nonemigrants who had been admitted temporarily and resident aliens who planned to return to the U.S. after a temporary stay abroad.

During the fiscal year, 4,771 aliens seeking admission for 30 days or longer and 2,664 aliens who wished to come in for less than 30 days were excluded from entry into the United States.

Authority for the importation of agricultural labourers was continued by congressional authorization until Dec. 31, 1947. As of June 30, 1947, there were in the U.S. 64,522 agricultural labourers, most of whom came from Mexico.

The continued increase in the number of illegal entrants, primarily at the Mexican border, who were attracted by the higher wages and better living conditions prevailing in the U.S., caused a greater number of deportations and voluntary departures of deportable aliens than in any previous year on record. The immigration border patrol apprehended 193,657 deportable aliens. During the fiscal year 1947, 18,663 aliens were deported, 195,880 aliens who had been adjudged deportable were permitted to depart at their own expense without warrants of deportation, and 88 destitute aliens were returned to their own countries at the expense of the government of the United States. (*See* also ALIENS; CENSUS DATA, 1947; REFUGEES.)

(W. B. MI.)

Great Britain and Commonwealth.—Emigration from the United Kingdom is stimulated by both push and pull as in all normal population movements. Dissatisfaction with conditions in the home country were partly economic (shortage of congenial accommodation, shortage of consumer goods), partly personal, and to a smaller degree, political. Unemployment, a large expulsive factor at various periods in the past, was not a general factor in 1947.

On the whole, the pull of the new country must be considered greater than the push from the old. Among the personal factors were the experience gained and the attachments formed during World War II in various parts of the British empire. Twenty-three thousand service men and women had been released overseas from the three services.

The dominions needed population: Australia with a population of 7,000,000 and Canada with 12,000,000 were actively planning for immigration. South Africa found it politically and socially desirable to increase its white population. New Zealand could absorb more people. The rate of absorption was limited by some general factors, others were specific. The question of housing was one common strong limiting factor. Economically and geographically, Canada was in the stronger position: the distance was not so great and building materials were more readily obtainable. Canada's needs were, in the main, for workers in primary occupations such as mining, lumbering and farming, whereas Australia needed predominantly workers in secondary industries: builders, metalworkers, textile operatives and technicians of various kinds. South Africa wished to attract more specifically skilled workers: printers, refrigeration and radio engineers, toolmakers, diesinkers, blacksmiths and coppersmiths.



ITALIAN EMIGRANTS at Genoa preparing to board ship for Argentina. With 100,000 applications pending, an agreement between the two nations was signed on Feb. 21, 1947, providing for unlimited admission of Italians into Argentina

Transport was difficult to obtain throughout the year, or movements to all these countries would have been larger. Ontario took vigorous action and put on special air traffic. The movements were about 8,000 to South Africa, 7,000 to Canada, 6,000 to Australia and 6,000 to New Zealand.

The need for labour in the United Kingdom led to the bringing in of displaced persons from Europe, mainly Balts. These emergency volunteer workers totalled between 20,000 and 25,000 persons. Between 2,000 and 3,000 distressed relatives of persons resident in the United Kingdom were also admitted. Although not, technically speaking, immigrants, the members of the Polish Resettlement corps, who were remaining in the country, and those refugees from nazi oppression who had been in the country for some years and were being granted British citizenship added several tens of thousands to the permanent population of the country.

The total influx during 1947 exceeded the total outflow, but in this respect the year was not typical, since the determining factors of the situation still lay in abnormal, immediate post-war conditions.

(B. L. B.)

Imports: *see* INTERNATIONAL TRADE; TARIFFS. *See* also under various countries.

Income, Distribution of: *see* WEALTH AND INCOME, DISTRIBUTION OF.

Income and Product, U.S.

Preliminary estimates of the national income and the gross national product of the United States for 1947 show

substantial increases over the 1946 figures. The national income rose to $203,200,000,000 in 1947, as compared with $178,200,000,000 a year earlier, while the gross national product attained a record total of $231,400,000,000, as against $203,700,000,000 in 1946. In the case of both these measures of over-all business activity, the primary influence accounting for the expansion in dollar value was the inflationary trend of prices which persisted throughout the year.

Meaning of National Income and Gross National Product.—National income as understood in this survey represents a summation of the net earnings of the various factors of production derived from their association in current economic production. Both money income and income in kind are included, so long as they are derived from participation in current production. Such income receipts as relief, unemployment benefits, pensions, gifts, capital gains or losses and gains from illegal activities are excluded since they do not represent earnings derived from current productive activity. The incomes included in the compilation are net incomes; that is, in the case of business enterprises, the incomes are counted after deduction of costs of doing business and after allowance for depreciation and indirect business taxes. The estimates are limited to those incomes which are ordinarily derived from the market economy. Thus, the value of the services of housewives is not included, whereas the income derived from government employment is included. It is well to emphasize that the national income is not simply the sum of money incomes of all persons in the U. S., such as might be reported for income tax purposes.

The gross national product, as measured by the U.S. department of commerce, represents a summation of three major components: (1) the market value of goods and services flowing to consumers, (2) the value of the gross output of capital goods retained by private business, and (3) the cost value of the goods and services produced or purchased by government. The gross national product differs from the national income in that no allowance is made for depreciation and other reserves (which constitute business expenses in the computation of income) or for indirect taxes paid by business.

Taken together, the national income and national product estimates provide a comprehensive picture of the current economic activity of the U.S. as a whole. The two sets of estimates represent the receipts (national income) and expenditures (national product) sides of a consolidated national account showing the major transactions that occurred during the year relative to current production of goods and services. The data are useful in giving quantitative expression to economic trends and problems of the national economy as well as in comparing the operations of an individual business firm with the national totals for all economic activity.

Revision of National Income Data.—The department of commerce published a special *National Income Supplement* to the *Survey of Current Business* in July 1947, which contained thoroughly revised national income statistics for the period 1929–46. It also provided a description of the general approach used in estimating the official figures for the U.S. income and gross national product and a series of definitions of the various aggregates. The revised statistics were presented in much greater detail than previously in a series of more than fifty tables.

While many of the changes made in the national income estimates were offsetting, the net effect of the conceptual and statistical revisions was to raise the general level of the national income and the national product estimates. This was particularly the case in the data for the war period.

Changes in U.S. National Income, 1929–47.—Estimates of national income from 1929–47 are shown in Table I.

The estimates in the accompanying tables are in terms of dollars, and consequently are affected by the general level of prices as well as by the physical quantity of goods and services produced. Since for many purposes the physical quantity of national production, or real national income, is required, a series reflecting changes in this volume is also shown in Table I, average prices of 1939 being used as a base.

In assessing the importance of the rise in national income over a period of time, it is essential to take account of the increase in population. As population rises, there are more persons to share in the goods being produced for present and future consumption and also more hands

Table I.—*National Income in Current and 1939 Dollars*

Year	Current dollars Total (In 000,000,000s, of dollars)	1939 Dollars Total (In 000,000,000s, of dollars)	1939 Dollars Per capita
1929	87.4	70.5	$579
1930	75.0	62.0	504
1931	58.9	54.5	439
1932	41.7	42.6	341
1933	39.6	42.1	335
1934	48.6	49.1	388
1935	56.8	56.2	442
1936	64.7	64.0	500
1937	73.6	70.1	544
1938	67.4	66.1	509
1939	72.5	72.5	554
1940	81.3	80.5	610
1941	103.8	97.9	735
1942	136.5	118.7	881
1943	168.3	141.4	1036
1944	182.3	148.2	1073
1945	182.8	145.1	1040
1946	178.2	130.1	921
1947*	203.2	130.3	905

*First three quarters actual; last quarter estimated.

available for contributing to total output. The changes in income produced per capita, after adjustment for fluctuating prices, are shown in Table I.

By the end of 1946, the job of reconversion was virtually completed so that during the year 1947 only a gradual increase in output could be accomplished. For the year as a whole, however, the level of output was above that of 1946, since the trend in the earlier year was more sharply upward. This increase in total production in part accounts for the expansion of the national income from $178,200,000,000 in 1946 to the record total of $203,200,000,000 in 1947. Much more significant, however, was the substantial rise in prices that occurred during the year as a result of the inflationary potential that had been built up during the

Table II.—*National Income by Distributive Shares*

(In 000,000,000s of dollars)*

Item	1939	1945	1946	1947†
National income	72.5	182.8	178.2	203.2
Compensation of employees	47.8	122.9	116.8	128.5
Wages and salaries	45.7	117.6	111.1	123.2
Private	37.5	82.1	90.2	105.7
Military	.4	22.4	8.0	4.1
Government civilian	7.8	13.0	12.9	13.4
Supplements to wages and salaries	2.1	5.3	5.7	5.2
Employer contributions for social insurance	1.5	3.8	4.1	3.4
Other labour income	.5	1.5	1.6	1.8
Income of unincorporated enterprises and inventory valuation adjustment	11.3	30.2	35.0	40.7
Business and professional	6.8	16.7	19.7	22.4
Income of unincorporated enterprises	6.9	16.8	21.0	‡
Inventory valuation adjustment	—.2	—.1	—1.3	‡
Farm	4.5	13.5	15.2	18.3
Rental income of persons	3.5	7.0	6.9	7.3
Corporate profits and inventory valuation adjustment	5.8	19.7	16.5	23.3
Corporate profits before tax	6.5	20.2	21.1	28.2
Corporate profits tax liability	1.5	11.3	8.6	11.2
Corporate profits after tax	5.0	8.9	12.5	17.0
Dividends	3.8	4.8	5.6	6.6
Undistributed profits	1.2	4.2	6.9	10.4
Inventory valuation adjustment	—.7	—.5	—4.7	—4.9
Net interest	4.2	3.1	3.2	3.4

*Detail will not necessarily add to totals because of rounding.
†First three quarters actual; last quarter estimated.
‡Not available.

war. It may be seen from Table I that after adjustment for the change in the cost-of-living index there was only a small increase in the national income over the level of the preceding year. It is highly probable that the figures in the table in terms of 1939 dollars understate the increase in real output since the cost-of-living index is not representative of the entire range of goods and services covered by the national income.

Table III.—*Gross National Product or Expenditure*

(In 000,000,000s of dollars)*

Item	1939	1945	1946	1947†
Gross national product	90.4	213.1	203.7	231.4
Personal consumption expenditures	67.5	121.7	143.7	164.5
Durable goods	6.7	8.0	14.9	19.7
Nondurable goods	35.3	75.3	87.1	99.1
Services	25.5	38.4	41.7	45.7
Gross private domestic investment	9.0	9.1	24.6	30.5
New construction	4.0	3.1	8.5	10.6
Producers' durable equipment	4.6	7.1	12.4	17.6
Change in business inventories	.4	—1.2	3.7	2.3
Net foreign investment	.9	—.8	4.8	8.4
Government purchases of goods and services	13.1	83.1	30.7	28.0
Federal	5.2	75.0	20.7	17.3
War	1.3	76.2	21.3	‡
Nonwar	3.9	1.0	2.4	‡
Less: Government sales	.0	2.2	3.0	1.4
State and local	7.9	8.2	10.0	12.2

*Detail will not necessarily add to totals because of rounding.
†First three quarters actual; last quarter estimated.
‡Not available.

Distributive Shares of the National Income.—The fact that the economic situation in 1946 was dominated by the effort to reconvert industry to a peacetime basis, while that of 1947 was subject to strong inflationary pressure with only a moderate increase in production, is reflected in the changes in the distributive shares of national income, shown in Table II. The main differences between the two years can be seen in the trends of wages and salaries and profits.

The downward trend of wages and salaries was reversed in 1947, when this component of the national income increased to $123,200,000,000 from $111,100,000,000 in 1946. While this rise was considerably less than the increases recorded during some of the war years, it is significant that it was occasioned by only a moderate increase in employment. There was little change in the average length of the work week and employment increased by less than 500,000 persons. Hence, the primary influence accounting for the increase in wages and salaries was the higher rates of pay that were in effect in 1947.

The several categories of business income recorded the marked increases that can be expected in a period of rapidly rising prices. Unincorporated business and professional income increased from $19,700,000,000 in 1946 to $22,400,000,000 in 1947. This rise was of about the same magnitude as that of the preceding year, though it was generated much more by higher prices than by an increased volume of business. As the prices of farm products rose appreciably, net farm income also advanced from $15,200,000,000 in 1946 to $18,300,000,000 in 1947, a larger increase than was recorded in the preceding year.

Table IV.—*Personal Income and Disposition of Income*

(In 000,000,000s of dollars)*

Item	1939	1945	1946	1947
Personal Income	72.6	171.6	177.2	197.3
Wage and salary receipts	45.1	115.2	109.2	121.1
Total employer disbursements	45.7	117.5	111.1	123.2
Less: Employees' contributions for social insurance	.6	2.3	1.9	2.1
Other labour income	.5	1.5	1.6	1.8
Proprietors' and rental income	14.7	37.1	41.8	48.0
Dividends	3.8	4.8	5.6	6.5
Personal interest income	5.4	6.8	7.7	7.9
Transfer payments	3.0	6.2	11.3	11.8
Less: Personal tax and nontax payments	2.4	20.9	18.8	21.7
Federal	1.2	19.4	17.2	19.8
State and local	1.2	1.5	1.6	1.9
Equals: Disposable personal income	70.2	150.7	158.4	175.6
Less: Personal consumption expenditures	67.5	121.7	143.7	164.5
Equals: Personal saving	2.7	29.0	14.7	11.1

*Detail will not necessarily add to totals because of rounding.
†First three quarters actual; last quarter estimated.

Corporate profits recorded a substantial rise in 1947. Profits before taxes increased to $28,200,000,000 during the year, from $21,100,000,000 in 1946, while after allowance for tax liabilities the estimated increase was from $12,500,000,000 to $17,000,000,000. The large demands upon corporate funds that arose through the higher value of inventory holdings and through the need for business expansion and modernization, probably limited the increase in dividends in 1947. There was, however, an increase of $1,000,000,000 over the level of 1946, which is a sizeable rise for this type of income.

Gross National Product.—The latest available data on the gross national product are shown in Table III. In 1947, this measure of the value of total output increased to the new high level of $231,400,000,000, as compared with $203,700,000,000 a year earlier.

From the standpoint of judging the character of the economic boom, it should be recognized that the fundamental impetus to expansion in 1947 came from the record level of investment demand. Gross private domestic investment reached a figure of $30,500,000,000, up 24% from 1946 and more than 3 times the 1945 figure. Moreover, the huge demand for goods from abroad resulted in an unusually large net balance on the foreign account. Net foreign investment in 1947 amounted to $8,400,000,000, as compared with $4,800,000,000 in 1946.

It may be seen that all components of gross private domestic investment were higher in 1947 than in 1946. New construction increased by more than $2,000,000,000 to reach a total of $10,600,000,000, while expenditures for producers' durable equipment rose from $12,400,000,000 in 1946 to $17,600,000,000 in 1947. On the other hand, the increase in inventories during 1947 of $2,300,000,000 was less than in 1946 and, in total, not particularly large in relation to the size and trend of gross national product. The effect of inventory accumulation on the business situation should not be minimized, however, since the rate of accumulation was greater in the second half of the year than in the first half.

Perhaps more important than the changes in government expenditures in 1947 was the fact that government as a whole was operating at a significant surplus of receipts over expenditures. This is indicative of the pressure of private buying, particularly of investment goods, which was more than enough to absorb the government surplus. In 1947, total government purchases of goods and services declined moderately from the year before, the change being from $30,700,000,000 to $28,000,000,000. The drop in the expenditures of the federal government was somewhat larger, from $20,700,000,000 to $17,300,000,000, but this was partially offset by an increase in expenditures of state and local units from $10,000,000,000 in 1946 to $12,200,000,000 in 1947. It may be noted that government outlays as a whole were far above their prewar level of $13,100,000,000.

With prices appreciably higher and even the volume of goods available greater, consumer expenditures in 1947 rose to the record level of $164,500,000,000, from the 1946 figure of $143,700,000,000. All the major categories of consumer expenditures showed sizeable increases: durable goods purchased increased from $14,900,000,000 in 1946 to $19,700,000,000 in 1947 and expenditures on services rose from $41,700,000,000 to $45,700,000,000. More unexpected, perhaps, was the sizeable increase in the case of nondurable goods, where expenditures increased to $99,100,000,000 from the level of $87,100,000,000 in 1946.

Use of Consumer Income.—Data on the disposition of personal income are shown in Table IV. It may be noted from the table that disposable income in 1947 increased much less than consumer spending. As a result, there was a further decline in current personal savings, though this was necessarily less spectacular than in 1946. The trend of savings had been downward from their peak during the war of $35,600,000,000 in 1944 to a level of $14,700,000,000 in 1946. In 1947 there was a further decline to $11,100,000,000. (*See* also BUDGET, NATIONAL; BUSINESS REVIEW; DEBT, NATIONAL; WEALTH AND INCOME, DISTRIBUTION OF.)

(M. GT.)

Income Tax: *see* TAXATION.

India. A subcontinent projecting from the mainland of Asia, India comprised until Aug. 15, 1947, 11 major or "autonomous" provinces, 5 minor areas directly administered by the central British government and 562 states under Indian rulers. The last were scattered about the subcontinent and varied greatly in size and importance, as well as in the powers enjoyed by their rulers. British India (the 11 major provinces and 5 minor areas) had its capital at New Delhi and was under a viceroy and governor-general, who was also the representative of the crown in its relations with the Indian states. Area: 1,581,410 sq.mi., of which the native states and agencies totalled 715,964 sq.mi.; pop. (1941 census): 388,997,955. Chief cities (1941 census): Delhi (cap. 521,849); Calcutta (2,108,891); Bombay (1,489,883); Madras (777,481); Hyderabad (739,159); Lahore (671,659). Principal languages: northern India (Indo-Aryan): Urdu, Hindi, Bengali, Panjabi, Rajasthani, Gujarati and Marathi; southern India (Dravidian): Telugu, Tamil, Kanarese, Malayalam. Principal religions: Hindu (65.6%); Moslem (24.3%). Ruler: George VI, king emperor; viceroy and governor-general: Admiral Earl Mountbatten of Burma.

History.—On Feb. 20, 1947, the British prime minister, Clement R. Attlee, announced in the house of commons the decision of the British government to transfer power by a date not later than June 1948 to an Indian government which, resting on the sure support of the people, would be capable of maintaining peace and administering India with justice and efficiency. If a constitution were not worked out by that time, the British government would consider the question of handing over either to some form of control government for British India, or in some areas to the existing provincial governments. At the same time it was stated that Field Marshal Lord Wavell was to be succeeded as viceroy by Admiral Earl Mountbatten of Burma. The latter took over office on March 22.

The prospect of the withdrawal of British rule was viewed with uneasiness by the Indian minority parties, despite the assurances on the part of political leaders that their rights would be respected, and trouble broke out in various parts of the country. The Sikhs, originally a militant Hindu sect who had suffered bitter persecution at the hands of the Mogul emperors in the 18th century, had a traditional aversion to Moslem domination. The Punjab had been administered with conspicuous success by a unionist coalition cabinet of Moslem, Sikh and Hindu ministers under Sir Khizr Hyat Khan. In March the Moslem league forced the premier to resign, but since it was unable to form an alternative administration with the requisite majority in the legislature, the province was taken over by the governor, Sir Evan Jenkins. Street fighting between adherents of the rival parties broke out in Lahore, Amritsar, Multan and other cities of the Punjab. A serious situation developed in the North-West Frontier province. There the population was almost entirely Moslem, but there was a strong party, led by Abdul Ghaffar Khan, the "Frontier Gandhi," which supported the Indian National congress. A large section was in favour of an independent Pathan state. On the other side of India, rioting in Calcutta was growing in intensity, and there was opposition on







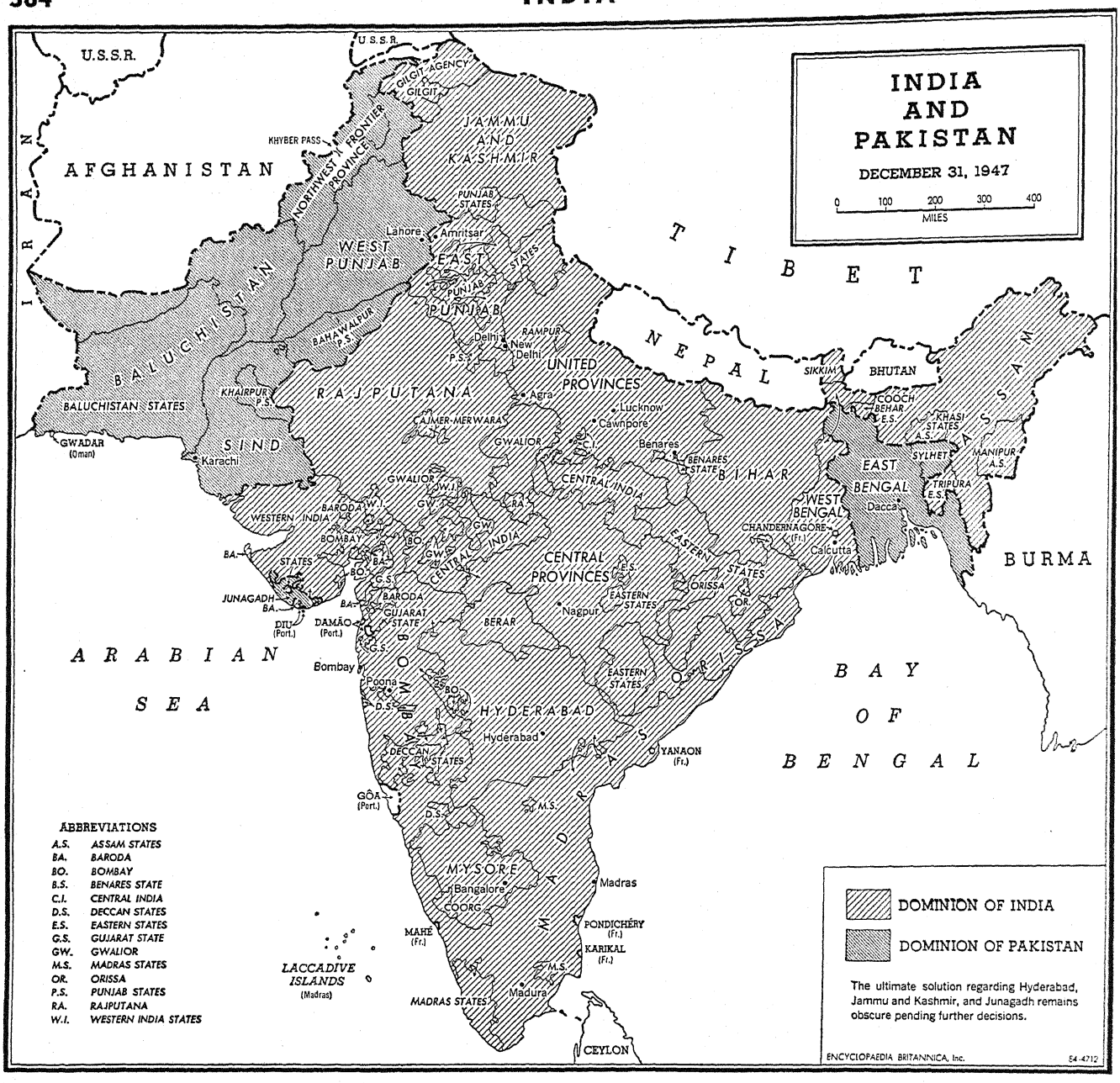
Above, left: OLD AND YOUNG were among the hungry residents of Baroda, India, shown mobbing an official distributing annual gifts of food and clothing on the occasion of the birthday of the maharaja of Baroda in 1947

Above, right: DESTRUCTION IN LAHORE, India, after a week of rioting and arson by Moslems, Hindus and Sikhs over the British partition plan being debated in the Punjab assembly during June 1947

Left: JOINT SESSION of the Bengal legislature which voted to join the Pakistan constituent assembly, June 20, 1947. Members at right foreground were rising to cast their votes at the "no" exit; the others headed for the "aye" exit

Below: REFUGEE TRAIN overflowing on roof and sides with Moslems fleeing the New Delhi area to Pakistan during the summer of 1947





the part of the Hindu majority in Assam to inclusion in Pakistan. It was becoming more and more evident that existing provincial boundaries would have to be readjusted to meet the requirements of a system based upon racial and religious differences.

Matters now assumed so serious an aspect that the viceroy, after prolonged consultation with the Indian leaders, was convinced that the transfer of power at an earlier date was unavoidable, if disaster was to be averted. Since Indian leaders were unable to agree to a plan, partition was the only alternatime.

Earl Mountbatten of Burma flew to England to lay his views before the cabinet. On July 5 a bill was laid before parliament which provided for the establishment of the dominions of India and Pakistan, to which would be transferred all the powers hitherto exercised by the British government. Full legislative authority in each dominion would be vested in its constituent assembly; and existing arrangements about posts, telegraphs, customs, communications and other subjects common to both would remain in force. The defense forces would be divided so as to give an army, navy and air force of approximately equal strength to each. To decide whether Bengal and the Punjab should be partitioned, the legislative assemblies of the two provinces would be asked to meet in two parts, one representing the Moslem majority districts and the other the rest of the province. If a simple majority of either part decided in favour of partition, division would take place and arrangements would be made accordingly. The future of the North-West Frontier province would be decided by a referendum held under the aegis of the governor-general in consultation with the provincial government.

It was originally intended that Earl Mountbatten of Burma should be governor-general of both dominions, but since the Moslem league refused to accept an Indian union, it was decided that he should be governor-general of the dominion of India, with its capital at Delhi, while Mohammed Ali Jinnah should be governor-general of Pakistan, its capital being fixed at the seaport of Karachi in Sind, and not, as was expected, at Lahore. The prime ministers of the two dominions were Jawaharlal Nehru and Liaquat Ali. The Indian Independence bill was passed without opposition, the date of the transfer of power being fixed for Aug. 15. Both Bengal and the Punjab having

voted for partition, a boundary commission, consisting of four high court judges, was set up for each, under the common chairmanship of Sir Cyril Radcliffe.

Independence day was celebrated with rejoicings by Indians all over the world. The withdrawal of British troops was begun. Soon, however, rifts began to appear. The members of the boundary commission being unable to agree, the chairman was obliged in both cases to make an award. In eastern India, Bengal was divided into western and eastern Bengal, the boundary line following the Ichamati and Ganges rivers northward to Darjeeling. Calcutta was thus in the dominion of India; but the Sylhet district, with its Moslem majority, was transferred from the Indian province of Assam to Pakistan. This was effected in comparative calm, and Calcutta was spared the worst horrors of communal strife, mainly because of the influence of Mohandas Gandhi.

In the Punjab, on the other hand, matters took a serious turn. The partition line was drawn to follow the course of the Sutlej and Ravi rivers, and ran between Amritsar and Lahore. Thus, Amritsar, the sacred city of the Sikhs, was left in their hands. It had, however, the effect of cutting the Sikh community in two, 2,000,000 being in the eastern Punjab (dominion of India), and 1,750,000 in Pakistan; moreover, many important Sikh shrines and landed estates were on the western side of the river. This led to a concerted attempt on the part of the Sikhs to eliminate the local Moslems, which in its turn provoked savage reprisals. The result was a mass migration of Sikhs and Hindus on the one hand into the dominion of India, and of Moslems into Pakistan on the other. Convoys of refugees fleeing by road and rail were violently attacked and in many cases virtually annihilated. Both dominions did their best to ensure safe transit for the refugees, but this was rendered difficult by the reluctance of troops and police to take resolute action against their coreligionists. By the middle of September, it was estimated that 4,000,000 people were on the move, and it was difficult to imagine the toll of human misery involved.

By October the authorities had the situation under control, but the economic consequences were likely to be serious. Crops were unreaped and irrigation neglected; and this, in a country where "water is gold," was disastrous. Both dominions were faced with the problem of resettling immense numbers of displaced persons, and providing them with food, clothing and employment. On the other hand, it should be borne in mind that the disorders were confined to northern India; in the south, the transfer of power was on the whole peacefully effected.

The Indian States.—It was laid down in the Indian Independence act that when British rule terminated, the sovereignty of the crown over the states would lapse and would not be transferred to successor governments. After some hesitation, most of the rulers agreed to sign instruments of accession to one or other dominion, but the nizam of Hyderabad, the premier Indian prince, declared that he would remain an independent sovereign, though he was prepared to negotiate treaties with both India and Pakistan. The minor states of the Deccan, Gujarat and Kathiawar formed confederations for the purpose of joining the Indian union. One result of the transfer of power was to accelerate the introduction of constitutional government in all the leading states. Sardar Patel, head of the states department at Delhi, pointed out the necessity of surrendering defense, external affairs and communications to the central government; in other matters, the government of India would scrupulously respect the autonomous existence of the princes and not interfere in their domestic affairs.

A difficult position arose in cases where a Moslem prince ruled over a mainly Hindu state and vice versa. In most instances the ruler prudently deferred to public opinion in the matter of accession. But in Kashmir, where the ruling prince was a Hindu and 85% of his subjects Moslems, a serious position arose, which might well have resulted in civil war between the dominions. Moslem tribesmen from the North-West Frontier province invaded the state and marched on the capital, Srinagar. They were with difficulty driven back by Indian forces dispatched by air from Delhi. In the little principality of Junagadh in the Kathiawar peninsula, where the reverse was the case, there were violent protests against accession to Pakistan, and it was reported that the government of India had landed forces to support the people's claim. (*See* also BURMA; FAMINES.) (H. G. RN.)

Education.—Recognized institutions in the Indian dominions (1945–46): primary schools for boys 147,014, for girls 20,827; scholars (boys) 8,834,742, (girls) 3,268,445. Secondary schools for boys 14,835, for girls 2,234; scholars (boys) 3,051,075, (girls) 554,443. Special schools for boys 9,710, for girls 787; scholars (boys) 379,185, (girls) 50,472. Training and professional colleges for men 104, for women 19; students (men) 36,467, (women) 2,392. Higher education: arts and science colleges for men 390, for women 64, universities 16; all students (men) 157,069, (women) 18,408. Unrecognized schools: for boys 10,318, for girls 3,246; scholars (boys) 333,287, (girls) 133,966.

Finance.—Central government revenue (actual 1946–47) Rs.3,361,900,000, (est. 1947–48) Rs.2,794,200,000; expenditure (actual 1946–47) Rs.3,814,700,000, (est. 1947–48) Rs.3,278,000,000; notes in circulation (June 30, 1947) Rs.12,200,000,000; gold reserve (April 1947) U.S. $274,000,000; sterling securities (Dec. 1946) Rs.11,179,481,000; currency: rupee (Rs.1); Rs.100,000=1 lakh (written Rs.1,00,000); Rs.10,000,000=1 crore (written Rs.1,00,00,000). Exchange rate: Rs.1 =30.17 U.S. cents.

Trade and Communication.—Overseas trade (1946): imports Rs.2,264,000,000; exports Rs.2,592,000,000. Communications: roads (1943): total extra municipal roads maintained by public authority 296,066 mi., of which 126,374 mi. were fit for motor transport in all weathers and 95,316 mi. in fair weather; railways (1944): route mileage, broad gauge 20,673 mi.; metre gauge 16,008 mi.; narrow gauge 3,827 mi.; under construction (1944–45) 30 mi.; passenger miles (1944–45) 37,590,722; ton miles 28,410,562. Shipping: monthly average (1946) entered 407,000 net tons; cleared 370,000 net tons. Radio licences (1947) 239,672; telephones (1945): exchanges 2,800, subscribers *c.* 125,400.

Agriculture, Manufacturing and Mineral Production.—See the table for figures on production in India.

Leading Agricultural and Mineral Products of India

Commodity	Year	000 short tons
Rice	1946	44,080
Wheat	1946	9,964
Maize	1940	2,341
Barley	1941	2,530
Cane sugar (raw)	1946–47	6,245
Tea	1943	275
Rubber	1946	17.1
Tobacco	1944–45	461
Jute	1946	1,189
Cotton (000's bales of 400 lb. each)	1946–47	3,566
Linseed	1946–47	390
Rape and mustard seed	1946–47	1,122
Groundnuts	1946–47	3,911
Sesamum	1946–47	362
Coal	1946	28,356
Iron ore (metal content)	1939	2,193
Pig iron and ferroalloys	1946	1,481
Steel ingots and castings	1946	1,379
Manganese ore (metal content)	1941	539
Chrome ore	1939	27.5
Bauxite	1946	16.5
Gold (000s of fine oz.)	1946	168
Petrol (000's U.S. gal.)	1946	125,044

Industry.—Total number of factories (1943) 13,209; average number employed daily (1944) 2,520,251; cotton (1946): yarn spun 659,800 short tons, piece goods woven 3,931,000,000 yards, number of mills (1945) 417, average number employed daily 509,778; mines (1943): average number employed daily 349,361; registered unemployed (Dec. 1946) 317,524.

India, Dominion of. The dominion of India consists of nine provinces, viz., Assam, capital Shillong; West Bengal, capital Calcutta; Bihar, capital Patna; Bombay, capital Bombay; Central Provinces, capital Nagpur; Orissa, capital Cuttack; East Punjab, capital Jullundur; United Provinces, capital Lucknow; Madras, capital Madras. Thus, the India union covers the greater part of the peninsula up to the river Sutlej, excluding eastern Bengal. The inhabitants are predominantly Hindu by religion, with a strong Moslem element in the United Provinces and especially in the old Mogul capitals of Delhi and Agra. The East Punjab is the home of the Sikhs, originally a reformed Hindu sect founded by the *guru* Nanak,

A.D. 1469–1538. In Bombay and the Central Provinces, the leading race is the Marathas, the chief inhabitants of the Deccan plateau. To the south of the Narbada river is Dravidian India, comprising the Tamil and Telugu-speaking peoples of the Madras presidency and the Kanarese-speaking people of the Carnatic. There are also numerous aboriginal tribes, mostly inhabiting tribal areas in the wild and hilly country of central India and Orissa, and separately administered.

Pop.: 320,000,000 (approximately); area: 1,221,000 sq.mi. Capital: Delhi. National flag: a tricolour of saffron, white and green, bearing in the centre the Asoka wheel (*dharma chakra*, or wheel of the law). Governor general: Admiral Earl Mountbatten of Burma; prime minister: Pandit Jawaharlal Nehru; president of the constituent assembly (replacing the Indian central legislature): Dr. Raja Prasad Sinha. (For history *see* INDIA. *See* also PAKISTAN, DOMINION OF.)

Situated in the dominion of India are numerous groups of states. The leading ones are the Sikh states of the Eastern Punjab; the states of Rajputana; the Maratha states, Central India, Gujarat and the Deccan; the Moslem state of Bhopal; and in southern India, Hyderabad, Mysore, Cochin and Travancore. The minor states had formed federations. Most of the states, except Hyderabad, signed instruments of accession to the dominion during 1947. The ultimate solution regarding Hyderabad, Jammu and Kashmir, and Junagadh remained obscure pending further decisions. Each province has parliamentary government. The drafting of a new constitution was in the hands of a constituent assembly, elected by the provincial legislatures and meeting at Delhi.

The chief commodities are cotton in Bombay and Gujarat and jute in Bengal. There are coal mines and iron and steel works at Jamshedpur in Bihar. Agricultural crops are chiefly rice, millets, sugar cane, pulses, ground nuts and tobacco. Tea is grown in Darjeeling and Assam in the northeast, and in the Nilgiris district of Madras. (H. G. RN.)

Indiana. An east north central state of the United States with the popular name of "Hoosier," Indiana was admitted to the union Dec. 11, 1816, as the 19th state. Total area of the state is 36,325 sq.mi., including 314 sq.mi. of inland lakes and rivers. It ranks as the 37th state in size and 10th in population (1946 est.) with 3,858,000. The 1940 official census showed the population to be 55.1% urban and 44.9% rural; 93.2% native white, 3.2% foreign-born white and 3.6% Negro. Capital: Indianapolis (pop. 1940, 386,972), the largest city. Other cities: Fort Wayne (118,410); Gary (111,719); South Bend (101,268); Evansville (97,062); Hammond (70,184); Terre Haute (62,693); East Chicago (54,637); Muncie (49,720); Anderson (41,572).

Political History.—The 85th general assembly met for its regular 61-day, biennial session at the beginning of 1947. Its principal acts were to raise the minimum pay for teachers, divorce the sale of liquor from politics, provide for a referendum on a soldiers' bonus, outlaw the Ku Klux Klan and similar organizations, enact a series of public health measures and authorize large expenditures to rehabilitate state institutions, prohibit strikes in public utilities, create a three-cent cigarette tax, provide for a central revenue department to collect almost all state revenues and change the budgeting, purchasing and accounting methods of the state. Elected officers of the state in 1947 were Ralph F. Gates, governor; Richard T. James, lieutenant governor; Thomas E. Bath, Jr., secretary of state; Frank T. Millis, treasurer; Alvan V. Burch, auditor; Cleon H. Faust, attorney general; Ben H. Watt, superintendent of public instruction. All were Republicans.

Education.—The number of public schools in the state in 1946–47 was 2,493. Enrolment in the elementary or common schools was 457,706, with 11,776 teachers. Enrolment in the high schools (grades 9–12) was 169,702, with 9,655 teachers. Parochial schools had an enrolment of 48,373 in the elementary grades and 9,415 in high school. For the year 1946–47, the state added $33,410,066 to the $61,900,182 spent by local units of government for the support of schools. The state provided $7,487,242 for the 4 state colleges.

Social Insurance and Assistance, Public Welfare and Related Programs.—In 1946–47 the state's welfare program cost $29,982,654, of which $13,663,152 was furnished by federal funds, $8,055,561 by state funds and $8,263,941 by county funds. Old-age assistance cost $19,837,923, blind assistance $749,396, aid to dependent children $3,485,591 and child welfare $1,305,891. Receipts of the state for unemployment insurance for the year ending June 30, 1947, were $17,360,287. Benefits paid out were $8,550,557, not including federal payments to war veterans.

In 1947 the state maintained nine institutions for mental cases, including an epileptic village; seven homes, hospitals and schools; three university hospitals and six correctional institutions. As of June 30, 1947, inmates of mental institutions totalled 12,803 and inmates of correctional institutions 5,421.

Communications.—Total mileage of state highways on June 30, 1947, was 10,465 out of a total of 76,700 mi. of roads in the state. Expenditure of the state highway commission on roads in the fiscal year 1946–47 amounted to $27,572,067. There were 6,660 mi. of steam railroads (first main tracks) and 241 mi. of electric railroads. The estimated number of telephones in the state at the end of 1947 was 835,000. There were 180 airports.

Banking and Finance.—On June 30, 1947, there were 368 state banks and trust companies with total resources of $1,449,179,045 and total deposits of $1,360,837,300. There were on Oct. 6, 1947, 125 national banks with total resources of $1,597,764,000 and total deposits of $1,506,587,000. State savings and loan companies numbered 173 as of Dec. 31, 1946, with resources of $152,232,508. The assets of the 65 federal savings and loan companies as of the same date were $206,232,508.

On June 30, 1946, the state had a balance of $107,938,177. During the fiscal year the state treasurer received $357,045,155 and disbursed $336,719,176, leaving a balance on hand June 30, 1947, of $128,264,156. As the state constitution strictly limits borrowing, there was no state debt in 1947.

Agriculture.—Corn yield fell to 43 bu. per acre in 1947, compared with 51 bu. in 1946, yet was only 1 bu. under the 10-year average. Production was 18% less than in 1946, whereas the national decline was 26%. Heavy rains in the spring delayed corn planting until late in June. Oats and hay also were smaller crops. Wheat and soybeans increased over 1946 and so did fruit.

Leading Agricultural Products of Indiana, 1947 and 1946

Crop	1947*	1946
Corn, bu.	191,135,000	233,682,000
Wheat, bu.	35,811,000	29,369,000
Oats, bu.	34,320,000	55,068,000
Soybeans, bu.	28,176,000	26,106,000
Rye, bu.	840,000	621,000
White potatoes, bu.	3,750,000	4,480,000
Barley, bu.	520,000	600,000
All tame hay, tons	2,284,000	2,480,000
Tobacco, lb.	12,950,000	13,610,000
Mint for oil, lb.	897,000	675,000
Apples, bu.	1,489,000	1,320,000
Peaches, bu.	725,000	519,000
Watermelons, melon	3,600,000	4,140,000
Tomatoes for processing, tons	415.8	529.4

*Estimated.

Manufacturing.—During World War II, Indiana received government contracts for war supplies amounting to $9,000,000,000 and ranked 7th in the U.S. in war production. The year 1947 saw resumption of prewar production in automobiles and automotive bodies and parts, steel, electrical machinery, furniture, glass and farm implements. Much meat packing, flour milling, food canning and drug compounding were also done in the state.

Mineral Production.—In the fiscal year 1946–47, 10,911,638 tons of coal were taken from 46 shaft mines. Strip mines and mines employing less than ten men were not included in these figures. (H. H. P.)

Indiana University. Return to normal peacetime operation marked the year of 1947. Though the war-stimulated enrolments continued and even increased, instruction, research, faculty and staff, housing and student activities approached or reached a normal standard. The faculty was greatly strengthened by a larger number of additions than in any previous year. But it was not alone in numbers but also in eminence of scholarship that the gain was made.

Research activities were increased and broadened. Completed was a nine-year study of the sex behaviour of the American male, made by Dr. Alfred C. Kinsey and associates of the department of zoology. The genetics group in the same department, whose contributions received attention in 1946, continued its work. Likewise research went forward in nuclear physics, literature, social sciences and other divisions of the

physical sciences.

Student and faculty housing, initiated after the war, was completed; construction was begun on a new student residence hall group to accommodate 1,000 students and two apartment buildings to house married students. Temporary buildings moved from military installations and re-erected relieved in part the classroom, laboratory and office shortage.

Gifts to the university increased and included $90,000 in grants for research by the school of medicine in cancer and children's diseases and a documentary collection to the general library containing 8,500 items relating to the life and times of General La Fayette. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.)

(H. B. Ws.)

Indians, American. Congress became fully aware during 1947 of the plight of the 62,000 Navaho Indians. Starvation had become a threat on the reservation, and sickness was widespread. Ten Navahos were dying of tuberculosis for every white U.S. citizen. Publicity given to these problems led many Congressmen to visit the reservation during the congressional recess. While citizens contributed food, clothing and money, the special session passed a bill authorizing expenditure of $2,000,000 for emergency aid to Navahos; $500,000 was appropriated immediately for direct relief.

The commercial fish-canning companies challenged in the courts the incorporation of coastal fishing areas in the Karluk reservation in Alaska set up in 1943. The lower court in Alaska and the circuit court of appeals for the north circuit decided in favour of the companies, and the department of the interior recommended that the case be appealed to the supreme court. In July congress, with the approval of the secretary of the interior, passed a bill authorizing the department of agriculture to sell timber in the Tongass national forest, including some areas which the secretary of the interior had decided several years before belonged to the Indians. Indians in the village of Kake, which had such lands, and in Kasaan, which claimed certain land, declared this legislation an infringement of their rights and entered into contracts with timber interests in the United States for the sale of $20,000,000 worth of timber in the Indian areas.

Trial suits were filed in Arizona and New Mexico on behalf of Indians who were refused the right to vote. These were the only two states still denying the ballot to Indians. The Social Security board also challenged the refusal of Arizona and New Mexico to admit reservation Indians to social security benefits.

A contract was negotiated with the Choctaw-Chickasaw tribes providing for the sale of 300,000 ac. of coal-bearing tribal lands to the federal government for $8,500,000.

The interior department appropriation act for 1948 carried severe cuts in appropriations for administration of the Indian service, for the Alaska Native service and a reduction in estimates for Indian education. A threatened cut of one-third in the funds requested for schools, however, was defeated.

(W. W. B.)

Indo-China, French: *see* FRENCH OVERSEAS TERRITORIES.

Indonesia, The United States of: *see* NETHERLANDS INDIES.

Indonesian Republic: *see* NETHERLANDS INDIES.

Industrial Health. The medical profession was unable to meet the continuing demand for health services in industry during 1947 and plans were made for creating a reservoir of qualified personnel. The resident physician system adapted to industrial medical operations seemed to offer the most promising method of training and recruitment. Early in the year criteria were developed to define the standards which should govern teaching methods. According to plan, all trainees would receive adequate experience in health conservation, administrative methods, environmental hygiene and industrial medicine and surgery.

A field study of industrial health methods and costs was completed by the Industrial Hygiene foundation. Preplacement physical examination was found to be the most universally employed single activity, followed by first aid and emergency dispensary services and periodic physical examinations. Laboratories of industrial hygiene were increasing rapidly in the plants themselves in place of entire dependence on governmental or independent consulting facilities. Health and safety education were found to be at rather low levels. Cost studies demonstrated that small plants can and do avail themselves of excellent industrial health services. Original investments for small plant industrial health departments ranged from $500 to $3,000 and the upkeep from $300 to $700 per month. Over-all annual per capita expenditures for adequate industrial health services were found to lie between $10 and $12.

A symposium on beryllium and its effects on workers was conducted by the Saranac laboratory of the Edward L. Trudeau foundation to inquire into a number of puzzling characteristics of this substance. The metal has come into considerable prominence recently in metallurgy, fluorescent lamp manufacture and in the production of fissionable materials. Exposure may manifest itself in acute or in delayed forms which some observers regard as separate and distinct conditions. Pathogenesis of either form is far from clear and much additional investigation is necessary. Concern is expressed because of the large numbers of workers engaged in lamp manufacture in small uncontrolled plants or in homes without realization of the hazardous nature of the employment.

The year 1947 saw the completion of the medical survey of the bituminous coal mines areas conducted by personnel assigned from the bureau of medicine and surgery of the U.S. navy. As a result the new 1947 employment contract between the United Mine Workers and the soft coal mines operators contained some significant changes. Added income was provided by raising the royalty to ten cents per ton on all coal mined and the separate funds dealing with medical-hospital services and general welfare were combined under a single board of trustees. A medical advisory board was appointed whose chairman became the director of the health services division.

During the year also, the Hawaiian Sugar Planters association made intensive studies of medical care, hospitalization and industrial health services with a view toward increased efficiency through central administration. In contrast to the former perquisite system, the new program was to be based on mutual contributions by workers and management.

A number of states enacted occupational disease legislation. The Iowa occupational disease law specified a series of compensable diseases and provided for payments in case of partial disability under definite circumstances as well as for total disability and for death. A medical board acting in advisory capacity to the industrial commissioner is provided for in the law. The Nevada occupational disease act incorporates specific diseases which are compensable. The workmen's compensation act of New York was amended in relation to silicosis and other dust diseases and made provision for proper medical consultation, medical and surgical care and hospitalization. South Dakota passed an occupational disability law with a schedule of compensable diseases and created a medical panel whose findings would be advisory to the workmen's compensation

commission. Similarly in Tennessee and Texas, schedule laws were passed and in the latter state a medical committee was set up to examine claims and make reports to the compensation board regarding all medical questions. In Montana and Vermont commissions were authorized to survey the need for occupational disease legislation. (C. M. PN.)

Canada.—The industrial health division of the federal department of national health and welfare conducted an aggressive 1947 drive to raise standards. It distributed more than 100,000 health posters and pamphlets to industries. An illustrated monthly, *Industrial Health Bulletin,* was circulated to 25,000 English and 10,000 French-speaking subscribers.

The division co-operated with Nova Scotia, Saskatchewan and Alberta in specific studies of silicosis and lead and carbon monoxide poisoning. Especially assigned and trained personnel were employed to carry out estimations of the air contamination thought responsible for specific diseases. As an outcome of this type of intergovernmental work, two of the provinces concerned set up their own permanent industrial health agencies.

Investigations were carried out by the division to establish the health hazards associated with the operation of agricultural machinery. Information was provided to industries about the effectiveness of ultra-violet light and glycol sprays in the control of air-borne infections, the assessment and control of carbon tetrachloride hazard, the control of dermatitis and the status of ozone in the control of carbon monoxide poisoning.

At the end of the year the federal industrial health laboratory was engaged on the problem of developing a simple and rapid method for determining the presence, and estimating the amount, of methyl bromide in the air of plane hangars where toxic methyl bromide was stored for fire control purposes.

Looking to the health of its 120,000 employees the federal government took steps to improve working conditions in offices, research plants and stations across the dominion. Parliament passed an act creating compensation for industrial disease contracted by government employees. (C. CY.)

Great Britain.—The increase in membership of the Association of Industrial Medical Officers indicated the interest in the health and welfare of their workers shown by both the private employer and the public corporation. Particularly significant was the decision to appoint a chief medical officer to the National Coal board and to the British Electricity authority.

The problem of providing an efficient medical and nursing service for the small factory employing less than 250 people, of which there were well over 200,000 in Great Britain, was formidable. Under the Nuffield trust, the Slough Industrial Health service developed its medical and nursing services for a large number of small units on a training estate and maintained, in conjunction with it, a modern recuperation centre for industrial diseases and injuries.

The universities of Edinburgh and Manchester both had a successful year in preparing doctors for the diploma in industrial health. In London, training courses were arranged by the London School of Tropical Medicine and Hygiene. The universities of Glasgow (which started its first training course), Durham and Birmingham were becoming centres of intellectual interest and research in the problems of health in industry. Birmingham inaugurated a post-graduate course for those already engaged in the practice of industrial medicine. The Medical Research council developed its own laboratories for dealing with toxicological problems and inaugurated a series of committees dealing with special subjects, for example, industrial toxicology and occupational medicine.

The Royal College of Nursing and the University of Birmingham in conjunction with the Birmingham Accident hospital, and the University of Manchester, through its short post-graduate courses, continued to train industrial nurses. There were 9,000 nurses engaged in British industry. Their work in dealing with the problems of injury and health in the factory was of vital importance. (*See* also ACCIDENTS; DERMATOLOGY; MEDICINE.) (A. J. AR.)

Industrial Production: *see* BUSINESS REVIEW.

Infantile Paralysis.

Approximately 11,000 cases of poliomyelitis were reported in the United States during 1947. Major outbreaks of the disease were limited to Delaware, Idaho, North Carolina and Ohio, whereas California, Illinois, Michigan, New York and Pennsylvania continued to report relatively large numbers of scattered cases. This was the fifth consecutive year in which the national incidence exceeded the average for the period over which statistics had been available.

In addition to these definite cases of the disease, North America experienced many thousands of cases of a peculiar infantile paralysislike disease from which recovery was invariably complete within from two to five days. This disease was subjected to intensive clinical and laboratory studies because of the possibility that it might be a form in which there is no crippling, but as a consequence of which there may be production of immunity to subsequent attacks of the virus.

Whereas the number of cases of infantile paralysis during 1947 in the United States was considerably less than in 1946, the reverse was true for such countries as Austria, Canada, China, England, Germany, Hungary and Japan.

Research in infantile paralysis indicated progress toward better understanding of the disease process, in further amelioration of its crippling aftereffects, and in saving lives.

The distribution of the virus in the nervous tissues of the experimental animal was studied. The virus can first be detected in the spinal cord on the day preceding paralysis. Peak concentrations of the virus are achieved within one day after it is first detected, and maximal concentrations are maintained over a period of approximately two days. Following this, there is a rapid diminution in the concentration of the virus, with com-



INFANTILE PARALYSIS victim entering the Institute for the Crippled and Disabled in New York city. Dedicated in 1947, the institute was designed to utilize the composite science of rehabilitation developed during World War II

plete disappearance after approximately two weeks. This sudden upsurge and diminution in the propagation of the virus would indicate that the virus finds a fertile field for growth when it reaches previously uninfected nervous tissue, but that such growth of the virus is soon made impossible by the development of some inhibiting substance.

Experimental studies on the oscillating bed as an adjunct to the treatment of infantile paralysis showed considerable promise. Not only did this method of treatment appear to conserve certain elements important in metabolism (*i.e.*, calcium and nitrogen) but it also appeared to be of importance in maintaining control of the circulation of blood and the normal pH of the urine. Furthermore, this method of treatment was shown to be effective in cases of the disease with respiratory difficulties. Following the acute phase, patients were transferred from the respirator to the oscillating bed, which provided adequate assistance to the paralyzed muscles of breathing. The use of the oscillating bed in such cases seemed to be of importance, not only because of the specific benefits and the fact that the patient was more readily available for all forms of treatment, but also because the procedure prevented the patient from becoming "wedded," in the psychological sense, to the respirator.

Considerable progress toward saving lives resulted from an intensified investigation of bulbar infantile paralysis—a serious form of the disease affecting the nerve centres which control breathing, circulation of blood, control of temperature and swallowing. This form of the disease had accounted for the great majority of the deaths in infantile paralysis. New methods of treatment, which seemed to promise a reduction in fatality, were designed to increase the amount of oxygen in the circulating blood, including such procedures as administration of oxygen-helium mixtures, sometimes administered by positive pressure, and control of the secretions of the pharynx by adequate suction, postural drainage and tracheotomy. Also, constant attention to the oxygen level of the circulating blood could now be maintained by means of a device called an oximeter.

Finally, during 1947, there was important progress toward a clearer understanding of the mechanisms of immunity in infantile paralysis. In monkeys and human beings, convalescent from an attack, relatively little antibody (virus-inactivating substance) is detectable in the circulating blood. There are, on the other hand, large quantities of infantile paralysis-inactivating substance in the central nervous tissues of the convalescent monkey, and it was surmised that the presence of this substance in the brain and spinal cord might prevent a second attack of the disease with the same strain of the virus. It would appear from these studies that resistance to infantile paralysis is not so much the result of the presence of antibody in the circulating blood as the concentration of virus-inactivating substance within the brain and spinal cord.

Of potentially greater importance were the observations (1) that the concentration of antibody in the circulating blood can be progressively increased by continued intramuscular injections of live virus, and (2) that when the antibody in the circulating blood has increased approximately 1,000 times, it appears to spill over into the central nervous tissues, after which the monkey is found to be solidly resistant to large quantities of the virus even when injected directly into the brain. It remained to be seen whether or not these important observations could be reproduced with the various types of human infantile paralysis viruses which are capable of causing disease and with infantile paralysis virus which has been inactivated and is therefore incapable of causing disease.

(*See* also EAR, NOSE AND THROAT, DISEASES OF; EPIDEMICS; NERVOUS SYSTEM.) (H. M. WR.)

Infant Mortality. Infant mortality in the United States dropped sharply from 1946 to 1947 according to provisional data covering the first nine months of both years. For each of the first nine months the rate in 1947 was well below that of 1946, the period as a whole showing an improvement of 12%. For all of 1946, the estimated number of infant deaths (deaths under one year of age) was 112,649, and the infant mortality rate 34.5 per 1,000 live births. Only ten years previously, the infant mortality rate was at the relatively high level of 57.1 per 1,000 live births.

In 1945, the latest year of complete record for the United States, the infant mortality rate for the white population was 35.6 per 1,000 live births; for the Negro population, 56.2 per 1,000; and for other races, 74.3 per 1,000. There was a striking contrast in mortality between large and small communities. Thus, in 1945, the rate was only 34.8 per 1,000 live births in cities of 100,000 population or more. For smaller cities, of 25,000 to 100,000, the rate was 38.1, while in communities of 10,000 to 25,000, the rate was somewhat higher, namely 39.8 per 1,000 live births. The highest rate, 43.4, was recorded in places of 2,500 to 10,000 population. On the other hand, the recorded rate in rural areas was only 39.1. Some of the differences may have arisen from variations in the completeness of registration of births and infant deaths. It was suspected that the registration of infant deaths might not be as complete as that of births in rural areas; such a situation would lead to an understatement of the actual infant mortality in those places.

Provisional United States data for the leading causes of death in infancy during 1946 showed a setback from 1945 for only one cause, premature birth. Thus, for pneumonia and influenza, the rate in 1946 was 3.9 per 1,000 live births as compared with 5.3 in 1945. For diarrhoea and enteritis, the corresponding rates in the two years were 1.8 and 3.0 respectively. Congenital malformations showed a decrease from 5.0 in 1945 to 4.4 in 1946, while the rate for injury at birth was the same—3.6—in the two years. But infant mortality from premature birth rose from 11.6 per 1,000 live births in 1945 to an estimated rate of 12.5 in 1946.

Several factors contributed to the continued reduction in U.S. infant mortality. First, there had been a rise in the standards of obstetrical practice. Then, the proportion of births occurring in hospitals had risen rapidly, from 37% in 1935 to 79% in 1945. In addition, hospitals had improved and expanded their obstetrical services and in many instances had segregated maternity cases. The growth of hospital insurance plans providing maternity benefits brought the advantages of hospital confinement to many mothers who could not afford such services otherwise. Other factors favouring a reduction in infant mortality were the premarital and prenatal examinations for syphilis required by many state laws and the modern methods of treating this disease.

Contrary to the experience in the United States, provisional data for England and Wales pointed to a small increase in infant mortality from 1946 to 1947; there was a rise of almost 4% in the infant mortality rate in London and the other large cities when the first ten months of the two years were compared. For the whole of 1946, there were 33,413 deaths under one year of age in all of England and Wales, the infant mortality rate being 40.8 per 1,000 live births. For Canada, where the latest available data were for 1946, the number of deaths under one year of age was 15,281—a rate of 46.9. Of the other English-speaking countries, Australia in 1946 had the low rate of 29 infant deaths per 1,000 live births, and the population of European origin in New Zealand had a rate of only 26 per 1,000. For the white population of South Africa the rate in 1946 was 36 per 1,000, while Scotland experienced the relatively high rate of 54 per 1,000.

Of the countries with infant mortality rates available for 1946, the record was particularly poor in Chile, with 160 per 1,000 live births, in Bulgaria (124) and Portugal (110). (*See* also DEATH STATISTICS.)

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(A. J. Lo.)

Infantry: *see* MUNITIONS OF WAR.
Inflation: *see* BUSINESS REVIEW; CONSUMER CREDIT; PRICES. *See* also under various countries.
Influenza: *see* EPIDEMICS.

Information and Educational Exchange, Office of.

The Office of Information and Educational Exchange (OIE) in the department of state undertook at the outset of 1947 to enlarge the scope of its operations, which are designed to present a full and fair picture of the United States to the other countries of the world. The operations of OIE during the first part of 1947 were proceeding on the basis of an annual budget of approximately $20,000,000 and were grouped generally as follows:

Radio.—With the addition of the daily broadcast in the Russian language beamed to Russia in Feb. 1947 and the Greek language program beamed to Greece in May 1947, the "Voice of America" radio, employing 36 short-wave transmitters, was broadcasting 59 hours of programs daily in 26 languages to foreign countries. These daily programs included news bulletins and commentaries from editorials published in papers throughout the U.S. as well as a wide variety of feature material revealing the cultural life of the people of the country. These programs during the year drew more than 150,000 letters from listeners in more than 60 countries and in 40 languages.

Motion Pictures.—Documentary and informational motion pictures were made available to foreign audiences estimated to reach approximately 10,000,000 persons a month. These motion pictures were made in 24 languages.

Press.—A daily news bulletin sent by wireless to U.S. missions abroad gave in excess of 7,000 words a day news developments, texts of official documents and speeches relating to foreign affairs. These bulletins were translated by OIE officers abroad and distributed to the editors, civic and government leaders and others in foreign countries who requested them.

This division of the OIE was also responsible for the publication of the Russian language illustrated magazine *Amerika.* This magazine was circulated at the rate of 50,000 copies per issue in the U.S.S.R. under an agreement with the soviet government. Its retail sale at the price of 10 rubles or approximately 83 cents a copy in Russia paid most of the cost of its publication.

Exchange of Persons.—The exchange of persons program during the year was divided into two separate operations. In the first, the state department acted chiefly as a catalytic agent, stimulating and assisting private agencies in renewing their own international interchanges.

The second of these enterprises was inaugurated during 1947, when the department undertook the administration of the new Fulbright act providing for the use of foreign currencies received by the United States in payment for overseas war surpluses for the enrolment of U.S. students, professors and specialists in the schools of those countries. In July of 1947 President Harry S. Truman appointed a board of foreign scholarships, provided in the Fulbright act, to supervise the program.

Libraries and Institutes.—United States libraries in operation during the first part of 1947 totalled 67 in 41 countries. In addition, 27 cultural centres with 45 branches were in operation in the 20 other American republics. Cultural centres differ from libraries in that they have, in addition to books, classes in English and a wide variety of group activities.

Legislation.—All of the activities of the OIE were being carried on under congressional appropriation but without the basic congressional authority required for regular government operations. At the time congress began consideration of the OIE budget for 1947–48, a measure was before congress giving this basic congressional authorization but had not been enacted into law. Because of the lack of this basic authority the entire appropriation was stricken from the appropriation bill in the house. A limited amount, however, to carry on a minimum operation pending congressional action on the basic authority measure was provided by the senate when the bill came before that body for consideration and was later agreed to by the house.

This total appropriation for the OIE operations was $12,700,000 for 1947–48, as compared with the $20,000,000 which had been available for the program in the previous fiscal year. Since more than $1,000,000 was required for liquidation in reducing the program, the OIE's actual operating budget for 1947–48 was thus reduced to $10,901,233.

Drastic reductions thus were made in the program in the latter half of 1947 to bring the expenditures to the appropriated sum.

William Benton, who had been the assistant secretary of state for public affairs during the organization of these operations in the state department, resigned his post in Sept. 1947 and was succeeded (1948) by George V. Allen, U.S. ambassador to Iran. In prospect of the early passage of the basic authorizing legislation, the lack of which brought about the sharp curtailment of the budget of 1947–48, the state department prepared for congress a new budget of $38,000,000 for 1948–49 operations and a request for $6,000,000 additional appropriation to complete the operations for the 1947–48 fiscal year. (*See* also RADIO.)

(L. J. R.)

Inland Waterways: *see* CANALS AND INLAND WATERWAYS.
Inner Mongolia: *see* MONGOLIA.
Insects: *see* ENTOMOLOGY.
Instalment Buying and Selling: *see* CONSUMER CREDIT.

Institutum Divi Thomae.

The Institutum Divi Thomae is the graduate school of science of the Athenaeum of Ohio, Cincinnati. In its program, major emphasis is placed upon the training as research workers of a limited number of graduate students who follow a prescribed course of study and conduct investigations in close affiliation with staff members.

During 1947 further positive results were obtained in the treatment of certain types of human skin cancer by the injection of deproteinized tissue extracts. Laboratory studies were undertaken with a view to learning the nature of the active substance or substances in the extracts and clarifying their mode of action as manifested by metabolic and cytologic effects and ability to induce resistance to or cause regression of tumours in animals. Clinical facilities were being expanded to provide for a broader evaluation of the possibilities of this mode of therapy.

Progress was made in concentrating materials present in animal tissues which convert *Staphylococcus aureus,* including penicillin-resistant strains, to avirulent forms, both *in vitro* and in animal infections. Existing evidence suggested that the materials inhibit toxin formation by the organisms. It was re-

ported that certain of the extracts, previously found to be bactericidal against strains of *Mycobacterium tuberculosis in vitro*, also exhibit activity in animals infected with tuberculosis.

Other investigations conducted during the year in the laboratories of the Institutum and its affiliated units include studies of antibiotics present in extracts of bacteria and moulds, the acceleration of enzymatic activity, the action of mercurial germicides in terms of enzyme phenomena, additional studies in cancer, particularly from the enzymatic viewpoint, tissue culture studies, certain physical and biological effects of slow electron bombardment, spectroscopy and investigations in the nutrition of poultry and cattle.

The Donner foundation increased the Institutum's facilities for marine biological research and teaching in Palm Beach, Fla., by the donation of Donner hall adjacent to the present building, Bradley hall. Donner hall would be devoted to laboratories while Bradley hall would provide library, living quarters, and dining hall. (E. S. C.)

Insulin: *see* DIABETES.

Insurance.

Life.—Legal reserve insurance companies of the United States and Canada were believed to have passed the $200,000,000,000 mark for life insurance in force (excluding reinsurance) at the end of 1947. This was an increase of about 9% over 1946. New insurance issued during 1947 totalled about $25,000,000,000, equal to the 1946 all-time record; group life exceeded the 1946 record by more than 15%, and industrial by about 3%. New ordinary life insurance fell short by about 3%. Assets at the end of 1947 were approximately $55,000,000,000, after the companies had paid or credited to policyholders and beneficiaries slightly more than $3,000,000,000 during the year.

Mortality among policyholders in 1947 was probably the lowest in history. New low death rates were established for such important causes of death as influenza, pneumonia, tuberculosis, syphilis, appendicitis, and puerperal diseases. Death rates for diseases of middle and later life continued upward, however, with the cardiovascular-renal diseases, cancer, and diabetes all showing increases in rate. The motor vehicle fatality rate declined slightly from 1946, but that for all other accidents dropped much more.

The flow of U.S. life companies' funds into the business economy of both the U.S. and Canada was greatly accelerated during 1947. Demand for new capital was exceptionally heavy in both the bond and the mortgage markets. Life companies were able to acquire approximately $4,200,000,000 net in utility bonds and notes, industrials, and city mortgages, about evenly divided among these three categories. No appreciable change took place in the portfolios of farm mortgages, municipal bonds, or rails. In addition to $15,000,000,000 in corporate bonds and notes, the companies now held $1,500,000,000 of stocks—mainly preferred. City mortgages aggregated $7,700,000,000, of which about 10% was partially guaranteed or insured by the government.

Direct investments by life companies in housing, although hampered by high building costs, rose to roughly $200,000,000—nearly half again as much as at the beginning of the year. Other income-producing real estate investments—primarily commercial and industrial—grew rapidly from about $70,000,000 to $175,000,000 during the year.

Investments in U.S. government and Canadian dominion securities declined by about $1,400,000,000 in 1947—the first drop since the early 1930s. Nevertheless, these securities still amounted to approximately $21,000,000,000, or two-fifths of total assets.

Because of a sharp upswing in market interest rates during the closing months of 1947, the life companies were able to invest new money on much improved terms. This rate (after deducting investment expenses, but before allowing for asset gains or losses) had declined to a new all-time low of 2.9% in 1946, compared with a high of more than 5% in the mid-1920s.

By the end of 1947, U.S. companies had made or announced changes necessary to bring their policy provisions into conformity with the new standard valuation and nonforfeiture laws. In most jurisdictions, these laws (the so-called Guertin laws) were applicable to policies issued after Jan. 1, 1948, or earlier if a company desired. Coincident with the changes in policy provisions, most companies took occasion to raise the level of premium rates of new policies to reflect the low interest rates which had prevailed for some time. This was not required by the Guertin laws. The interest rates adopted for new premium rates ranged from 2% to 3%, the majority of the companies choosing 2½%. (L. A. L.)

Automobile.—During 1947 all U.S. automobile rates were increased substantially. Many companies believed that the fire, theft and collision rates were now adequate. The figures for the first six months of 1947 indicated that while the liability rates were also probably adequate, there was still a deficiency in property damage rates. All automobile insurance business was difficult to place during the year. (F. M. R.)

In Great Britain, the abolition of wartime discount, new rates of commission to agents and a full-scale premium revision, followed by the government's decree withdrawing basic gasoline, combined to focus interest on motor insurance. Premium income remained at a high level. The over-all underwriting result was again adversely affected by the high cost of claims. (P. Ss.)

Hospital, Medical and Surgical.—Blue Cross nonprofit hospital service plans continued the rapid membership growth which started in 1943, adding 3,600,000 new members during the year to reach an estimated total of 29,600,000 in the U.S. and Canada on Dec. 31. New plans covering the states of Mississippi, South Carolina and Wyoming began operations, leaving only Arkansas without a plan approved by the American Hospital association. In Canada, Alberta and Saskatchewan remained unserved. A total of 91 plans were in operation.

Blue Shield medical-surgical care plans experienced their largest enrolment, reaching a total of 7,250,000 by the end of the year in 49 plans. Associated Medical Care plans, co-ordinating body formed in 1946, reported that growth equalled or exceeded Blue Cross growth at a comparable period of development.

Commercial insurance companies became increasingly active during 1947 in this field, devoting particular attention to large employed groups. Best available estimates indicated that a total of 11,000,000 persons carried hospital expense indemnity policies, 7,000,000 carried surgical indemnity policies and 600,000 carried medical indemnity policies. In addition, about 1,250,000 persons were covered in industrially operated hospital-medical programs, but this type of coverage was declining. About 700,000 persons held membership in co-op or group clinic plans including hospital care.

Fifty bills calling for compulsory sickness insurance were introduced in 16 state legislatures; all were defeated. Twenty bills of this type were introduced in the U.S. congress, but, of these, the Taft-Smith-Ball-Donnell bill providing grants-in-aid to states establishing state-sponsored hospital-medical programs received most attention. The Wagner-Murray-Dingell bill providing for a nationalized system of compulsory prepaid care was again introduced. None of these bills were reported out of committee.

Chief interest in foreign programs centred on the National Health Service act passed by parliament in Great Britain late in 1946 and scheduled to come into full operation July 5, 1948, nationalizing hospital and medical care. Preparations for inaugurating this compulsory program went forward during the year. In New Zealand, the compulsory insurance program underwent criticism as costs increased steadily. (A. G. S.)

Accident and Health.—Premium income set a new record of $775,000,000, a 15% increase over 1946. Loss ratios on individual policies rose slightly while experience on group insurance improved. Although frequency of hospital confinement increased, average duration was less so that net claim payments under hospitalization policies were about the same.

A survey by the Health and Accident Underwriters conference showed that nearly all companies had liberalized their hospitalization policies, modifying waiting periods and pre-existing condition clauses.

Medical care insurance was being offered individuals with specific amounts for doctors' calls, usually with the elimination of three or five calls, or on a blanket basis, providing $150 to $500 medical and surgical with $25 or more deductible. The cost of medical care under group insurance made it prohibitive unless the employee paid at least 50% of the cost. (C. D. Sp.)

Fire.—The U.S. government extended the period for fire insurance companies to align themselves with the Atlanta decision of 1943, which reversed a supreme court decision rendered more than 75 years before to the effect that insurance was subject to the states and not to the U.S. government. The deadline was set for July 1, 1948.

Losses paid by U.S. fire insurance companies during 1947 were estimated roughly at $400,000,000. (*See* also Fires and Fire Losses.) (E. R. H.)

War Damage, British.—Value payments released by the War Damage commission on Nov. 10 affected nearly 210,000 properties, and, together with cost of works payments, required £270,000,000 in the financial year. This brought the total paid for repair of damage to land and buildings to approximately £679,300,000. Contributions under this section of the War Damage act were estimated to yield £200,000,000.

On July 14 the board of trade made payments totalling £55,000,000 under the private chattels scheme. More than 250,000 claimants received the balance of outstanding agreed claims, together with interest and any supplementary payment due. Payments were mainly under the free cover provided to about 20,000,000 persons. Receipts were under £16,000,000 and the deficit approached £104,000,000. No date was announced for payment of outstanding claims under the business scheme. (P. Ss.)

Marine and War Risk.—The premium income from marine insurance rose materially in 1947 because of the vast increase in overseas shipping. In addition to the large capital sums insured, the rate structure remained high by reason of the continuation of surcharges which came into effect during World War II. Were this not so, it is likely that the entire marine insurance industry of all countries would have shown a severe loss in 1947.

Theft and pilferage were rampant, and in some parts of the orient and western Europe the ports were in a state of almost complete anarchy. In the western hemisphere, while conditions were not quite as bad, thefts were extremely serious despite considerable efforts to combat them. At the annual conference of the International Union of Marine Insurance at Cannes, France, in Sept. 1947, representatives of all nations put the question of theft and pilferage near the top of the agenda.

The volume of premiums on hull insurance remained much higher than before World War II. The underwriting experience, however, was not favourable and probably resulted in a net loss for the year. (*See* also Social Security; Veterans' Administration.) (H. C. Tn.)

Insurance, Old Age: *see* Social Security.
Inter-Allied Debts: *see* War Debts.

Inter-American Affairs, The Institute of.

The Institute of Inter-American Affairs, a nonprofit government corporation which operates under the U.S. department of state, was reincorporated for a period of three years by an act of congress which was approved by President Truman on Aug. 5, 1947. The former Inter-American Educational Foundation, Inc., was merged with the institute by this act, and became a division within the institute.

The purposes of the institute, as prescribed by congress in the act of reincorporation, are "to further the general welfare of, and to strengthen friendship and understanding among, the peoples of the American republics through collaboration with other governments and governmental agencies of the American republics in planning, initiating, assisting, financing, administering, and executing technical programs and projects, especially in the field of public health, sanitation, agriculture, and education."

The programs of the institute are carried on in each Latin American country under authority of a co-operative agreement signed by representatives of the U.S. and of the host government. During 1947, field technicians of the Food Supply division were at work in Haiti, Costa Rica, Peru and Paraguay, and agreements were signed extending the programs there until June 30, 1948. While choice of exact projects depends on local needs and circumstances, in general all food supply projects involve: (1) demonstrating approved methods of irrigation, drainage, erosion control, cultivation; (2) assisting local producers in obtaining seed, fertilizer, insecticides, etc.; (3) initiating or strengthening agricultural education and extension programs; (4) assisting in construction of food storage facilities and improvement of distribution and marketing systems; (5) demonstrating improved methods of livestock and pasture management; (6) training of nationals to carry on future activities.

By the end of 1947, approximately 1,500 activities had been undertaken by the institute's Health and Sanitation division, with more than 1,000 of them completed in 18 countries. During the year there were about 3,000 doctors, engineers, nurses and other professional or technical persons employed on these health and sanitation projects; 130 were U.S. citizens.

Also during 1947, program extensions were negotiated with Venezuela, El Salvador, Honduras, Ecuador, Peru, Uruguay, Haiti and Bolivia. Agreements were terminated in Nicaragua, Costa Rica and the Dominican Republic, in each of which countries the projects, which had been initiated through co-operative health services made possible by the institute, were transferred to national health authorities for operation. Health and sanitation programs also had been conducted in Brazil, Chile, Colombia, Guatemala, Mexico, Panamá and Paraguay.

The institute's health and sanitation program stresses the raising of health standards in Latin American countries. The ultimate objective is greater productivity, higher levels of living and an expanding economy in all the Americas. Activities of the Inter-American co-operative health services include health education, training of professional and technical personnel, extension of sanitation and malaria control, and provision of health centres, hospitals, and other health facilities and services. With fellowships for training in public health, sanitary engineering, nursing and related subjects, 474 Latin Americans had studied in the United States.

The U.S. and the host government each contribute a share of the money, materials and trained men and women needed for the projects. Activities are under the direction of the U.S. representative. Expenditures of the pooled funds are decided jointly by the chief of party of the institute and an appointee of the co-operating national government. Agreements, originally signed for one- and two-year periods, were renewed in most countries. Also, the program extensions were notable for increased proportions of financial contributions by the countries where the work was done. In the beginning, the United States usually put in at least half of the money and sometimes more. Later, all national contributions exceeded U.S. funds—in one instance by 11 to 1.

The Education division during 1947 had co-operative programs with immediate and long-range objectives in 12 Latin American countries. Altogether, it had sent about 60 educational specialists from the U.S. to work with the ministers of education in the other republics on programs of vocational, health and rural education, and teacher training and secondary education. During its entire operations, nearly 600,000 books, pamphlets, maps, charts and other teaching materials were made available to field parties in the other American republics. Also, 168 distinguished educators from those countries were sent to the U.S. for lectures, study and other educational activities.

Each country has its own peculiar education problems, and consequently the type of program developed by the division varies from country to country, in accordance with those problems. All however, provide for: (1) the sending of a small group of U.S. educational specialists to work with the minister of education and his staff; (2) the development of teaching materials; (3) the bringing of distinguished educators, supervisors and teachers to the U.S. to lecture, study and to participate in national, state and local educational programs.

(A. R. Hs.)

Inter-American Defense Board.

The board is an autonomous international organization created in March 1942 in accordance with resolution XXXIX of the third meeting of the ministers of foreign affairs at Petrópolis, Brazil. Membership includes military, naval and air delegates from each of the American republics. Its mission is to study and recommend measures necessary for the defense of the hemisphere.

During 1947 the board held 18 plenary sessions, at which the principal items under discussion were the organization and functions of the permanent military agency which was to replace the existing board in the inter-American system. The proposed name was the Inter-American Military Defense council. On the basis of extensive study the board forwarded to the Pan American Union and to the governments of the 21 American republics its recommendations for the structural features of the permanent agency. The proposed mission and functions of the council were carefully defined, taking into account the provisions of the hemisphere defense treaty concluded at Rio de Janeiro in Sept. 1947.

Committees of the board also studied various other subjects pertaining to the defense of the hemisphere, preparatory to submitting their recommendations to the governments. These committees included the air survey committee, the committee on officer training, the committee on language barriers and the committee on industrial mobilization.

The board's secretariat is located at 1735 New York avenue, N.W., Washington 25, D.C. Lieut. Gen. M. B. Ridgway, U.S.A., was chairman in 1947.

(*See* also INTER-AMERICAN DEFENSE CONFERENCE.)

(F. A. I.)

Inter-American Defense Conference.

The Inter-American Conference for the Maintenance of Continental Peace and Security met at Petrópolis, near Rio de Janeiro, Brazil, from Aug. 15 to Sept. 2, 1947, under the presidency of Foreign Minister Raul Fernandes of Brazil. Countries represented were Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Paraguay, Peru, the United States, Uruguay and Venezuela, all members of the Pan American Union (*q.v.*). Nicaragua, also a member of the union, was not represented, lacking a government recognized by the other countries. The closing session of the conference was addressed by President Harry S. Truman of the United States, who also gave a reception to the delegates on board the U.S.S. "Missouri," anchored in the harbour of Rio de Janeiro.

The main task of the conference was to conclude the inter-American treaty of reciprocal assistance which was signed in Rio de Janeiro on Sept. 2 by delegates from all countries attending the conference except Ecuador, whose government had been overthrown by revolution during the course of the conference. Sixteen of the countries were represented by their foreign ministers, the delegation of the United States being headed by Secretary of State George C. Marshall. The director general of the Pan American Union and the secretary general of the United Nations attended by official invitation. Plenary sessions and committee meetings of the conference were open to the press.

Background.—The conference, and the treaty which it produced, derived from two earlier international meetings. The Act of Chapultepec, a declaration of the Inter-American Conference on Problems of War and Peace, Mexico City, 1945, stated that any attack by a state against an American state would be considered an act of aggression against all signatories and that in the event such an attack occurred or was threatened the signatories would consult in order to agree upon the measures it might be advisable to take. This declaration also called for the conclusion of an inter-American treaty embodying such provisions in the form of permanent international obligations which would be consistent with the then projected charter of the United Nations. Later in 1945, the charter of the United Nations, drafted at San Francisco, gave recognition to regional arrangements for the maintenance of international peace and security, setting forth certain provisions concerning such arrangements in chapter VIII. Article 51 of the charter, moreover, recognized the right of individual and collective self-defense in case of armed attack.

Following acceptance of these provisions of the U.N. charter, the United States announced its intention of meeting with its Latin American neighbours to conclude the treaty called for in the Act of Chapultepec. The conference was, however, postponed largely because of strained relations between Argentina and the United States. On July 2, 1947, the Brazilian government announced that the conference, for which it had been designated the host, would be convoked on Aug. 15. The governing board of the Pan American Union had earlier decided that the agenda of the conference would consist only of the conclusion of the projected treaty.

Treaty of Reciprocal Assistance.—Aside from the preamble citing antecedents of the treaty and certain traditional inter-American policies, the treaty may be summarized as follows:

The parties reaffirmed their previous pledges to settle their disputes by peaceful means (articles 1, 2). They agreed that an armed attack against an American state should be considered an attack against all of them (article 3) and undertook to assist in meeting the attack. The parties would consult in the

event of such an attack to agree upon collective measures. If the armed attack should take place within the territory of an American state or anywhere within a region defined in article 4 of the treaty (the American continents, Greenland, adjacent waters and islands and the polar regions to the north and south of the American continents), the parties would undertake to give such immediate individual assistance to the attacked state as they considered necessary pending consultation. In case of any act of aggression, other than an armed attack, against an American state, or in the event of any other fact or situation that might endanger the peace of the Americas, the parties would consult on measures to assist the victim of aggression or to maintain continental peace and security (article 6). Such consultations would normally take the form of a meeting of foreign ministers, but the governing board of the Pan American Union might act provisionally as an organ of consultation (articles 11, 12).

In the consultative meetings, decisions to take measures under the treaty would be by a two-thirds majority (article 17). When such measures comprised any of the following (article 8), the decision to take them would be binding upon all parties (article 20), except that no state would be required to use armed force without its consent: "recall of chiefs of diplomatic mission; breaking of diplomatic relations; breaking of consular relations; partial or complete interruption of economic relations or of rail, sea, air, postal, telegraphic, telephonic, and radio telephonic or radiotelegraphic communications; and use of armed force." When a conflict between two American states was under consideration, parties to the conflict would not be allowed to vote (article 18), and the first action of the consultative body would be to call upon the parties to cease hostilities and restore the *status quo ante bellum* (article 7).

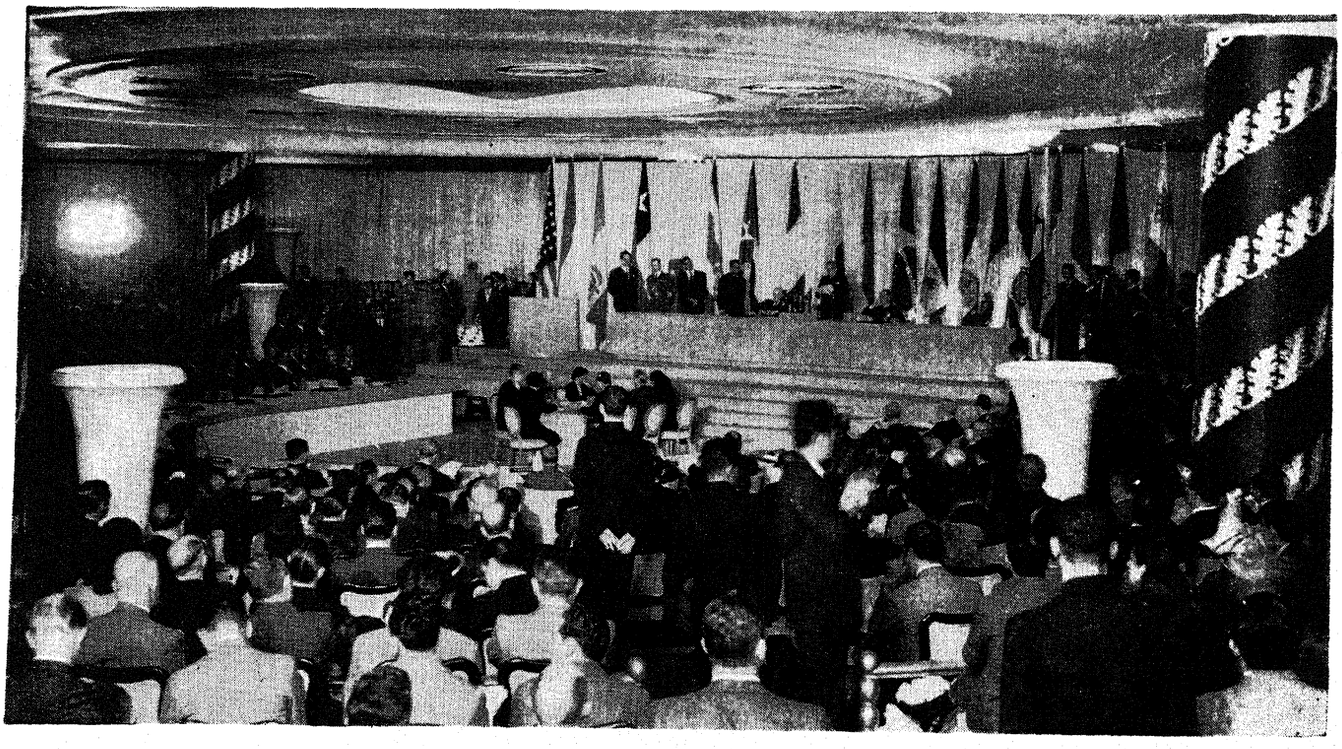
Frequent references to the charter of the United Nations provided proper concordance of the treaty with the San Francisco document. In case of armed attack, parties might (as permitted by article 51 of the charter), exercise their right of individual or collective self-defense until the Security council of the United Nations had taken the measures necessary to maintain international peace and security (article 3). (In any situation other than an armed attack, prior approval of the Security council was required, according to the charter, before enforcement action could be taken under the treaty.) Article ten of the treaty specified that nothing in the treaty "shall be construed as impairing the rights and obligations of the High Contracting Parties under the Charter of the United Nations."

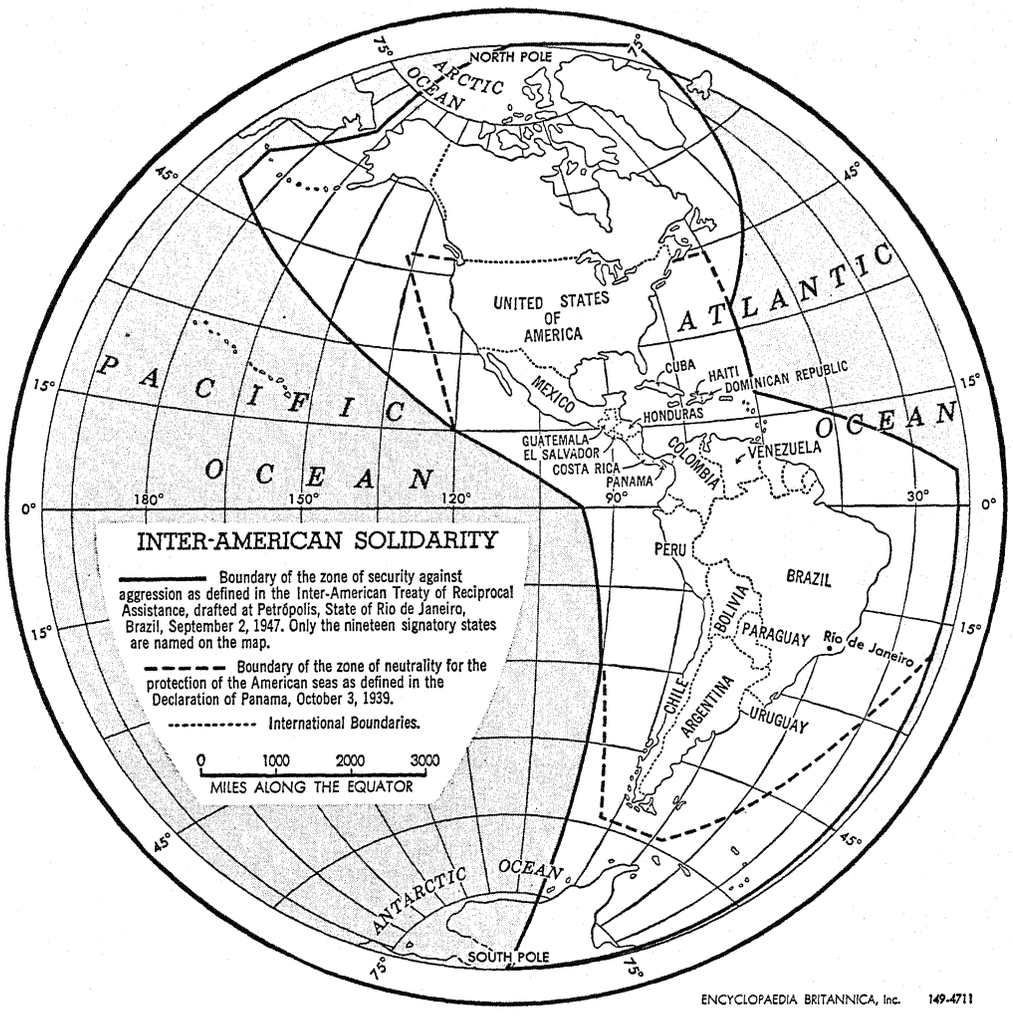
The treaty, open for signature by all American states in Rio de Janeiro, would come into effect when two-thirds of the signatory states had deposited their ratifications with the Pan American Union and would continue in force indefinitely but might be denounced by any party on two years' notice to the Pan American Union (articles 22, 23, 25). Without prejudice to any other acts which the consultative meetings might characterize as aggression, the treaty defined two acts which would in any case be so considered: armed attacks and invasion of territory (article 9).

Significance of the Conference.—Several advances in inter-American policy and procedures were made in the treaty of Rio de Janeiro. Whereas the Act of Chapultepec had imposed only an obligation to consult in case of acts of aggression, the new treaty incorporated in addition an obligation on each party to assist any other American state in meeting an armed attack. Furthermore, the voting provisions of the treaty introduced a new factor in making it possible for two-thirds of the states to decide upon measures up to and including economic sanctions in which all parties would be bound to participate whether or not they had voted in favour of them. No such mandatory provision had ever been incorporated in inter-American agreements before; the provision went further than the United Nations charter, omitting the veto power entirely, except that no state would be required to use armed force without its consent. This provision was believed to offer an effective means for the community of American states to carry out its will without being blocked by a small, intransigent minority.

Partly because of the thorough preparatory work done by the governing board of the Pan American Union, no strong differences over basic issues appeared at Petrópolis. Some argu-

PLENARY SESSION of the Inter-American conference of foreign ministers which convened at Petrópolis, near Rio de Janeiro, Brazil, on Aug. 15, 1947





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ment took place over whether different procedures should be stipulated regarding acts of aggression originating within and without the continent. This question was decided largely in the negative; acts of aggression would invoke the same obligations of assistance regardless of their origin. Debate over the voting procedure under the treaty was also important, some delegates arguing for a requirement of unanimity, others for a simple majority. The two-thirds rule for voting under the treaty was adopted overwhelmingly as the best compromise between the two more extreme positions.

BIBLIOGRAPHY.—The texts appeared in the U.S. department of state bulletin for Sept. 21, 1947. *See* also the report of the director general of the Pan American Union on the conference and the report of the foreign relations committee, U.S. senate, of Dec. 5, 1947 (U.S. senate, 80th congress, executive report No. 11, "Inter-American Treaty of Reciprocal Assistance"). (J. C. DR.)

Inter-American Highway: *see* ROADS AND HIGHWAYS.

Interior, U.S. Department of: *see* GOVERNMENT DEPARTMENTS AND BUREAUS.

Interior Decoration.

The year 1947 in the United States saw the token postwar developments of 1946 carried forward with a vigour which, because of complex inflationary trends, still was unable fully to meet mass-demand or to keep products within expected price ranges. A more normal and healthy buyer's attitude was in evidence, with deliberate selectivity and attention to quality—a desire to get value received. No radically new designs or materials were shown; rather the pent-up developments of the war and reconversion years were finally bearing fruit.

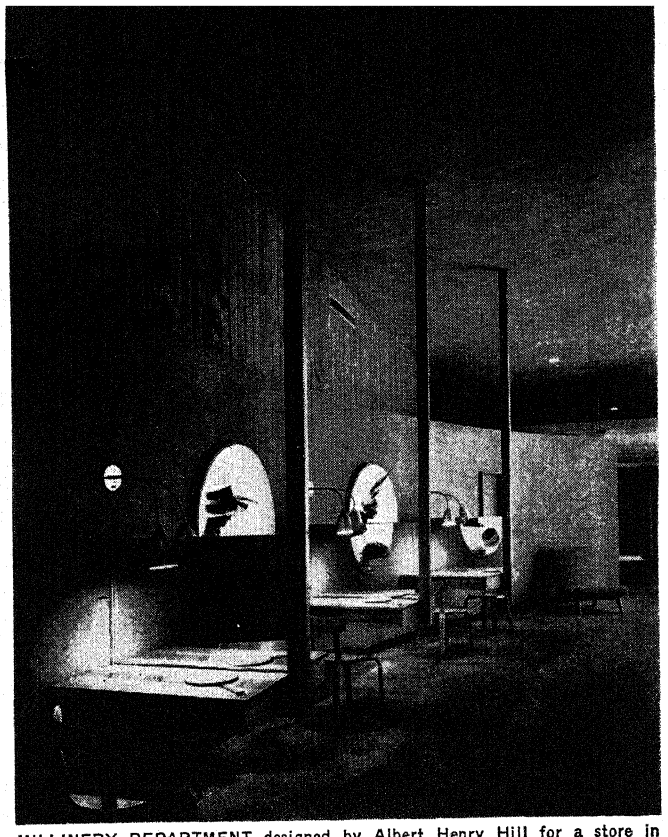
It was important to note the increasing influence of the designer in all phases of interior decoration—an influence going beyond surface form and colour to interpret and correlate the various functions of contemporary life. The gradual and belated emergence of the designer in this role could be noted as a most important incipient trend for 1948. Multipurpose furniture, compact built-in equipment and intelligent storage all pointed toward real utilization of space and simplification of form.

Interior Surfaces.—A variety of materials, many new, were available for interior surfaces. Products were offered which in one coat would cover concrete, brick, masonry or wallpaper, filling uneven surfaces in a single operation; plastic tile was available for bathrooms, kitchens, etc., in sizes up to 4 ft. by 8 ft., reducing installation costs; veneers and plywoods were in good supply and so were war-developed adhesives with which to apply them; improved paints were also in supply, as were wallpapers in which a trend toward good design was evident. In addition, a whole group of wall coverings—coated fabrics; materials on paper backing in marble, leather or wood effects; decorative substances such as bits of glass, mirror or wood on fabric back; solid plastics; cork tile; three-dimensional papier-mâché; and simple insulating materials—gave a wide and very interesting range for wall treatments.

Floor surfaces were once again a matter of choice. Rubber tile, cork, asphaltic composition tile, terrazzo, Koroseal and improved linoleum were available in a good range of patterns and colours. Woven coverings in wool, cotton or linen, in interesting textures and colours, were available in the new 158-in. width. Many manufacturers used a plastic to hold yarn backing. Although carpets were in somewhat short supply, luxurious custom-made items in deep pile or carved rugs could be delivered on time.

Window Treatment, Textiles.—Windows were generally treated simply by decorative curtains hanging straight to the floor. Frequently, to avoid a broken-pattern wall, the curtains were extended to cover wall as well as window, giving the overall space of a room the simplicity of a backdrop. The public acceptance of designers like Dorothy Liebes pointed taste toward interesting handcraft weaves employing many novel materials. Bold abstract prints, painted textiles and rich floral patterns were also in demand. In the inexpensive bracket, durable paper curtains appeared—in only two patterns, however. A beginning was made toward using silk derived from kelp. This material, heavy with metals and suitable for drapery or upholstery, was proved to be absolutely fireproof, but in 1947 its source was limited to the kelp beds off southern California.

Furniture.—There was a marked trend toward contemporary design, which accounted for more than 40% of goods shown,



MILLINERY DEPARTMENT designed by Albert Henry Hill for a store in Fresno, Calif., and completed in 1947

according to a survey. The idea of multipurpose furniture and sectional furniture such as Module became firmly established. The Charles Eames moulded plywood furniture reached the market but could not meet the brisk demand. The new Saarinen-Swanson designed birch furniture, using upholstery fabrics designed by Marianne Strengell, aroused a great deal of interest, particularly since it was scaled for moderate-sized rooms. Metal, glass, rope and bent forms were all used with more or less effect. Perhaps the outstanding characteristics of the new lines were their plastic quality, as in tables adjustable vertically; well-engineered sectional lines susceptible to many variations, chairs like the Barwa designed for scientific relaxation in more than one position; and the full utilization of space for storage, not only in free-standing pieces but also in prefabricated cabinets and closets of all types, and including compact continuous built-in furniture particularly for bedrooms and for radio-phonograph and record units. Even the bathroom was provided with a tub, lavatory and toilet in one continuous form with the lavatory moveable above the other units.

While there was a marked tendency to make use of unused space by continuous storage and shelving, there was an equally marked tendency in the more advanced lines of furniture toward lightness of weight, without sacrifice of strength, and toward airiness and lift of line. Good traditional furniture continued to hold its own but there was somewhat less, rather than more, of it. Upholstered furniture, improved smartly-styled sofa-beds and occasional pieces were all in supply.

Lighting.—A number of lamp manufacturers who had heretofore concentrated on reproductions or adaptations of traditional forms for the first time introduced contemporary lines. Flexible metal lamps, both desk and floor types, with exceptionally clean outlines, sometimes as sensitive in appearance as a line-drawing, were on the market. Indirect lighting, using fluorescent tubes, was appropriate for many interiors and was particularly easy to install in conjunction with some of the new wall-covering panels. The dressy elegant occasional lamp with elaborate shade was also in some demand.

Decorative Accents.—Some very high quality glass and crystal were developed in the United States and were used for decorative accents of lasting elegance. Ceramics continued to flourish because of their appropriateness to informal contemporary living. There were sufficient regional craftsmen working in this field to produce a variety of individual expressions. There was also an interest in metalwork, including enamels.

Plants.—The appeal of the "indoor-outdoor" room, with its merging of green growing plants and everyday indoor living, made this feature popular with new home builders. Large decorative plants were likewise used when possible in city interiors, and they provided living accents for almost any room in a house. Small sunken indoor gardens—more properly pits for potted plants—coffee tables with a box section for plants, or, more usually, large leaf plants in free-standing decorative pots, were all employed. (G. M. J.)

International Bank for Reconstruction and Development.

During 1947 the International Bank for Reconstruction and Development, which officially began operations on June 25, 1946, strengthened its organizational structure, developed and clarified its basic policies and embarked upon its first borrowing and lending activities.

Five additional nations joined the 40 which were members at the end of 1946, and admission of a sixth was authorized. The new members' subscriptions to the bank's capital, plus approved increases in those of some other countries, raised authorized capital subscriptions by present members of the bank from $7,790,500,000 to $8,248,000,000. Twenty per cent of subscribed capital is required to be paid in and is available for loans provided consent is given by the member whose currency is involved; the other 80% is subject to call only if necessary to meet the bank's obligations. Paid-in capital at the end of 1947 aggregated $1,599,985,000, not including authorized deferments, of which only $726,075,000 was in gold or United States dollars, the currency mainly in demand.

On July 15, 1947, the International bank made the first public offering of its bonds, after laws or administrative rulings in many states had been modified to permit banks and insurance companies to invest in the bank's securities. The bank offered $100,000,000 ten-year 2¼% bonds due July 15, 1957, and $150,000,000 twenty-five-year 3% bonds due July 15, 1972. The offering was made through more than 1,700 securities dealers, more than twice the largest number ever to participate before in a single security distribution, and it was substantially oversubscribed.

During 1947 the bank made four loans to finance the purchase of industrial and transportation equipment, fuels and raw materials, fertilizers and other products needed for urgent reconstruction in Europe: to France, on May 9, $250,000,000; to the Netherlands, on Aug. 7, $195,000,000; to Denmark, on Aug. 22, $40,000,000 and to Luxembourg, on Aug. 28, $12,000,000. In the last instance, for the first time, a loan was made partly in a currency other than dollars, Belgium having consented to the use of francs equivalent to $2,000,000 from its capital subscription. All these loans were for a 25-yr. term with interest at 3¼%, plus a 1% commission to build up a special reserve against defaults. The loan agreements provided for control by the bank over use of loan proceeds and for regular consultation and submission of information by the borrower on significant economic and financial developments. At the end of 1947, five other formal applications for credits were under consideration, and informal discussions preliminary to the submission of specific loan requests were in progress with several additional members.

The four loans to European countries received priority be-

cause of the urgency of their need, the advanced status of their reconstruction plans and the early contribution they could make to expanding world production. During 1947, however, the bank gave increasing consideration to programs for developing less advanced regions. The general principle was adopted that the bank's funds, limited as they are in relation to total needs for capital, should be used at strategic points to bring about maximum increases in productivity in the shortest possible time, and to stimulate investment from other sources. The bank also indicated in its second annual report, issued Sept. 11, that it intended to play an active role in promoting sound financial programs, encouraging the removal of unnecessary trade barriers and the regional integration of production programs, where appropriate, and otherwise seeking to assure economic conditions which would maximize the benefits resulting from its loans. It also expressed willingness to assist in working out international financial settlements and in selecting and recruiting experts to provide technical assistance where necessary.

The bank recognized that developments in connection with the European Recovery program (*q.v.*) would undoubtedly affect its role in the work of European reconstruction. The report of the Committee of European Economic Co-operation proposed that the bank finance a major part of the projected capital equipment imports, but the amount proposed was larger than the bank expected to have available in view of its limited funds and the financial needs of other regions. Nevertheless, it seemed clear at the end of 1947 that substantial further credits from the International bank to certain of the participating countries could be anticipated to cover part of the European Recovery program requirements; and that other bank credits, by developing markets and sources of supply outside western Europe, would make an important contribution to the program's success.

On Feb. 23 John J. McCloy was elected to succeed Eugene Meyer, first president of the International bank, who had resigned the previous December; and Robert L. Garner succeeded Harold D. Smith, who died in office, as vice-president. During the year the bank's staff was substantially increased; on Nov. 30 it numbered 380 persons of 23 nationalities.

The bank's board of governors, at its second annual meeting in September, approved the appointment of an advisory council composed of the following: Sir Arthur Salter, chairman, Pedro Beltran, Edward E. Brown, R. Dickson Harkness, Herbert Hoover, Leon Jouhaux, Sir C. V. Raman, Lionel Robbins and S. K. Alfred Sze.

An agreement was concluded between the bank and the United Nations which confirmed the bank's administrative and financial autonomy, but provided for consultation and exchange of information on matters of mutual interest. (*See* also BANKING.) (J. J. McC.)

International College of Surgeons: *see* SOCIETIES AND ASSOCIATIONS.

International Court of Justice.

The International Court of Justice held its second session at The Hague, the Netherlands, Feb. 10–March 14, 1947. It dealt primarily with administrative matters, no case having been submitted for adjudication. Nevertheless, the second year of the court was marked by events pointing the way to greater utilization of the judicial process in the settlement of international controversies.

On Oct. 15, 1946, the Security council adopted a resolution providing that the court might be open to a state not party to the statute, upon its filing with the registrar of the court a declaration, particular or general, accepting its jurisdiction "in accordance with the Charter of the United Nations and with the terms and subject to the conditions of the Statute and Rules of the Court," and undertaking to comply "in good faith with the decision or decisions of the Court" and accepting "all the obligations of a Member of the United Nations under Article 94 of the Charter." A particular declaration is one accepting jurisdiction with respect to a particular dispute or disputes which have already arisen, while a general declaration is one accepting jurisdiction generally in respect of all disputes or of a particular class or classes of disputes which have already arisen or which may arise in the future.

Under article 93 of the charter of the United Nations a state not a member of the United Nations may become a party to the statute of the court on conditions to be determined by the general assembly upon recommendation of the Security council. The council, Nov. 15, 1946, adopted a resolution recommending the conditions on which Switzerland, which had inquired, might become a party to the statute. The assembly, by resolution of Dec. 11, adopted the council's recommendation. The resolution was communicated to the Swiss government, Dec. 31, 1946, but toward the end of Dec. 1947 that government had not yet adhered. The resolution provided for the deposit by Switzerland with the secretary general of the United Nations of an instrument containing:

"(a) Acceptance of the provisions of the Statute of the International Court of Justice;

"(b) Acceptance of all the obligations of a Member of the United Nations under Article 94 of the Charter;

"(c) An undertaking to contribute to the expenses of the Court such equitable amount as the General Assembly shall assess from time to time after consultation with the Swiss Government."

In addition to the 17 states subject to compulsory jurisdiction under article 36(5) of the statute, by virtue of unexpired acceptances of such jurisdiction under the statute of the predecessor court, nine states had accepted compulsory jurisdiction under article 36(2) of the statute.

On April 9, 1947, the Security council adopted a resolution recommending that the United Kingdom and Albania refer to the court a dispute between them, arising out of an incident on Oct. 22, 1946, in the Straits of Corfu, in which two British ships were damaged by mines with resulting loss of life and injury to their crews.

On May 22, 1947, the British ambassador at The Hague transmitted to the court an application, dated May 13, 1947, instituting proceedings against Albania in respect of the incident, claiming that Albania was internationally responsible.

In a note filed with the registrar, July 23, 1947, Albania stated that, while it would have been within its rights in holding that the United Kingdom was not entitled to bring the case before the court without first concluding a special agreement with Albania, it was prepared—though reserving its rights respecting the manner in which the case was brought—to appear before the court.

On July 31, 1947, the president of the court issued an order fixing as time limits for the presentation of the memorial of the United Kingdom, and the countermemorial of Albania, Oct. 1 and Dec. 10, 1947, respectively.

The memorial of the United Kingdom was filed on scheduled time. On Dec. 9 Albania filed a preliminary objection to the application of the United Kingdom government of May 13, 1947, and on Dec. 10 the president of the court issued an order giving the United Kingdom until Jan. 20, 1948, for filing its observations.

The general assembly, on Nov. 14, 1947, approved three resolutions prepared by its sixth (legal) committee recommending that organs of the United Nations and specialized agencies

should refer points of law to the court for advisory opinions; authorizing the Trusteeship council to request advisory opinions; urging acceptance of the compulsory jurisdiction of the court, insertion in treaties of clauses providing for the submission of disputes to the court and recommending that as a general rule states should submit their legal disputes to the court.

On Nov. 17, 1947, the general assembly passed a resolution asking the court for an advisory opinion regarding the admission of states to the United Nations under article 4 of the charter. (*See* also INTERNATIONAL LAW; UNITED NATIONS.)

(G. H. H.)

International Emergency Food Council: *see* FOOD SUPPLY OF THE WORLD.

International Information and Cultural Affairs, Office of: *see* INFORMATION AND EDUCATIONAL EXCHANGE, OFFICE OF.

International Labour Conference: *see* INTERNATIONAL LABOUR ORGANIZATION.

International Labour Organization.

The constitution and procedures of the I.L.O. were retooled and geared into the machinery of the United Nations. The I.L.O. took its place as an independent, specialized agency of the U.N. with adequate provision for co-ordination and co-operation in its larger tasks. The cost was great in terms of increased budget and personnel for highly technical services, and representation in almost continuous, sometimes overlapping, meetings in all parts of the world. In the months of Jan.–July 1947 such meetings were scheduled. In July the 30th session of the conference voted a budget for 1948 of $4,449,295, an increase of 15.13% over 1947.

The largest conference in number of delegates (173) and advisers (309) in its history met in Geneva, Switz., June 19–July 11. There were represented 48 states members (including Austria readmitted at this session), 40 of them with complete delegations. Representatives of the U.N., the U.N. Educational, Scientific and Cultural organization, the International Monetary fund and the World Health organization also participated. The total I.L.O. membership (July 15) was 53 with two states, El Salvador and the Republic of the Philippines, having declared their intention of accepting membership when necessary constitutional formalities were completed. Yugoslavia gave notice of withdrawal effective June 16, 1949, but was expected to reconsider before withdrawal became effective. Five conventions, applicable to nonmetropolitan territories, were adopted: (1) social policy, by vote 103–1, with 25 abstentions; (2) right of association and settlement of labour disputes, by vote 121–0, with 3 abstentions; (3) labour inspectorates, 120–0, with 3 abstentions; (4) application of international standards, 95–20, with 12 abstentions; (5) maximum length of contracts of employment of indigenous workers, 99–0, with 24 abstentions. Thus was brought to a close the prolonged debate in a tripartite discussion of many delicate questions in colonial areas at four successive sessions of the conference (1944–47). One more convention was adopted concerning labour inspection in industry and commerce, 134–0, with no abstentions. To this were added two recommendations: (1) on labour inspection in general, and (2) on labour inspection in mining and transport, both adopted by vote 135–0, with no abstentions. The conference adopted four resolutions: concerning freedom of association and protection of the right to organize and to bargain collectively; international machinery for safeguarding freedom of association; points to serve as a basis for adoption of conventions on this subject at the 1948 session of the conference; and, finally, placing the question on the agenda for a first discussion at the 1948 session. This action was in response to the reference by the U.N. Economic and Social council of the question of "guarantees for the exercise and development of trade union rights" to the I.L.O. for study and report. The U.N. general assembly on Nov. 17 by vote of 46–6 approved the principles of trade union rights laid down by I.L.O. and decided that it and not the World Federation of Trade Unions was the proper authority to deal with freedom of association and industrial relations as the U.N. specialized agency on labour issues. Ratifications of conventions reported to the conference July 10 numbered 944, and later July reports made the total 947, an increase of 25 within a year. The report of the committee of experts on the application of conventions (Conf. Docs. Rep. VI App.) and of the conference committee on the application of conventions (Prov. Rec. No. 26) showed satisfactory progress and a determination to make full use of new constitutional requirements, such as reports on conventions not ratified and action taken under recommendations to increase the effectiveness of both.

There were three director general reports. (1) The 30th session report (Conf. Doc. Rep. I) presented the usual economic and social background on a world scale of the topics which confronted the conference. Its discussion was more extensive than usual. No other event of the year in international life presented a better documented analysis of world economy and trends, a tripartite debate on fundamentals and a guide to action for I.L.O., U.N. and other international agencies. (2) First report of the I.L.O. to the United Nations[1] was prepared under article V, 2, a, of the agreement between the U.N. and the I.L.O. (May 30, 1946) which provided for regular reports on the activities of the organization. The period covered extended from the establishment of the U.N. to July 15, 1947. (3) The third director general report was prepared for the Preparatory Asiatic Regional conference in New Delhi, India, Oct. 27–Nov. 8.

Industrial committees for six important international industries held meetings, some their second session, in 1947 and proved more effective than anticipated as a new tripartite approach to solutions of international industrial and labour problems. The governing body considered the advisability of referring the conclusions in many cases to the general conference as a first discussion of matters to be dealt with in conventions and recommendations. (*See* also CHILD WELFARE.)

(S. McC. L.)

International Law.

The value of activity relating to international law in 1947 was questioned by some jurists who believed this body of law should be kept within the narrow field which it occupied during the 19th century. The numerous national and international agencies engaged in the development of international law, on the other hand, pursued their work with vigour and confidence that they would help adapt it to the conditions of a shrinking and interdependent world whose governments were equipped with weapons which would make another war intolerably destructive. This work was, for the most part, based upon the assumption that the principles of justice which the law ought to maintain were those set forth in the preamble of the United Nations charter: "to save succeeding generations from the scourge of war . . . to reaffirm faith in fundamental human rights . . . to establish conditions under which justice and respect for obligations arising from treaties and other sources of international law can be maintained, and to promote social progress and better standards of living and larger freedom." These principles diverged widely from those derived from the prevailing 19th century conception

[1]Vol. I *Report;* Vol. II *Appendices* included I.L.O. constitution, as amended and in force in 1947, agreement (U.N. and I.L.O.), membership July 15, governing body, conventions and recommendations, 1919–47, etc. (Geneva).

that sovereign states are the only subjects of international law, are bound only by rules to which they have consented, and are presumed to retain freedom to refuse to submit to any superior authority and to advance their policies even by war. It was not surprising that the transition to the new conceptions involved difficulties and proved alarming to some international lawyers.

The new principles, it was true, did not originate in the U.N. charter. They were inherent in concepts of natural law with which modern international law originated in the 16th century, and in the efforts to give practical effect to human aspirations for peace and justice at the Hague conferences of 1899 and 1907 and in the League of Nations. But as the world had shrunk, the need for a more effective law preventing war and protecting human rights had become obvious to an increasingly large proportion of the world's population.

Strangely, the Soviet Union, which in its domestic policy had been most radical, had become most conservative in regard to international law, and remained the most devoted champion of unlimited national sovereignty. The United States, on the other hand, which had been notable for its aloofness from international organization and its insistence on national sovereignty, had officially sponsored projects such as those for the control of atomic energy and for modifying the veto vote in the Security council which would greatly augment the effectiveness of international authority and reduce that of sovereign states. Certain elements of U.S. opinion moved even further, and organizations favouring world government or world federation had attracted a considerable following.

Responsible agencies concerned with the development of international law avoided either extreme. They declined to be dogmatic about the sovereignty of either the nations or the world, but sought to develop international law as the changing conditions of the world community and the merits of each particular problem suggested.

Interpretation of the U.N. Charter.—One issue concerned the utilization of political as opposed to juridical procedures in interpreting international law. The issue arose during 1947 in several discussions concerning interpretation of the charter of the U.N. For example, when India complained that Indian nationals in South Africa were denied the human rights assured them by the charter, South Africa contended that the matter was essentially within its domestic jurisdiction, and consequently U.N. organs could not consider the matter. Certain states wished to obtain the advisory opinion of the International Court of Justice on this contention, but the general assembly passed a resolution on the merits of the question, urging a settlement in accord with the provisions of the charter, thus by implication deciding that the matter was not within the domestic jurisdiction of South Africa.

Again, when the question arose concerning the conformity of the U.S. proposal for an interim committee of the general assembly to deal with political problems which the Security council failed to settle, the soviet government claimed that the primary responsibility of the Security council to maintain international peace and security would be encroached upon. The British suggested reference to the court, but this was not done, and the general assembly, by approving the U.S. proposal, decided by implication that it was not contrary to the charter.

In both of these cases the majority of the members preferred to interpret the charter by the political action of the general assembly, rather than by juridical advice of the court. The Soviet Union, however, took a third position in the latter case, holding that each member was ultimately justified in interpreting the charter itself, and since it regarded the interim committee of the general assembly as contrary to the charter, announced that it would not participate in the meetings of that body. The soviet delegation took a similar position when the general assembly confirmed the trusteeship agreements without determining who were the "states directly concerned," which under the charter should draw up these agreements. Consequently it refused to participate in the Trusteeship council, which it considered to have been set up in violation of the charter.



UNITED NATIONS committee on international law whose activities, in 1947, were devoted to the study of how international law might eventually be codified

Whether South Africa was obliged under the charter to place the mandated territory of South-West Africa under trusteeship and the extent to which the general assembly could make recommendations concerning non-self-governing territories, were issues involving charter interpretation which had not been decided at the end of 1947.

Charter interpretation was also involved in discussions regarding use of the veto by the great powers. It was suggested that the declaration made by these powers at San Francisco agreeing to use the veto with moderation should be regarded as an authoritative interpretation of the charter, and it was also contended that the Soviet Union had failed to manifest this moderation. When the Soviet Union vetoed the admission of several new members, acknowledging that its objective was political, in order to induce other states to vote for certain of its candidates, the general assembly asked the International Court of Justice to give an advisory opinion on the right of a state to base its vote upon applicants for membership on grounds other than those stated in the charter. This was the only case in which an issue of charter interpretation was referred to the court, but the second general assembly in Oct. 1947 passed a resolution introduced by Australia urging greater use of the court for this purpose.

In practice the members preferred political procedures for this purpose, perhaps from a fear that judicial interpretation might impair the opportunity of the U.N. to develop in accord with experience and changing conditions. This attitude, however, was balanced by a growing opinion favourable to judicial interpretation by countries outside the soviet bloc. The latter tended to support the right of nullification by individual members.

Status of States.—Formerly, sovereign states had been regarded as the proper subjects of international law, although nonsovereign states, international organizations and individuals

had been accorded a limited status. Actions of the U.N. developed this tendency. The Ukraine and Byelorussia, although they could not be regarded as sovereign states, were admitted as original members of the U.N. The same was true of India, which subsequently, however, became a sovereign state. The first assembly admitted Afghanistan, Iceland, Sweden and Siam, and the second assembly admitted Yemen and Pakistan, the latter resulting from the division of India. Eleven other states had applied for admission by the end of 1947. Albania, Bulgaria, Hungary, Mongolia and Rumania were supported by the Soviet Union, but failed to obtain the necessary majority in either the Security council or the general assembly, concurrence of which was necessary for admission. On the other hand, Austria, Finland, Eire, Italy, Portugal and Trans-Jordan, supported by the western powers, failed of admission only because of the soviet veto in the Security council. Unsuccessful efforts were made in the second general assembly to bring pressure to eliminate this veto, including the reference to the International Court of Justice already referred to.

The exclusion of Franco Spain from relations with members of the U.N. or from participation in U.N. agencies was continued, but resolutions of the second general assembly were less drastic than those of the first assembly.

The conclusion during 1947 of peace treaties with Germany's five European satellites made these countries eligible for admission to the U.N., although, as noted, they were not actually admitted. A remarkable feature of these treaties was the provision that they should come into force when ratified by the Soviet Union, the United States, the United Kingdom and France. Although the former enemy states were invited to ratify, their ratification was not necessary for the validity of the treaties. Thus the instruments, although they acquired a treaty status among the great powers, could hardly be regarded as peace treaties in the usual sense, but as joint declarations by these powers, assuming legislative authority with reference to the former enemy states.

Negotiations on the German peace at Moscow in the spring and at London in the fall of 1947 reached a deadlock. There seemed little hope of agreement between the western powers and the Soviet Union. In view of the exercise of Germany's sovereignty by the four powers, a peace by declaration of these powers, rather than by treaty with a nonexistent German government, would seem appropriate; but apparently different declarations would apply in the western and eastern zones.

Peace negotiations with Japan were not begun, but in view of the continuance of government under the emperor, that country, differing from Germany, had some status under international law.

This was not true of Korea, which was still divided into two zones, occupied respectively by U.S. and soviet forces. Efforts to break the deadlock failed, and the U.N. general assembly sent a commission to investigate the problem. (*See* also PEACE TREATIES.)

The special meeting of the assembly called for May 1947 to consider the Palestine problem appointed a commission which proposed to the second general assembly that the country be partitioned. This proposal was accepted, and a committee to supervise the transition from British mandatory control was appointed. No provision, however, was made for forces to implement the decision, and hostilities broke out between Jews and Arabs. The partition proposal involved a Jewish state of three separated fragments, an Arab state, also of three fragments, and an international state of the Jerusalem area. The Trusteeship council of the U.N. was authorized to draft a statute for the latter area. Jerusalem was to be the second international city created since World War II, the first being Trieste, which was internationalized under the Italian peace treaty. (*See* also PALESTINE; TRIESTE, THE FREE TERRITORY OF.)

Problems of status concerning a number of colonial areas arose during 1947. Thus the former Italian colonies in Africa, although renounced by Italy, remained under British military occupation. The Italian treaty, however, provided that if the principal powers failed to agree on their status within a year from the coming into force of the Italian treaty, the matter should be turned over to the general assembly of the U.N. A number of proposals for trusteeship of the colonies were considered by the principal powers.

During the year the Pacific island of Nauru was placed under trusteeship of Great Britain, Australia and New Zealand; and the North Pacific islands, formerly under Japanese mandate, were placed under strategic trusteeship of the United States. Thus all of the former mandated territories had been placed under trusteeship except Palestine and South-West Africa. Although South Africa had so far resisted the pressure of the U.N. to place its mandated territory under trusteeship, it agreed to report on this area to the Trusteeship council. The latter body not only considered this report, which it thought inadequate, but also examined reports from the administrators of trusteeship territories, and considered petitions from the Samoans and the Ewe people of Togoland for more self-government. (*See* also TRUSTEE TERRITORIES.)

The status of the Indonesian republic was involved in controversy before the Security council between the Netherlands and that country. A commission sent to the spot arranged in the autumn for the cessation of hostilities.

Under the influence of the U.N., persistent tendency developed toward the breakup of empires and the development of self-government of colonial peoples, with the result that the distinction between sovereign and nonsovereign states had become somewhat blurred.

Status of International Organizations.—The status of the 12 recognized and prospective specialized organizations under the U.N. was determined by agreements completed by 9 of them with the U.N. Three organizations—the International Trade organization, the International Refugee organization and the International Maritime Consultative organization—had not yet completed or received sufficient ratifications of their constitutions. Under these agreements, the specialized organizations retained their autonomy, and gained the right to send delegates to appropriate meetings of the U.N. organs. There were also provisions for mutual exchange of documents and for consultation on personnel and budgetary problems with the U.N.

Status of Individuals.—One of the most important developments of international law following World War II was the recognition that individuals have a direct relationship to the world community. Formerly international law had considered that the rights of the individual flowed solely from his relationship to the state of his residence or of his nationality. The U.N. charter, however, called for respect for human rights. At Geneva in the fall of 1947 the Human Rights commission, under the chairmanship of Mrs. Franklin D. Roosevelt, produced a draft declaration of human rights to be placed before the next general assembly, and a draft covenant of human rights to be open for ratification by states. There was discussion in the commission of the procedures for implementing these rights by petition of individuals, by discussion in the commission, or possibly by invocation of the jurisdiction of a court of human rights. No conclusions on this matter were reached, however. The importance of the question was indicated by an argument made in the supreme court of the United States that the human rights provisions of the charter had become binding law in the United States, and that a pledge to assure observance of human

rights and fundamental freedoms without distinction as to race, sex, language, or religion, forbade U.S. courts to assist in the enforcement of restrictive covenants discriminating among races or religions.

The liabilities of individuals under international law were also developed by the numerous war crimes trials, both in Europe and the far east, developing the principles set forth in the Nuernberg charter and enforced by the International Military tribunal at Nuernberg. The Committee on Progressive Development of International Law and Its Codification, set up by the first general assembly of the U.N., recommended the drafting of a code of international criminal law, including the Nuernberg principles, and this was approved by the assembly. It also discussed the possibility of an international criminal court, but no action was taken. The assembly instructed the Economic and Social council to prepare a draft convention on the international crime of genocide. (*See* also WAR CRIMES.)

The status of members of the U.N. secretariat and of delegates to the U.N. was defined in the Headquarters agreement between the U.N. and the United States and approved by the second general assembly. This agreement supplemented the act of congress providing immunities for international organizations and their personnel in the United States.

Prevention of War.—The international law concerned with prevention of war developed in 1947 through efforts to improve the procedure of the U.N. so that it could act against aggressors without the inhibiting influence of the veto. The general assembly, in which there was no veto, provided for an interim committee to study disputes which the Security council failed to deal with, and established a precedent by dealing itself with important problems threatening the peace, such as Palestine, Korea and the Balkans. The general assembly also passed resolutions condemning all forms of propaganda likely to provoke threats to peace, and urging members to disseminate information expressing the undoubted desire of all peoples for peace.

There was much private discussion during 1947 of the possibility of developing a supplementary convention, by which members of the U.N. might agree to contribute forces to deal with a state declared to be an aggressor by the general assembly. Such a convention might implement the right of individual and collective self-defense recognized in the charter, and would be similar to the convention of Rio de Janeiro agreed to by the American republics. This provided for collective defense of the Americas through a procedure involving the votes of two-thirds of those states. The law concerning the prevention of war developed not only through this treaty, but by the judgments in several war crimes trials during the year dealing with the offense of aggressive war. The Binion case in the United States also contributed to the subject by holding that war began with the attack at Pearl Harbor and not with the congressional declaration of war against Japan the following day and against Germany and Italy four days after the assault.

Little progress was made during 1947 on the important problems of atomic energy control, disarmament and organization of U.N. forces. The Atomic Energy committee continued its work, and the majority reiterated in the second report submitted to the general assembly its endorsement of the main elements of the Baruch proposal, but the Soviet Union remained opposed to the concept of international ownership of dangerous fissionable materials, and clung to the veto on sanctions. (*See* ATOMIC ENERGY.)

Economic and Social Matters.—The International Civil Aeronautics organization helped develop international law of the air, and the Geneva conference in the autumn contributed toward the reduction of commercial barriers by a convention which considerably lowered tariffs, and by a draft convention for establishment of an International Trade organization to maintain principles of freer and less discriminatory trade. The latter convention was to be acted upon by the Havana conference in 1948.

The policy of the United States of giving aid to Greece and western European countries under the Truman doctrine and the Marshall plan was attacked by the Soviet Union as violating the sovereignty of those states. It was not opposed by any organ of the U.N., however. (*See* EUROPEAN RECOVERY PROGRAM.)

The United Nations Educational, Scientific, and Cultural organization continued its activities to promote freer international communication of culture and information, and considered a treaty on this subject. The Economic and Social council of the U.N. arranged for a conference on freedom of information in the spring of 1948. The International Labour organization cooperated with the Human Rights commission, and initiated several conventions on labour rights, especially on the right of association. The second general assembly passed a resolution on the latter subject.

Institutions for the Development of International Law.—The most important agencies directly concerned with international law in 1947 were the International Court of Justice (*q.v.*) and the International Law commission. The court perfected its rules, and the Security council gave it jurisdiction of the Corfu channel case between Great Britain and Albania. Great Britain agreed to place the dispute concerning British Honduras before the court, but Guatemala did not consent. The general assembly asked for an advisory opinion on the question of the grounds upon which members of the U.N. might refuse to vote for applicants to membership. The record for two years of the court's existence could be compared with that of the first two years of the Permanent Court of International Justice under the League of Nations, during which time eight requests for advisory opinions were considered.

During 1946 and 1947, China, Denmark, France, Guatemala, the Netherlands, Norway, Sweden, the United Kingdom and the United States accepted the compulsory jurisdiction of the court, in some cases with reservations. Added to the states still bound by the optional clause of the statute of the Permanent Court of International Justice, transferred to the new court, 27 states were now obliged to submit to the court's jurisdiction. Further accession to the optional clause was urged in a resolution of the second general assembly.

The general assembly, the Security council, the Economic and Social council and nine specialized agencies which had completed agreements with the U.N. were now entitled to ask the court for advisory opinions.

The second general assembly passed a resolution urging greater use of the court, especially in interpreting the charter and the constitutions of the specialized agencies. At Switzerland's request the assembly also defined the conditions under which a nonmember of the U.N. could become a party to the court statute and the conditions under which nonparties to the statute could have access to the court.

Establishment of the International Law commission was authorized by the second general assembly, on recommendation of the Committee on the Progressive Development of International Law and Its Codification. The commission was to be appointed by the third general assembly from recognized international lawyers, to prepare proposals for the codification of international law, the rights of states, and offenses against the peace and security of mankind, including the crimes defined by the Nuernberg tribunal. A convention on the crime of genocide and a convention on human rights were under consideration by the Economic and Social council, but these matters might also

eventually be considered by the International Law commission. The commission also was to consider the means of making the sources of customary international law more available, and consult with private organizations in the field.

During 1947 the work of the U.N. and other official bodies in the field of international law was exploratory, and few final conclusions were reached. The powers still manifested a preference for political over juridical methods, but provisions were made for greater use of legal institutions to develop and apply international law in the spirit of the purposes and principles of the charter. (*See* also UNITED NATIONS.) (Q. W.)

International Monetary Fund. During 1947 the International Monetary fund began actual operations and engaged in a considerable volume of exchange transactions. The fund's first exchange transaction occurred on May 8, 1947, when France purchased $25,000,000 (U.S.) from the fund in exchange for francs. Total sales of foreign exchange by the fund to member countries against their own currencies to Dec. 31, 1947, are summarized in the following table:

Country	Sales of U.S. Dollars	Sales of Pounds Sterling
	(In millions)	
United Kingdom	240.0	
France	125.0	
Netherlands	46.0	1.5
Mexico	22.5	
Belgium	11.0	
Chile	8.8	
Turkey	5.0	
Denmark	3.4	
	461.7	1.5

Among the other matters which the fund dealt with during the year were the admission of new members, the establishment of par values for certain countries, revisions of the quotas of certain members, external gold transactions at premium prices, gold production subsidies, exchange restrictions and multiple currency practices.

During 1947 five additional countries (namely, Italy, Turkey, Syria, Lebanon and Australia) were admitted to membership, while the application of Finland for membership was approved by the board of governors meeting in London in Sept. 1947. The addition of these 5 raised the total number of member countries to 45. As of Dec. 31, 1947, the aggregate quotas of members of the fund amounted to $7,921,500,000, as compared with $7,412,500,000 at the end of 1946.

The fund established par values for four of the newly accepted members; namely, Turkey, Syria, Lebanon and Australia. During 1947 a par value for Venezuela, which accepted membership on Sept. 30, 1946, was also set. The par values established were those proposed by the respective countries and were based on existing rates for the U.S. dollar for these nations. The par values of these currencies are:

Country	Currency	Date Established	U.S. Cents per Currency Unit
Venezuela	Bolivar	April 18, 1947	29.8507
Turkey	Lira	June 19, 1947	35.7143
Lebanon	Pound	July 29, 1947	45.6313
Syria	Pound	July 29, 1947	45.6313
Australia	Pound	Nov. 17, 1947	322.4000

Certain member countries still did not have par values established for them and therefore were not able to use the resources of the fund unless special terms or conditions were arrived at with the fund. These member countries were Brazil, China, the Dominican Republic, Greece, Poland, Uruguay, Yugoslavia and Italy. In addition, par values for the Netherlands Indies and for French Indo-China had not been established. In many cases, the principal reason for not establishing par values was the existence of disturbed monetary conditions, but in others legislative requirements caused the postponement.

The quotas established for Italy, Syria, Lebanon and Turkey were $180,000,000, $6,500,000, $4,500,000 and $43,000,000, respectively. Australia's quota was set at $200,000,000, the same figure which had been originally agreed to at Bretton Woods, N.H. In addition, authorization was given by the board of governors to revise the quotas of certain member countries if they applied for proportionate changes in their subscriptions in the International Bank for Reconstruction and Development (*q.v.*). Thus, the quota of Iran might be raised from $25,000,000 to $35,000,000 and Egypt's from $45,000,000 to $60,000,000.

In June 1947 the fund requested all of its members to cooperate in the elimination of external gold transactions at premium prices. Such transactions generally involve a loss of gold from monetary reserves and might contribute to the undermining of exchange stability. Previously, in accordance with the fund agreement, the fund had prescribed a margin for sales and purchases of gold by members, thereby tending to stabilize the price of monetary gold for all members and preventing any significant divergencies from par of the external value of member currencies through transactions in gold.

In Dec. 1947 the fund gave consideration to the question of gold production subsidies in connection with a proposed gold production subsidy by the Canadian government. The fund announced that all member countries which proposed to introduce new measures to subsidize the production of gold were under obligation to consult with the fund on the specific measures to be introduced. A subsidy in the form of a uniform payment per ounce for all or part of the gold produced would constitute an increase in price which would not be permissible if the total price paid by the member for gold were to become in excess of parity plus the prescribed margin, as set forth in the articles of agreement. Subsidies involving payment in another form might also, depending upon their nature, constitute an increase in price. Subsidies on gold production, regardless of their form, were inconsistent with the fund agreement if they undermined, or threatened to undermine, exchange stability. Furthermore, if subsidies contributed directly or indirectly to monetary instability in other countries, they were of concern to the fund. The fund declared its intention to continue to study and to review with its members their gold policies and any proposed changes, to determine if they were consonant with the provisions of the fund agreement and conducive to a sound international policy regarding gold. In the present circumstances the proposed Canadian action was determined by the fund not to be inconsistent with the policy of the fund.

During 1947 the fund also paid considerable attention to the problems of exchange restrictions and multiple currencies. The fund agreement provides that during the transitional period, member countries may, subject to certain safeguards, maintain and adapt to changing circumstances exchange restrictions on payments and transfers for current international transactions. Most member countries availed themselves of these transitional arrangements. Only five countries (namely, El Salvador, Guatemala, Mexico, Panamá and the United States) assumed the obligation to permit freely payments and transfers for current transactions. With regard to multiple currency practices, the fund took a practical attitude, keeping in mind the special problems of the member countries concerned.

The second annual meeting of the board of governors was convened in London Sept. 11, 1947, and adjourned Sept. 17 until Sept. 1948, when the third meeting was to be convened in Washington, D.C. Among the matters on which the board of governors took action at the London meeting were the application of Finland for membership and the requests of Iran and

Egypt for quota increases. (*See* also BANKING; EXCHANGE CONTROL AND EXCHANGE RATES.) (A. N. O.)

International Refugee Organization: *see* REFUGEES.

International Trade.

World trade during the first half of 1947 showed substantial gains over the previous year, and prewar levels generally were exceeded. An analysis of the trade of 42 countries which accounted for three-fourths of world trade in 1938 indicated that actual volume of trade was 10%–20% above the 1946 level and slightly above the 1938 level.

The striking increase in foreign trade of the countries of the western hemisphere, more than double prewar volume, was almost entirely responsible for these gains. Dominant in the trade picture of the hemisphere was the fivefold increase of U.S. exports by value (250% by volume) since 1938.

Trade of the eastern hemisphere during the first six months of 1947 gained significantly over the previous year, but volume remained around 35% below the prewar level. A significant part of this decline was caused by the virtual disappearance of German and Japanese trade.

Although a large proportion of U.S. exports was financed through government loans and grants, the nations of the world liquidated approximately $4,500,000,000 of their gold and dollar assets to pay for U.S. goods and services. Resulting dollar shortages led to tighter import controls during the year by many nations which sought to limit U.S. purchases to the most essential commodities.

Other forces, however, operated to promote the eventual freer flow of world trade. On Oct. 30, 1947, representatives of the U.S. and 22 other nations meeting in Geneva as the Preparatory Commission of the United Nations Conference on Trade and Employment drafted the charter for the International Trade organization and concluded a series of multilateral trade agreements aimed at a reduction of trade barriers. These agreements, which affected the trade of nations doing about three-fourths of the world's commerce, marked the first successful multilateral effort to reduce tariffs. (*See* TARIFFS.)

United States Trade.—The dollar value of U.S. exports reached an all-time peak of approximately $14,500,000,000 in 1947—nearly $5,000,000,000 more than in 1946 and $11,500,000,000 above the 1936–38 average. Rises in prices, however, accounted for nearly half the increase over the previous year. In volume, 1947 exports were 250% larger than in the prewar period.[1]

Imports during 1947 were valued at approximately $5,500,000,000, nearly $750,000,000 higher than in 1946. In terms of volume, however, imports were actually a little lower than in the previous year; the price factor accounted for more than the entire gain in dollar value. Imports in 1947 by value were twice the 1936–38 average, but were only 9% above prewar volume.

Forty-three per cent of United States exports went to western hemisphere destinations in 1947 compared with 34% in prewar years. The proportion of total shipments to Europe declined during the same period to 36%, from 43% prior to World War II.

The change in the import pattern was more striking. Almost 60% of 1947 imports derived from western hemisphere countries compared with 37% in the prewar period, while Europe contributed only 14% in 1947 in contrast with 29% in 1936–38. The proportionate share contributed by Asia was also down sharply to 18% in 1947 as against 30% in the prewar years.

Prior to the multilateral trade agreements concluded at Geneva on Oct. 30, the United States had signed reciprocal trade agreements with 29 nations.

Canada.—The focus of development in Canada's foreign trade shifted during 1946 and 1947 from exports, where it had been concentrated during the war years, to imports. During 1947 imports reacted strongly to the easing supply situation, rising to a new record of $2,500,000,000. Exports, meanwhile, had declined from $3,200,000,000 in 1945 to $2,300,000,000 in 1946 but recovered to $2,800,000,000 in 1947.

Table I.—*U.S. Exports and Imports by Continents and Percentage Distribution, Annual Average 1936–38, 1946 and January-November 1947*

(Value in millions of dollars)

Continent	Exports, including re-exports			General Imports		
	1936-38 average	1946	Jan.-Nov. 1947	1936-38 average	1946	Jan.-Nov. 1947
Total	$2,967	$9,739	$13,350	$2,489	$4,909	$5,139
North America:						
Northern*	462	1,475	1,980	353	916	1,010
Southern	270	1,069	1,552	248	732	929
South America	274	1,152	2,156	325	1,095	1,100
Europe	1,243	4,097	4,843	708	796	738
Asia	499	1,342	1,762	748	881	941
Oceania	91	117	294	40	183	143
Africa	128	488	764	66	306	277

Percentage Distribution

Continent	Exports, including re-exports			General Imports		
	1936-38 average	1946	Jan.-Nov. 1947	1936-38 average	1946	Jan.-Nov. 1947
Total	100.0	100.0	100.0	100.0	100.0	100.0
North America:						
Northern*	15.6	15.1	14.8	14.1	18.7	19.7
Southern	9.1	11.0	11.6	10.0	14.9	18.1
South America	9.2	11.8	16.1	13.1	22.3	21.4
Europe	41.9	42.1	36.3	28.5	16.2	14.4
Asia	16.8	13.8	13.2	30.1	17.9	18.3
Oceania	3.1	1.2	2.2	1.6	3.7	2.8
Africa	4.3	5.0	5.7	2.7	6.2	5.4

*Includes Iceland.

Table II.—*United States Exports and Imports by Commodity Groups*

Commodity Group	Exports U.S. merchandise			Imports for consumption		
	1936-38 average	1946	Jan.-Nov. 1947	1936-38 average	1946	Jan.-Nov. 1947
	(Value in millions and tenths of millions of dollars)					
Total	$2,925.0	$9,502.5	$13,180.8	$2,461.2	$4,792.2	$5,088.3
Foodstuffs	305.3	2,166.3	2,191.4	719.6	1,317.0	1,485.8
Animal products, inedible	49.0	171.5	169.0	176.3	456.1	277.1
Vegetable products, inedible	217.1	712.6	649.1	372.6	596.5	732.6
Textile fibres	321.9	551.3	395.1	177.5	482.3	332.4
Textiles and textile manufactures	87.2	731.4	1,292.5	204.1	280.9	271.5
Wood and paper	110.5	211.1	347.6	263.5	554.6	745.9
Nonmetallic minerals	453.3	935.5	1,413.1	129.4	428.0	407.0
Metals and manufactures	366.2	727.5	1,243.3	215.4	363.4	511.6
Machinery and vehicles	784.2	2,223.8	4,095.9	20.5	44.2	60.2
Chemicals and related products	127.0	500.1	716.5	86.9	99.3	93.6
Miscellaneous	103.4	571.4	667.5	95.3	169.8	170.5
	Per cent distribution					
Total	100.0	100.0	100.0	100.0	100.0	100.0
Foodstuffs	10.4	22.7	16.6	29.2	27.5	29.2
Animal products, inedible	1.7	1.8	1.3	7.2	9.5	5.4
Vegetable products, inedible	7.4	7.5	4.9	15.1	12.4	14.4
Textile fibres	11.0	5.8	3.0	7.2	10.1	6.5
Textiles and textile manufactures	3.0	7.7	9.8	8.3	5.9	5.3
Wood and paper	3.8	2.2	2.6	10.7	11.6	14.7
Nonmetallic minerals	15.5	9.8	10.7	5.3	8.9	8.0
Metals and manufactures	12.5	7.7	9.4	8.8	7.6	10.1
Machinery and vehicles	26.8	23.4	31.1	.8	.9	1.2
Chemicals and related products	4.3	5.3	5.4	3.5	2.1	1.8
Miscellaneous	3.5	6.0	5.1	3.9	3.5	3.4

Table III.—*Canada: Distribution of Merchandise Trade*

(Millions of Canadian dollars)

Country	Imports			Exports		
	1937-39 Average	1945	1946	1947*	1937-39 Average	1945	1946	1947†
Total	$746	$1,586	$1,867	$2,550	$920	$3,218	$2,312	$2,775
United Kingdom	127	141	142	185	363	963	598	751
Other British commonwealths	77	131	139	160	123	523	307	418
Europe (except British)	41	19	40	60	69	386	321	350
United States	471	1,202	1,405	1,965	303	1,197	888	1,034
Latin America	18	87	126	160	20	58	93	130
Other	12	.....	15	20	42	91	105	92

*Estimated from 11 months' figures.
†Preliminary.

[1]Approximately 25% of U.S. exports were still subject to control in 1947.

Because the accelerating import was, in the main, a dollar import, and the dominion's export customers in the sterling area and Europe were unable to pay in dollars for a considerable portion of the food and other goods they were taking from Canada, a critical drain of exchange reserves arose and imports were again placed under restriction. These restrictions were aimed chiefly at the reduction of U.S. trade and were accompanied by a project to ration capital goods import to increase production for export to the U.S.

Latin America.—Most of the countries of Latin America reached a difficult stage in the transition to postwar trading patterns. Following a period of exceptionally heavy foreign buying supported by accumulations of war-earned dollar exchange, a growing inflation led to speculative and nonessential purchasing which placed a strain on dollar balances and focused attention early in 1947 on the need for regulatory measures. Import and exchange control restrictions were adopted which tended during the latter part of the year to arrest the upward trend of imports. Argentina, Brazil, Mexico, Colombia and Peru became particularly concerned over the need to conserve their dollar resources.



"TRYING TO MAKE BOTH ENDS MEET," a reference to Great Britain's difficulties in balancing its foreign trade in 1947, by Vicky of the *News Chronicle* (London)

Table IV.—*Trade of Specified Latin American Republics for 1938, January-August 1946 and January-August 1947*

(Value in thousands of dollars)

Country	1938		January-August 1946		January-August 1947	
	Exports	Imports	Exports	Imports	Exports	Imports
Argentina	$409,212	$428,186	$699,413	$332,911	$950,756	$731,715
Brazil	295,620	294,589	624,172	398,745	736,731	817,943
Chile	140,669	102,785	139,738	120,604	172,443	164,928
Colombia	80,774	89,054	120,926	143,849	148,688	243,417
Peru	76,705	58,328	95,917	75,231	97,743	110,927
Uruguay	61,660	61,567	99,532	83,643	101,675	132,564
Mexico	195,871	115,475	253,216	336,109	293,578	457,177
Cuba	142,678	106,007	*132,299	* 98,564	*205,771	*149,258

*Data for January through April only.

Argentina's exports were still predominantly to the United Kingdom, but it had been able through agreement with that country to exchange sterling for dollars, and was purchasing heavily in the U.S. market until Aug. 20, when the convertibility privilege was withdrawn as a result of the stringent dollar position of the United Kingdom. Purchases from the U.S. were thereupon shut off completely for a period, but were later resumed on a selective basis.

Brazil's two-way trade had traditionally lain heavily with the U.S. After the war, Europe's needs caused a revival of trading with that area, however, and in consequence Brazil piled up a sizable export balance with countries other than the U.S. Dollar balances, on the other hand, declined as Brazil began to purchase U.S. products in quantity, and the government felt impelled in June 1947 to impose exchange restrictions granting priority to payments for imports considered essential.

Deferred wartime demand and the persistence of inflation in Mexico boosted the import balance in that country after 1944 to a point where the government found it necessary in July 1947 temporarily to prohibit the importation of certain non-essential goods constituting 15% to 20% of the value of all imports.

Both Colombia and Peru also increased their restrictions on the sale of foreign exchange during the year. On the other hand, Cuba and Venezuela and a few of the smaller Central American and Caribbean republics were exceptions to the difficult dollar exchange situation. Because of the nature of their exportable resources, demand for their products in the U.S. continued at a sufficiently high level to balance their imports.

Since these measures to restrict imports were not accompanied by measures to reduce the volume, or even to curb the expansion of the internal means of payment, the pressure for imports remained strong in Latin America.

Table V.—*Principal United Kingdom Imports, 1938, 1946, and January-September 1947*

(In pounds sterling)

Commodity	1938	1946	Jan.-Sept. 1947
Meat	£90,679,859	£139,244,465	£113,121,199
Dairy products	80,013,976	115,108,246	103,319,192
Grain and flour	74,418,338	90,931,229	111,049,909
Beverages & preparations	46,512,572	61,718,669	62,610,140
Oils, fats and resins, mfd.	44,070,485	82,804,352	64,631,951
Wood and timber	42,852,348	52,381,816	68,642,062
Wool, raw, waste and rags	42,618,055	40,286,835	43,280,989
Nonferrous metals & mfgs.	40,817,190	41,544,196	53,922,657
Fresh fruits & vegetables	37,657,557	52,471,999	69,435,423
Raw cotton and waste	29,579,628	44,606,364	50,106,664
Seeds and nuts	30,595,876	62,134,743	88,748,862
Tobacco	23,284,633	65,621,925	31,850,029
All other imports	336,408,416	448,827,741	477,083,610
Total imports	919,508,933	1,297,682,580	1,337,802,687

Table VI.—*Principal Sources of United Kingdom Imports, 1938, 1946, and January-September 1947*

(In pounds sterling)

Country	1938	1946	Jan.-Sept. 1947
United States	£117,980,480	£226,876,145	£228,168,132
Canada	78,708,393	195,149,546	173,587,503
Argentina	38,470,723	66,961,186	98,131,266
Australia	71,841,683	67,664,355	68,314,568
New Zealand	46,865,368	74,555,163	73,364,447
British India	49,939,297	68,934,648	66,219,872

United Kingdom.—The United Kingdom's foreign trade in 1947 was marked by continuation of an adverse balance of trade and application of measures to alleviate this situation. The government continued selling external capital assets, curtailing imports and expanding exports, and drawing frequently on foreign loans. The suspension of sterling convertibility was announced in Aug. 1947, and one month later the government introduced its new import-export program designed to narrow the gap in its balance of payments.

Table VII.—*Principal United Kingdom Exports, 1938, 1946, and January-September 1947*

(In pounds sterling)

Commodity	1938	1946	Jan.-Sept. 1947
Machinery	£57,867,565	£113,799,631	£129,422,432
Cotton yarns & mfgs.	49,680,714	63,211,348	56,206,987
Vehicles	44,491,048	113,513,725	117,422,990
Iron and steel	41,692,019	80,047,156	61,598,916
Coal	37,406,306	9,060,730	1,676,396
Woollen yarns & mfgs.	26,813,619	43,595,311	39,942,016
Chemicals	22,279,789	66,055,909	49,915,016
Electrical goods	13,430,405	37,391,502	35,050,566
Nonferrous metals	12,339,096	37,661,875	29,092,958
Implements & instruments	9,027,687	26,961,297	25,645,338
Pottery, glass & abrasives	9,610,109	27,625,167	23,492,216
All other exports	146,116,963	292,762,587	248,230,665
Total exports	470,755,320	911,686,238	817,696,516

Table IX.—*Preliminary Estimates of Percentage Distribution of Imports* of Participating European Countries from United States, Western Europe, Eastern Europe, and All Other Sources, 1938, 1946, and January-June 1947*

	1938					1946					January-June 1947				
	Total imports Million dollars	Per cent of total imports: From United States	From western Europe	From eastern Europe	From all other sources	Total imports Million dollars	Per cent of total imports: From United States	From western Europe	From eastern Europe	From all other sources	Total imports Million dollars	Per cent of total imports: From United States	From western Europe	From eastern Europe	From all other sources
Participating European countries															
Austria†	$ 273	6.0	39.7	40.2	14.1	$ 108	46.6	37.9	5.5	10.0	$ 75	29.8	48.7	11.5	10.0
Belgium-Luxembourg	779	10.8	49.3	8.5	31.4	1,199	17.6	55.9	2.2	24.3	833	23.4	44.0	3.5	29.1
Denmark	355	7.9	79.1	6.5	6.5	591	9.0	75.4	7.7	7.9	293	21.5	58.0	9.9	10.6
Eire	202	11.4	62.7	3.7	22.2	289	11.8	61.5	1.0	25.7	213	18.8	58.7	1.9	20.6
France	1,326	11.5	30.8	4.8	52.9	2,566	38.9	22.3	1.7	37.1	1,401	27.1	21.1	1.6	50.2
Germany‡	2,189	7.4	37.3	16.8	38.5	895	48.9	48.2	2.9	—	447	74.3	23.9	1.8	—
Greece	132	7.3	55.4	21.8	15.5	293	52.2	20.4	0.3	27.1	119	74.9	23.2	1.1	0.8
Iceland	11	0.9	96.4	1.8	0.9	68	25.1	65.2	3.7	6.0	36	22.2	63.9	5.6	8.3
Italy	593	11.9	49.7	12.6	25.6	§730	62.6	16.2	1.7	19.5	1,021	50.4	19.0	4.1	26.5
Netherlands	778	10.9	53.3	8.3	27.5	809	24.9	51.2	2.5	21.4	730	31.6	38.8	4.4	25.2
Norway	293	10.0	64.1	6.9	19.0	442	21.8	56.5	4.6	17.1	383	26.9	54.3	4.7	14.1
Portugal	102	11.6	60.4	2.3	25.7	278	25.0	35.1	2.8	37.1	123	30.1	39.8	—	30.1
Sweden	525	16.2	56.4	8.9	18.5	858	24.1	43.3	8.2	24.4	630	31.0	40.6	7.8	20.6
Switzerland	368	7.8	64.5	11.5	16.2	800	16.0	49.8	7.2	27.0	520	21.6	49.8	9.4	19.2
Turkey	119	10.4	70.8	12.8	6.0	121	31.3	44.4	4.0	20.3	97	32.0	45.4	5.1	17.5
United Kingdom	4,496	12.8	24.7	8.1	54.4	5,230	17.5	15.2	1.5	65.8	3,305	18.5	15.9	1.7	63.9
Total participating Europe	$12,541	11.0	39.1	10.3	39.6	$15,277	24.9	32.8	2.9	39.4	$10,226	29.0	28.3	4.2	38.5

*Excludes U.N.R.R.A. shipments.
†Prewar data for Austria are for 1937.
‡Data for 1938, prewar Germany; data for 1946 and Jan.-June 1947 include partial data from soviet zone.
§Excludes surplus property and gift packages.
Note: Owing to the multiplicity of exchange rates, data are tentative for 1946 and first six months 1947; western Europe excludes Spain.

The volume of goods imported into the United Kingdom in 1946 was about 66% of the prewar volume, and by the third quarter of 1947 had increased to 89%.

Purchases during 1947 were restricted not only by world shortages of foodstuffs and raw materials but also by the decision of the British government to import only essential commodities.

Europe, which provided about 33% of the United Kingdom's imports in 1938, supplied only about 22% during the first nine months of 1947. British Commonwealth countries continued to supply approximately 40% of total imports, while those from the western hemisphere increased from 33% to 47% during this period.

Imports from nonsterling countries accounted for 70% of the total during the first nine months of 1947.

At the beginning of 1947 the government introduced a plan designed to increase the volume of exports to 140% of the 1938 level. This goal was to be achieved by December, but in view of severe shortages in coal and other raw materials during the winter months the program was unattainable. A revised export program was announced in September based on an expansion of exports to 164% of 1938 by the close of 1948.

During the third quarter of 1947 the volume index of exports was 114%.

Of the United Kingdom's ten leading exports before World War II, only five—machinery, vehicles, iron and steel, chemicals and electrical goods—were exported in amounts equal to or exceeding prewar volume.

During the first nine months of 1947 manufactured goods comprised 88% of total exports.

Table VIII.—*Principal Purchasers of United Kingdom Exports, 1938, 1946, and January-September 1947*

(In pounds sterling)

Country	1938	1946	Jan.-Sept. 1947
British India	£33,764,754	£79,750,047	£68,123,454
Union of South Africa	39,493,503	75,359,969	67,989,207
Australia	38,164,905	55,181,503	49,450,775
Eire	20,281,525	39,522,872	37,728,820
United States of America	20,483,635	35,447,661	34,206,561
Canada	22,529,765	32,603,137	30,166,429

Continental Europe.—By the end of 1947, production in half of the countries of Europe had already exceeded prewar levels. In the first six months of the year the imports of the 16 countries participating in the European Recovery program reached a total of $10,000,000,000, 29% of which were from the U.S. and 33% intra-European. Of the $6,000,000,000 in exports during the first half of the year, approximately 52% went to European destinations and only approximately 5% to the U.S.

Unusually large imports into Europe would be needed for some years, first to compensate for the sharp but temporary reduction in the normal indigenous production of coal, food and fertilizer and, secondly, for the replacement and repair of plant

Table X.—*Preliminary Estimates of Percentage Distribution of Exports from Participating European Countries into the United States, Western Europe, Eastern Europe, and All Other Destinations, 1938, 1946, and January-June 1947*

	1938					1946					January-June 1947				
	Total exports Million dollars	Per cent of total exports: To United States	To western Europe	To eastern Europe	To all other sources	Total exports Million dollars	Per cent of total exports: To United States	To western Europe	To eastern Europe	To all other sources	Total exports Million dollars	Per cent of total exports: To United States	To western Europe	To eastern Europe	To all other sources
Participating European countries															
Austria*	$ 228	2.5	51.8	34.2	11.5	$ 22	6.8	66.7	25.1	1.4	$ 28	7.1	64.3	25.0	3.6
Belgium-Luxembourg	732	6.7	65.2	6.8	21.3	677	10.8	66.2	2.8	20.2	646	4.0	62.2	4.5	29.3
Denmark	335	1.1	89.9	4.0	5.0	336	3.2	78.0	14.9	3.9	211	3.3	70.2	21.3	5.2
Eire	117	0.5	98.0	0.1	1.4	154	1.5	97.4	0.1	1.0	64	—	98.4	—	1.6
France	880	5.5	49.7	5.7	39.1	852	6.2	49.2	1.4	43.2	897	3.0	41.4	2.0	53.6
Germany†	2,111	2.8	62.5	17.2	27.5	286	1.1	92.0	6.9	—	215	1.4	95.3	3.3	—
Greece	91	17.0	62.8	13.7	6.5	40	54.9	28.5	0.8	15.8	38	26.3	65.8	7.9	—
Iceland	13	9.2	83.9	1.5	5.4	45	13.1	61.9	23.4	1.6	15	6.7	80.0	13.3	—
Italy	552	7.4	41.5	9.2	41.9	287	16.5	48.9	3.1	31.5	375	5.1	50.1	4.8	40.0
Netherlands	572	3.6	64.9	7.0	24.5	296	4.8	72.8	4.8	17.6	279	2.1	64.5	6.5	26.9
Norway	193	7.7	73.7	6.2	12.4	242	5.3	66.1	6.6	22.0	175	5.1	62.3	12.6	20.0
Portugal	50	5.3	63.5	2.8	26.4	186	14.9	39.5	2.2	43.4	74	13.5	43.2	—	43.3
Sweden	465	8.9	67.0	11.4	12.7	644	7.2	62.2	9.1	21.5	346	10.7	57.5	8.7	23.1
Switzerland	301	6.9	60.5	11.2	21.4	625	16.9	52.2	4.8	26.1	372	12.6	49.7	7.8	29.9
Turkey	115	12.2	69.6	12.7	5.5	218	20.3	52.3	4.4	23.0	139	19.4	53.3	11.5	15.8
United Kingdom	2,302	4.4	28.9	5.9	60.8	3,674	3.9	31.5	4.3	60.3	2,076	4.3	27.9	4.8	63.0
Total participating Europe	$9,057	4.9	51.2	10.0	33.9	$8,584	7.1	48.7	4.9	39.3	$5,950	5.4	46.8	5.8	42.0

*Prewar data for Austria are for 1937.
†Data for 1938, prewar Germany; data for 1946 and Jan.-June 1947 include partial data from soviet zone.
Note: Owing to the multiplicity of exchange rates, data are tentative for 1946 and first six months 1947; western Europe excludes Spain.

and equipment. These needs are superimposed on normal European requirements of raw materials. It was expected that the current large gap between imports and exports would diminish rapidly as expected increases in production led to expanding exports.

Tables IX and X are based on very preliminary reports of trade. As will be noted, figures are not available for all areas.

Far East.—The foreign trade of Japan, the most important trading nation of the far east prior to World War II, was beginning to return to peacetime channels in 1947. Imports were sufficient to meet urgent needs of the economy and to prevent disease and unrest. The small volume of exports consisted chiefly of raw silk and certain other items handled through the U.S. Commercial company and of shipments to such nearby areas as China and Korea. In the first half of 1947 a U.S. trade mission conferred with the supreme commander for the allied powers in Tokyo, and arrangements were made for the partial resumption of private trade with Japan.

China's foreign trade during the same period was increasingly affected by economic, political and military difficulties. From July 1946 to Sept. 1947, inclusive, net legal imports into China (excluding U.N.R.R.A. shipments) were valued at approximately U.S. $775,000,000, or almost three times net exports of about U.S. $285,000,000. While the value of exports was greater than in many similar prewar periods, the value of imports represented a still larger increase. The excess of imports had been the major cause of the continuous deficit in China's balance of payments and the serious drain on its foreign exchange resources. The Chinese government restricted nonessential imports and conserved foreign exchange by a system of quotas, import prohibitions, and exchange controls in an effort to reduce the excess of imports and obtain vitally needed commodities.

Copra, the production of which exceeded all records in 1947, remained the mainstay of Philippine exports, and, in fact, of the Philippine economy. Late in 1947 sugar became available for export for the first time since 1941. Heavy dollar receipts from U.S. expenditures in the Philippines and the great demand for goods for consumer needs and construction resulted in imports about three times prewar levels. Supplies of consumer goods and production for export increased, and inflationary trends abated.

Siam's trade, conducted through private channels, also progressed toward a normal peacetime status. Restrictions were still in effect, however, with respect to the four most important export commodities.

Although rubber production and export led to some revival of Malaya's trade, imports were still restricted generally to rehabilitation and essential goods. Trading conditions in other areas of southeast Asia were still far from normal. Difficulties were especially acute in Indo-China and in the Netherlands Indies because of disturbed political conditions. (*See* also BUSINESS REVIEW; EXCHANGE CONTROL AND EXCHANGE RATES; INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; INTERNATIONAL MONETARY FUND; LEND-LEASE; TARIFFS; UNITED NATIONS RELIEF AND REHABILITATION ADMINISTRATION.) (T. C. BL.)

International Trade Organization: *see* TARIFFS.

Interstate Commerce Commission.

The duties and powers of the Interstate Commerce commission are set forth in the Interstate Commerce act, originally passed in 1887 and later amended in many important particulars. The act is divided into four parts, and deals with the regulation of rail, motor and water carriers and freight forwarders. The regulatory powers of the commission extend, among other things, to the charges made by these carriers for transportation services; to questions involving the valuation and financial reorganization of railroads; to the issuance of securities; to the acquisition or control of these various carriers by other carriers or persons; to their accounting practices and the abandonment of lines of railway; and to matters involving the determination of whether public convenience and necessity require the institution of new services by motor and water carriers or by freight forwarders, or for the construction and operation of lines of railway.

There was no substantial change in the statutory authority of the commission during 1947. The full membership of 11 was attained by the appointment of Richard F. Mitchell to fill the vacancy caused by the death in 1946 of Commissioner Claude R. Porter. Commissioner J. Monroe Johnson continued to serve as director of the Office of Defense Transportation. Commissioner Clyde B. Aitchison served as chairman during the year 1947 and Commissioner William E. Lee was selected as chairman for the year 1948.

The carriers subject to the jurisdiction of the commission were confronted with numerous and difficult problems during the year, including the rising costs of labour and materials, postwar shifts in the movement of commodities because of change in the location of plants and substitution of commodities, and changes in competitive advantages brought about by differences in technological improvements between the different agencies of transport. Private transportation had increased and was particularly felt in the passenger field.

Numerous urgent appeals for increased revenues to meet the increased costs of transportation resulted in authorization by the commission of increased freight rates and charges, express and forwarder rates, passenger fares and Pullman charges. An interim increase of 10% in rail freight rates and charges was permitted in October to be added to the increase effective Jan. 1, 1947, pending the investigation of the proposal for more substantial increases.

On May 12, 1947, the supreme court of the United States upheld the findings and order of the commission requiring a substantial revision of class rates east of the Rocky mountains. Subsequently, the commission modified its order in the class-rate case, so as to permit a uniform increase of 22.5% in the rates there prescribed. As so increased, the new class rates became effective Aug. 22, 1947, and were increased another 10% under the interim order of Oct. 6, 1947. The rail carriers undertook to formulate a nation-wide uniform classification found requisite in the class-rate case. (C. B. A.)

Intestinal Disorders: *see* ALIMENTARY SYSTEM, DISORDERS OF.

Intoxication, Alcoholic.

The trend toward differentiating more clearly between "alcoholism" and "the use of alcohol" continued to develop in 1947. The former includes those who become the victims of the pernicious effects associated with its excessive use. In the majority of those who use alcoholic beverages, they neither serve as the source, nor do they cause physical and mental illness or social ostracism.

Studies in the United States indicated that approximately 65% of the population over 21 years of age drink alcoholic beverages (75% male, 56% female). Among the population over 21 years of age, 27% of males and 8% of females drink habitually or regularly. Thus there is isolated, among those who drink, a fairly large group of people out of which emerge the potential alcoholics.

The rates of chronic alcoholism were not greatly influenced

by the many and diverse liquor control systems inaugurated after repeal of prohibition in the United States. Between 1945 and 1947 the rate was reported to have increased in urban areas and decreased in rural communities. There was no apparent basis for believing that female inebriety was increasing faster than male inebriety. The narrowing gap between the sexes in respect to drinking alcoholic beverages, however, appeared to be in accord with the general world trend of society toward less and less differentiation in the social behaviour of men and women.

In France the year witnessed a movement in favour of alcohol and a legislative proposal to abrogate the laws of 1940 and 1941 restricting its uses. Those supporting such legislation contended that the laws aggravated the situation, that they promoted bootlegging and other antisocial trends and that such regimentation was contrary to French ideals. Those opposing believed that the laws had improved public health.

The long-range approach to the solution of the problem of chronic alcoholism, more or less crystallized in the literature of 1947, embraces education, research and treatment. The latter includes community and hospital services and facilities for therapy, the training of personnel to undertake the duties involved, measures for social readjustment and prevention and commitment centres for the intractable alcoholic. The majority opinion regarded these as a public function and that the sending of drunks to jail "to teach them a lesson" is a primitive and a useless gesture. Controversies still obtained on whether there is a common denominator in all cases of alcoholism and whether specific physical and psychological dispositions account for the development of alcoholism rather than other symptoms of maladjustment.

One physical hypothesis was proposed to explain the nature and causes of alcoholism. Its approach involved the interplay of hereditary and environmental factors. According to this hypothesis, some individuals inherit a constitutional metabolic pattern which makes possible a readily developed intense appetite for alcohol. No standard body of observations, however, confirmed this biochemical genetic hypothesis respecting alcoholism.

There was support for the opinion that habitual drunkards are at no time able to repress the true characteristics of their personality in conventional patterns and that they express their true personality characteristics by having resort to alcoholic intoxication. Among these are the cyclothymic, schizophrenic, psychoneurotic and psychopathic personalities and other situational types of reaction among those whose standards of conventional integration of the personality is individually too high for them.

The use of insulin combined with dextrose and vitamin B for the treatment of acute intoxication continued to receive endorsement. Insulin alone, ranging from small to subshock doses, was also advocated, with rapid results reported in the sobering process.

Favourable responses were reported from the application of intensive combined therapy in cirrhosis of the liver, both with and without fluid in the abdomen. The treatment consists of a maximum protein—high carbohydrate—high vitamin—low fat diet, plus liver extract and vitamins, and including methionine, casein, and choline and cystine. (*See* also LIQUORS, ALCOHOLIC.)

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(W. L. T.)

Inventions: *see* PATENTS.

Inverchapel, Archibald John Kerr Clark Kerr,

1ST BARON, OF LOCH ECK (1882–), British diplomat, was born on March 17, 1882, and was privately educated. He entered the British foreign service in 1906, and after service in World War I returned, and in 1919–22 was acting agent in Tangier; 1922–25, first secretary at Cairo; 1925–28 minister to Central American republics, and 1928–30 minister to Chile. In April 1931 he was transferred to Stockholm, in 1935 appointed ambassador to Iraq, in 1937 to China and in 1942 to the U.S.S.R., where he succeeded Sir Stafford Cripps. He was appointed ambassador to the United States on Jan. 25, 1946, but before taking up his duties he was engaged on a special mission to Java, to attempt mediation in the Dutch-Indonesian conflict. On Jan. 21, 1946, he was raised to the peerage, and took the title of Baron Inverchapel of Loch Eck. In Washington, on March 20, 1947, he presented to General of the Army Dwight Eisenhower the sword of honour given the latter by the city of London.

Investment Banking: *see* BANKING.

Investments, Foreign, in the U.S.: *see* FOREIGN INVESTMENTS IN THE UNITED STATES.

Iodine.

The iodine production of the United States is not reported. Imports increased from 220,526 lb. in 1945 to 886,578 lb. in 1946 but these figures do not have great significance, since imports are brought in only as they are needed to replenish a rather large stock that is maintained in the country. Over a 15-yr. period, imports had averaged about 1,000,000 lb. a year.

(G. A. Ro.)

Iowa.

A north central state of the United States, popularly known as the "Hawkeye state." Area, 56,280 sq.mi., of which 294 sq.mi. are water. The population in 1940 was 2,538,268, with 1,084,231 listed as urban and 1,454,037 as rural. Only 16,694 were Negroes, and 883 others were nonwhite, about half of whom were Indians. Of the white population 117,245 were foreign-born. In 1947 the population, exclusive of persons overseas in the armed services, was estimated to be 2,606,000. The principal cities are: Des Moines, the capital (159,819); Sioux City (82,364); Davenport (66,039); Cedar Rapids (62,120); Waterloo (51,743); Dubuque (43,892) and Council Bluffs (41,439).

History.—The principal state officers elected in Nov. 1946, who took office in Jan. 1947, were: governor, Robert D. Blue; lieutenant governor, Kenneth A. Evans; secretary of state, Rollo H. Bergeson; auditor, Chet B. Akers; treasurer, J. M. Grimes; secretary of agriculture, Harry D. Linn; attorney general, Robert L. Larson (to fill a vacancy) and superintendent of public instruction, Jessie M. Parker. The general assembly met in regular session from Jan. 13 to April 25, 1947. A special session, which convened Dec. 16–19, 1947, to consider income tax reduction, provided for an increase in exemptions of 50% and a deduction of 25% from the computed tax.

Education.—During the school year 1945–46, out of the school population (ages 5–21) of 627,456, 346,508 pupils were enrolled in the 8,149 public elementary schools; 113,986 in the 890 public high schools and 923 in the 21 junior colleges. Teachers in the public schools numbered 22,964. The general assembly in 1947 appropriated $2,000,000 annually for transportation of pupils to public schools and $1,000,000 annually to aid districts where a maximum levy on property fails to produce a minimum income per child.

There are three state-supported institutions of higher education—the State University of Iowa (1847) at Iowa City, the State College of Agriculture and Mechanic Arts (1858) at Ames and the State Teachers college (1876) at Cedar Falls. In Oct. 1947, these 3 institutions had a total enrolment of 22,670, of which 12,215 were veterans attending under

the G.I. Bill of Rights. There are 23 other colleges sponsored by churches and private agencies. The total enrolment in these colleges in Oct. 1947 was 18,211, including 8,467 veterans. The number of veterans in college in Iowa dropped from about 25,000 in 1946 to 20,682 in 1947.

Social Insurance and Assistance, Public Welfare and Related Programs.—During the fiscal year ending June 30, 1947, Iowa paid out $21,083,963 for old-age assistance, of which $11,082,252 came from the federal government. The state appropriations for 1947–48 included $12,000,000 for old-age assistance, $300,000 for aid to the blind, $375,000 for aid to dependent children and $120,000 for child welfare. The general assembly of 1947 also appropriated $500,000 for the construction at Iowa City of a hospital-school for handicapped children. During 1946–47 a total of $9,689,645 ($1,299,954 of which was interest from the federal government) was collected for unemployment insurance and $2,878,067 was expended, leaving a balance on July 1, 1947, of $71,525,673. Approximately 400,000 persons were covered by this insurance.

On Dec. 1, 1947, there were 13,021 inmates in the state's charitable and correctional institutions—6,364 in the four hospitals for the insane; 1,677 in the hospital for epileptics and school for feebleminded at Woodward; 1,853 in the state school (for feebleminded) at Glenwood; 1,750 in the state prisons for men at Fort Madison and Anamosa; 72 in the reformatory for women at Rockwell City; 217 in the training school for boys at Eldora; 100 in the training school for girls at Mitchellville and 193 in the state juvenile home at Toledo.

Transportation and Communications.—There were in 1947 approximately 100,000 mi. of public highways in Iowa, of which more than 9,600 mi. were primary roads managed by the state and about 13,750 mi. were county trunk highways. By Jan. 1, 1947, Iowa had 5,557.6 mi. of paving, and 51,918.2 mi. of gravelled roads. During 1946–47 the state spent $7,920,467 on constructing primary roads and $5,009,859 for road maintenance.

At the close of 1946 the track mileage of steam railroads in Iowa was 9,214.86 mi. During 1946 these roads carried 9,539,970 passengers and 97,922,366 tons of freight. There were at the same time 397.20 mi. of electric interurban track on which 943,721 passengers and 3,658,890 tons of freight were transported. Motor buses carried 21,669,303 passengers in 1945. The number of motor vehicles registered in Iowa in 1946 was 862,812 of which 624,674 were passenger cars. There were 1,245 mi. of pipe lines for crude oil and gasoline and 2,690 mi. for natural gas. Telephones in Iowa in 1947 numbered 724,220, 292,200 of which were in local independent companies. In 1945, 70% of farms and 94% of urban dwellings had telephones.

Banking and Finance.—On June 30, 1947, there were 96 national banks in Iowa with deposits of $772,443,000 and resources of $813,086,000. The 557 state banks had deposits of $1,512,304,013, an increase of $146,508,872 over 1946, and assets of $1,596,633,023, an increase of $151,338,976.

In 1946–47 the state income from taxes totalled $107,667,298. The principal sources of revenue were the retail sales tax $36,772,165; gasoline tax $29,815,400 (compared with $19,622,625 in 1945); motor vehicle tax (for 1946) $12,865,066; personal income tax (one-half the levy only) $10,268,046; cigarette tax $3,586,442; inheritance tax $2,248,959; insurance tax $2,265,144 and profits from the state liquor stores $3,500,000. Expenditures for the biennium 1945–47 totalled $113,184,216. The appropriations for the year 1947–48 included approximately $20,000,000 for schools, $10,000,000 for hospitals and penal and correctional institutions and $12,000,000 for old-age assistance. By constitutional amendment all funds received from the gasoline tax and the motor vehicle registration fees is to be spent on the highways. In 1946–47 this amounted to more than $42,000,000. On Sept. 30, 1947, the state treasury reported a net expendable balance of $40,711,671.

Agriculture.—There were 206,155 farms in Iowa in 1947 (213,318 in 1940) with 34,703,088 ac., averaging 168.3 ac. per farm. The assessed valuation of farm land and buildings in 1946 was $1,680,898,530, estimated to be about 60% of actual value. For the first nine months of 1947 Iowa farmers received a cash income of $1,696,963,000. The total cash income for 1946 included $1,493,966,000 for livestock, $299,781,000 from crop sales and $46,539,000 from government payments. On Jan. 1, 1947, there were 10,689,000 hogs on Iowa farms, 5,189,000 cattle, 1,519,000 sheep, 412,000 horses and 15,000 mules. On Jan. 1, 1946, there were 22,748 auto trucks on Iowa farms, 177,431 tractors and 46,546 mechanical cornpickers.

Table I.—*Leading Agricultural Products of Iowa, 1947 and 1946*

Crop	1947 (est.)	1946
Corn, bu.	331,360,000	634,638,000
Oats, bu.	180,609,000	211,575,000
Soybeans (grain), bu.	26,310,000	35,604,000
Wheat, bu.	3,252,000	4,335,000
Rye, bu.	255,000	170,000
Barley, bu.	799,000	410,000
Potatoes, bu.	975,000	2,880,000
Popcorn, lb.	18,000,000	74,620,000
Clover seed, bu.	111,000	220,000

In 1946 Iowa farmers marketed 14,439,000 hogs for $684,938,000, 2,603,000 cattle and calves for $370,862,000, 3,037,000 turkeys for $20,788,000, 41,820,000 chickens for $56,206,000 and 328,330,000 dozen eggs for $108,678,000.

Manufacturing.—Iowa is not primarily a manufacturing state although the products of industrial establishments about equal the value of the agricultural products. In 1947 there were 3,835 manufacturing plants in Iowa employing about 148,000 workers. Payrolls aggregated $369,462,656, with an average annual wage of $2,491 ($1,262 in 1939). These plants turned out goods valued at $1,515,000,000. The number of retail stores in Iowa making sales tax returns for the first quarter of 1947 was 67,820.

Table II.—*Principal Mineral Products of Iowa, 1945 and 1944*

Mineral	1945 Production	1945 Value	1944 Production	1944 Value
Bituminous coal	2,010,000 tons	$6,995,000	2,690,000 tons	$9,496,000
Cement	3,527,838 bbl.	6,220,991	3,408,616 bbl.	5,677,787
Stone	4,026,460 tons	5,306,299	3,563,020 tons	4,175,005
Sand and gravel	6,030,531 tons	2,091,391	5,271,031 tons	2,084,149
Gypsum	430,843 tons	569,964	398,143 tons	655,392

Mineral Production.—Iowa ranked 29th among the states in the total value of minerals produced in the U.S. from 1911 to 1945.

(R. A. Ga.)

Iowa, State University of.

Located in Iowa City, Ia., this institution of higher education in 1947 observed the centennial of its establishment. It was created Feb. 25, 1847, and was the first state university to admit women on equal standing with men. Enrolment in the fall of 1947 was more than 10,000 students, a record for one semester. Approximately 6,000 of the students were war veterans. Heavy enrolment before the first steps of the $10,000,000 building program could be taken necessitated erection of numerous barrack-type temporary buildings for classrooms, laboratories, and offices. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* also Universities and Colleges.)

Iowa State College.

This land-grant college was founded at Ames, Ia., in 1858. Enrolment in the 1947 fall quarter set an all-time record. A veterans' village adjoining the campus provided temporary housing units for 1,200 families.

The Iowa State College Institute for Atomic Research, established in 1945, is recognized by the Atomic Energy commission as one of the seven major atomic research laboratories. Three large buildings, representing an expenditure of $2,000,000, were under construction for this program during 1947.

The college acquired 1,500 ac. of land near Des Moines for an expanded research program in livestock and poultry breeding and feeding. Teaching, extension and research activities in agriculture were co-ordinated under one head; similar administrative reorganization was completed in engineering. In Oct. 1947, the college celebrated the 75th anniversary of establishment of home economics. A building program, to cost between $10,000,000 and $12,000,000 was getting under way. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* Universities and Colleges.)

Iran.

Known before March 1935 as Persia, an independent kingdom of western Asia bounded on the east by India and Afghanistan, on the north by the U.S.S.R., on the west by Turkey and Iraq and on the south by the Persian gulf and Arabian sea. Area: 634,413 sq.mi.; pop. (1946 est.): *c.* 15,550,000. Chief towns (pop. 1940 census): Tehran (cap. 540,087); Tabriz (213,542); Isfahan (204,598); Meshed (176,471); Shiraz (129,000). Language: mainly Persian, but some Turki and Armenian in the north, Kurd in the west, Arabic in the south and Pashtu in the east. Religion: mainly Mohammedan (*Ithnā-'asharīya*), but *c.* 10% of the Mohammedans belong to the Sunni sect; there are also *c.* 50,000 Gregorian Armenians and a few thousand Catholic Armenians, 30,000 Nestorians and 50,000 Jews. Ruler: Shah Mohammed Riza Pahlavi; prime ministers: Ahmad Ghavam-es-Saltaneh until Dec. 10, Ibrahim Hakimi (from Dec. 23).

History.—The year opened propitiously for Iran. The Iranian army had entered the province of Azerbaijan, and the soviet government had made no moves, political or military, to embarrass the central government in Tehran or the army authorities in Azerbaijan. Thus for the first time after Aug. 26, 1940,

when British and soviet troops entered Iran, its full sovereignty had been re-established, and the whole country had once again come under the direct control of the central government.

Polling for the 15th session of the Majlis, which had been postponed several times, began on Jan. 11, 1947. Elections were held in an orderly fashion, and out of 136 seats in the Majlis, the newly-founded "Democratic party of Iran," sponsored by Ahmad Ghavam-es-Saltaneh, and its adherents gained altogether 80 seats, thus giving Ghavam a clear majority.

Because of general criticism, Ghavam reformed his cabinet on June 22. The ministers of war, health, communications and finance retained their posts. A new ministry of national economy was formed. When the new session of the Majlis convened, the government had to tender its resignation, and in the last week of Aug. 1947 Ghavam resigned the premiership; he was renominated by 78 votes out of 116. On Sept. 11 he formed his new cabinet, with himself as minister of interior, and on Oct. 5 Ghavam submitted his cabinet to the Majlis and received a vote of confidence of 93 votes for him and 12 against.

During September the soviet ambassador in Tehran delivered two notes to the Iranian prime minister accusing the Iranian government of violating the agreement of April 4, 1946, and demanding swift action in connection with the ratification of the oil agreement. On Oct. 22, Ghavam submitted a lengthy report to the Majlis giving the background of his negotiations with the soviet government on the oil question. He emphasized that the 1946 agreement was signed under heavy soviet pressure. A bill declaring the oil agreement void was then submitted. It was put to vote, and by 102 votes to 2 the Majlis resolved that (1) Ghavam's oil negotiations and oil agreement with the soviet government should be null and void; (2) the government should take measures to establish within five years the location and quantity of all oil resources, that negotiations might be started for its eventual sale to Russia; (3) it should be forbidden to grant any concessions for the extraction or refining of oil to foreigners or to create any oil company with the participation of foreigners; (4) in cases where the rights of the Iranian nation regarding the natural resources of the country were threatened, particularly in the case of the Anglo-Iranian Oil company, the government should take necessary measures and inform the Majlis.

Early in November, Ghavam officially informed I. V. Sadchikov, the soviet ambassador to Iran, of this decision. On Nov. 20 Sadchikov addressed to Ghavam a strongly worded note accusing the Iranian government of having "treacherously violated its undertakings" and charging it with responsibility for all the consequences. The note created serious uneasiness in Tehran, but one of its results was the weakening of Ghavam's personal position. His own Democratic party, already not satisfied with his lip service to necessary social reforms, decided that also from the point of view of foreign policy a change was necessary. On Dec. 10 Ghavam received a vote of nonconfidence in the Majlis and resigned. On Dec. 23 Ibrahim Hakimi, former prime minister, formed a new government.

At the end of May 1947 the shah for the first time in his reign toured Azerbaijan. His visit to the northwest province was the signal for celebrations, and was a symbol of the newly restored national unity.

Education.—(1938) 8,381 schools; 457,236 pupils; 13,078 teachers; one university at Tehran.

Banking and Finance.—Revenue (ordinary est. 1944–45) 10,325,000,000 rials; expenditure (ordinary est. 1944–45) 10,324,000,000; foreign loan (nil); public debt (1944) 2,461,600,000 rials; notes in circulation (April 1947) 6,640,000,000 rials; gold reserve (June 1946) 4,015,000,000 rials; commercial bank deposits (1947) 9,008,000,000 rials. Exchange rate (1946): 1 rial = 3.077 U.S. cents.

Trade and Communication.—Foreign trade (merchandise, 1946): imports 433,000,000 rials; exports 861,000,000 rials. Communication: roads fit for wheeled traffic (1938): *c.* 8,770 mi.; railways open to traffic (1945) *c.* 1,270 mi.

Agriculture and Minerals.—Production (in short tons): petroleum, crude (1946) 21,450,000; wheat (1941) 1,870,000; barley, 210,000; rice (est. 1937–38) 420,300; cotton (1943) 22,000; wool (1943) 13,200; beet sugar (1941–42) 26,400; tobacco (1940–41) 13,070.

Iraq. An Arab state of the middle east, between Iran, Syria and Saudi Arabia; an independent kingdom after 1932, when the British mandate was terminated. Area: 116,600 sq.mi.; pop. (est. Dec. 1946): 4,803,430. Chief towns (pop. est. 1946): Baghdad (cap., 832,927), Mosul (279,361), Basra (181,814). Language: Arabic; religion: mainly Moslem, but also Christian, Jewish and other communities. Ruler: King Feisal II; regent: Crown Prince Abdul-Ilah; premier: Seyyid Saleh Jabur (March 30, 1947).

History.—Elections were held in February, and Seyyid Saleh Jabur became Iraq's first Shia prime minister. His program announced that he would seek to amend the Anglo-Iraqi treaty of 1930. A ten-year treaty of friendship and alliance with Trans-Jordan, providing for joint military training, for measures of common defense and for economic co-operation, was ratified by the Iraqi parliament on May 4.

Iraq played a prominent part in the Palestine discussions of the United Nations during the autumn. On Sept. 22 the prime minister warned the British and U.S. embassies that, if the U.N. general assembly recommended the partition of Palestine, Iraq and the other Arab nations would give all assistance to the Palestine Arabs. After the U.N. decision on partition, the government, on Nov. 30, expressed great displeasure, called on its people to maintain order and assured them that it would carry out its responsibilities with regard to Palestine.

The withdrawal of all British land forces was completed on Oct. 26, leaving only a military mission and two R.A.F. air bases.

Progress was made with the Habbaniya flood-prevention scheme on the Euphrates. The Kirkuk-Mediterranean pipe lines were being doubled. (F. St.)

Education.—Nursery schools (1944–45) 56, scholars 7,891; elementary schools (1945–46) 944, scholars 97,453; intermediate schools (1945–46) 54, scholars 9,480; secondary schools (1945–46) 24, scholars 3,131; adult elementary schools (1944–45) 99, scholars 3,788; teachers' training colleges (1945–46) elementary (male) 4, students 969; (female) 2, students 269; higher (mixed) 1, students 347. Other colleges (1945–46) 14, students 2,750.

Finance.—Revenue, ordinary (1945–46) 19,675,699 Iraq dinars; expenditure, ordinary (1945–46) 23,608,552 dinars; gold reserve (Dec. 1946) 44,700,000; exchange rate (1947) 1 dinar=£1 sterling=402.7 U.S. cents.

Trade and Communication.—Foreign trade, 1945 (merchandise): imports (excluding British army stores) 18,465,768 dinars; exports (excluding crude petroleum) 9,817,868 dinars. Exports (1945) in short tons: grain, pulses and flour 281,420; dates 169,038; wool (raw) 3,026; hides and skins 6,041, intestines (casings) 1,659,295; live stock (number) 119,369; earth, stones and cement 41,974; ceramic products 71,041. Communications: roads (1940) *c.* 4,000 mi.; railways (1945) route open to traffic 965 mi.; passengers carried (1944–45) 4,869,523; goods carried (1944–45) 2,910,736 short tons. Vehicles registered (1945) cars 3,771; motorcycles 127; lorries 2,017; river craft (1945) steam and motor 168, net tonnage 10,872; shipping (1944–45) entered 1,341, net tonnage 5,719,040.

Agriculture and Minerals.—Production in short tons: crude petroleum (1946) 4,925,800; rice (1945) 279,900; tobacco (1944–45) leaf 7,322, crushed 4,409; wheat (1938–39) 860,000; barley (1938–39) 1,251,400; wool (1938) 9,100; cotton (1940–41) 3,960; cotton seed (1940–41) 9,350.

Ireland: *see* EIRE.

Ireland, Northern. Northern Ireland comprises the six counties of Antrim, Armagh, Down, Fermanagh, Londonderry and Tyrone; it forms part of the United Kingdom of Great Britain and Northern Ireland, but (from 1920) has its own parliament and executive (with limited powers for local purposes) although it is represented in the imperial parliament by 13 members. Area: 5,238 sq.mi.; pop. (March 1947) 1,335,000. Chief cities (pop. est. 1947): Belfast (cap. 448,600), Londonderry (49,000). Language: English;

religion: Roman Catholic 33.75%, Presbyterian 31.4%, Episcopalian 27% (approx.). Governor in 1947: the Earl Granville; prime minister: Sir Basil Brooke.

History.—The main items of the parliamentary session which opened on April 29 provided for a comprehensive health service, the establishment of a Tourist board and the consolidation of the law relating to the census of production. The Health Services bill received general approval, the cost of the new services being estimated at more than £5,500,000 annually. The Tourist Traffic bill was noncontentious but there was some objection to the Statistics of Trade bill, which the government regarded as essential to the maintenance of a high level of employment.

Throughout the year there was full employment in the shipyards: the tonnage launched in 1946 was 155,000, the largest after 1914. Launching ceremonies of historic interest were those of H.M.S. "Centaur," named by the Duchess of Kent; the Union Castle liner "Pretoria Castle," named by Mrs. Jan C. Smuts who spoke from her home in South Africa; and the Union Castle liner "Edinburgh Castle," named by Princess Margaret.

(D. J. O.)

Education.—(1946): Public elementary schools 1,649, scholars 186,664; secondary schools 76, scholars 21,021; technical schools 129, scholars 4,339; universities (1946–47) 1, students 2,400.

Finance.—(Estimate 1947–48) revenue £53,073,000; expenditure £32,838,000; public debt (March 1946) £2,995,300. Exchange rate (1947): £1 = 402.7 U.S. cents.

Trade and Communications.—External trade (1946): imports £125,000,000; exports £128,000,000. Value of linen and rayon exports (1946) £22,000,000. The United Kingdom exports of linen goods, linen threads and yarns in 1946 (included in the figure of £22,000,000) was £14,600,000; practically the whole of this came from Northern Ireland. Motor traffic roads 13,192 mi. Railways, broad gauge 619 mi., narrow gauge 52 mi. Canals and inland waterways, approximately 150 mi.

Agriculture.—Total area under crops and grass (June 1, 1947): 2,282,485 ac., including 842,000 ac. permanent grass, 344,000 ac. rotation grass, 381,000 ac. oats, 182,000 ac. potatoes and 17,500 ac. flax. Cattle 931,175; sheep 531,700; pigs 333,410; poultry 20,975,000. Agricultural shipments to Great Britain during 1946: fat cattle and sheep to the value of £5,357,034; poultry £1,701,852; eggs £4,718,844; seed potatoes £1,150,000 (141,000 short tons); ware potatoes £1,650,000 (246,000 short tons); fruit £1,326,000 (38,000 short tons); rye grass seed £1,028,000; milk 3,000,000 gal.

Irish Free State: *see* EIRE.

Iron and Steel.

For convenience in coverage this subject is subdivided and handled under the three major headings—iron ore, pig iron and steel. Production data were available in 1947 from most of the important producing countries, but a few gaps will still be found in the tables, and some countries that should be included have been omitted for lack of data extending over several years.

Iron Ore.—Table I presents the available data on the output of iron ore in countries producing more than 1,000,000 short tons a year. The chief omissions from the table are Germany, the U.S.S.R. and Manchuria, while those of lesser importance include China and the Philippines, and one or two prewar producers whose output declined to a low level during the war years.

Production had declined sharply, not only from the war peak of 1943, but from the prewar level.

United States.—The trend of the iron ore industry in the United States in late years is shown in Table II.

Table I.—*World Production of Iron Ore, 1941–46*

(In thousands of short tons)

	1941	1942	1943	1944	1945	1946
United States	103,499	118,190	113,398	105,412	98,982	79,344
Canada	516	545	641	553	1,135	1,581
Newfoundland	1,084	1,336	608	520	1,103	1,393
Brazil	832	708	356	862	789	1,102
Chile	1,877	450	330	744	1,042	1,491
Austria	3,191	3,304	3,515	3,323	357	509
Czechoslovakia	1,860	1,736	549	534	?	?
France	11,652	14,063	18,606	10,332	8,779	17,873
Great Britain	21,251	22,294	20,713	17,328	15,819	13,670
Italy	1,477	1,168	553	?	54	145
Luxembourg	7,528	5,633	5,790	3,211	1,550	2,477
Spain*	2,506	2,771	2,353	2,424	2,134	2,628
Sweden	11,605	10,725	11,927	7,995	4,332	?
India	3,578	3,603	2,974	2,647	2,536	?
Japan	1,779	2,791	3,370	4,815	1,495	595
Korea	1,864	2,511	2,600	3,734	?	?
Algeria	362	368	202	864	1,326	1,842
Australia	2,585	2,590	2,682	2,443	1,750	?
Total	240,000	256,000	262,000	227,000	176,000	161,000

*Includes Spanish Morocco.

Table II.—*Production of Iron Ore in the United States, 1941–46*

(In thousands of short tons)

	1941	1942	1943	1944	1945	1946
Crude ore						
Production	120,646	141,710	134,036	124,343	119,070	94,298
Open-pit	88,971	104,042	97,272	92,281	88,407	71,522
Underground	31,675	37,669	36,764	32,061	30,663	22,776
Shipments	?	142,010	132,857	125,522	119,324	94,064
Useable ore						
Production	103,498	118,189	113,398	105,412	98,982	79,344
Shipments	104,221	118,708	110,676	106,512	98,713	78,501
Imports	2,625	819	447	519	1,337	3,159
Exports	2,137	2,817	2,716	2,417	2,311	1,687
Consumption	105,733*	116,542*	112,512	111,936	96,498	80,836

*Consumption for pig iron only.

There was a decline in iron ore production in the United States each year after 1942, the 1946 output being 20% less than that of 1945, and 35% less than 1942. The larger drop in 1946 was the result of the steel and coal strikes during the year. The short supply of domestic ore and the restoration of activity in other countries led to greater imports, mostly from Chile, Canada and Sweden.

Production improved in 1947, the total for the first 10 months of the year being 94,890,601 short tons, while shipments advanced to 96,000,381 tons.

Imports were stepped up even more than output, reaching 4,007,797 tons through September.

Canada.—Production was expanding in 1947, but the bulk of the output is exported to the United States, which in turn supplies most of the ore used in Canadian furnaces.

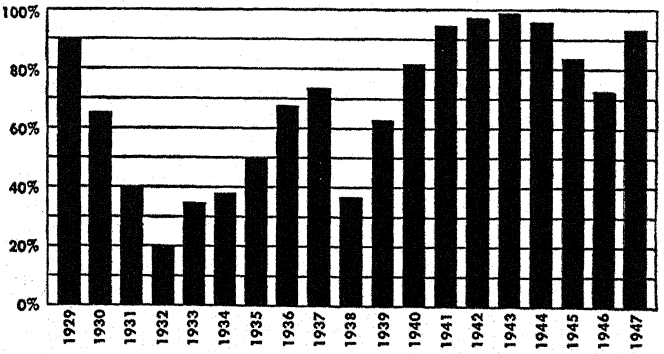
Great Britain.—Production during the first three-quarters of 1947 was reported to be 9,040,000 short tons, a decline from the 1946 rate.

Pig Iron.—The production of pig iron and ferroalloys in countries having an output in excess of 1,000,000 short tons a year is shown in Table III, along with the estimated world totals.

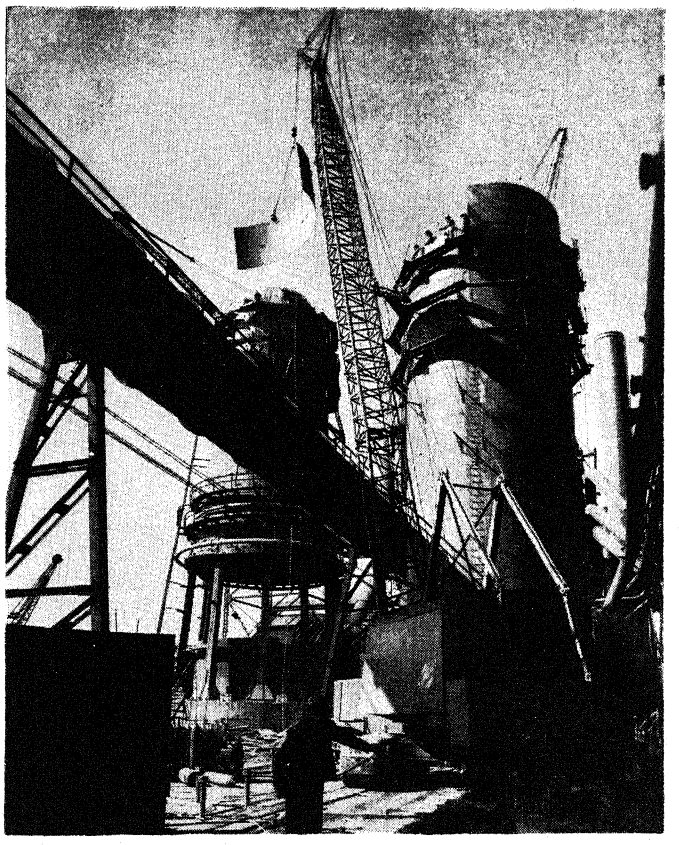
Before World War II the United States produced a little less than one-third of the total and Europe nearly 60%; after the war these proportions were about reversed, with half or more in the United States and little more than a third in Europe.

United States.—The salient data on pig iron and ferroalloys in the United States are presented in Table IV.

In spite of the fact that the 1946 output was 16% less than that of 1945 and 27% less than the 1944 peak, it was still almost a third more than that of 1939, and would have been appreciably more except for strikes. With no labour troubles to interfere, pig iron production picked up in 1947, with a total through October of 48,471,731 short tons, foreshadowing a



STEEL PRODUCTION in the United States, 1929-47; monthly average percentage of capacity (figures compiled by American Iron and Steel Institute)



GIANT BLAST FURNACE, with a rated annual capacity of 500,000 tons of iron, shown nearing completion in April 1947 at the South Chicago works of the Carnegie-Illinois Steel corporation

year's total not much short of the war peak of 61,000,000 tons in 1944.

Canada.—Blast furnace production in Canada dropped from 1,964,936 short tons in 1945 to 1,520,753 tons in 1946, including 116,995 tons of ferroalloys and 1,403,758 tons of pig iron. In 1947 the 1945 level of operations was restored with an output of 1,630,149 tons of pig iron and 127,393 tons of ferroalloys, a total of 1,757,542 tons in the first ten months of the year.

Great Britain.—British production rose from 7,960,000 short tons in 1945 to 8,692,000 tons in 1946 and 6,976,000 tons in the first ten months of 1947—about even with the prewar level.

Belgium.—Blast furnace production rose from 803,000 short tons in 1945 to 2,393,000 tons in 1946, and 2,220,000 tons in the first 10 months of 1947, indicating a year's total approaching the prewar level of operations.

Czechoslovakia.—Output was expanding and the 1,059,000 short tons produced in 1946 were approximately equal to the prewar rate, while 1,327,000 tons were produced in the first ten months of 1947.

Table III.—*World Production of Pig Iron, 1941–46*

(In thousands of short tons)

	1941	1942	1943	1944	1945	1946
Australia	1,653	1,745	1,557	1,462	1,257	979
Belgium	1,567	1,399	1,797	792	803	2,393
Canada	1,726	2,184	1,955	2,024	1,965	1,521
China	2,161	5,228	2,059	2,339	544	1
Czechoslovakia	1,733	1,759	1,878	1,746	635	1,059
France	1,700	1,788	2,407	1,242	1,321	3,860
Germany	17,012	17,021	17,606	14,738	?	2,560
Great Britain	8,279	8,516	8,049	7,545	7,960	8,692
India	2,251	2,049	1,959	1,602	1,562	1,485
Italy	1,223	980	710	255	67	189
Japan	4,813	4,809	4,524	2,331	1,285	204
Luxembourg	1,480	1,862	2,524	1,486	348	1,504
U.S.S.R.	14,400	7,990	?	?	?	?
United States	56,721	60,976	62,798	62,897	54,956	46,323
Total	121,000	123,000	122,000	110,000	100,000	90,000

France.—Blast furnace production expanded from 1,321,000 short tons in 1945 to 3,860,000 tons in 1946 and 4,629,000 tons in the first ten months of 1947, a rate approaching two-thirds of the prewar output.

Table IV.—*Data on Pig Iron and Ferroalloys in the U.S., 1942–46*

(In thousands of short tons)

	1942	1943	1944	1945	1946
Pig Iron					
Production	59,078	60,765	61,004	53,224	44,842
Shipments	59,101	60,787	60,996	53,265	45,076
Imports	—	1	6	21	14
Exports	110	144	162	91	96
Consumption	59,043	60,315	60,952	53,187	45,072
Castings	7,230	6,517	6,818	6,567	6,611
Open hearth	45,539	47,108	48,281	41,683	34,608
Bessemer	6,131	6,258	5,583	4,751	3,723
Electric	93	394	240	163	113
Ferroalloys					
Production	1,898	2,033	1,894	1,732	1,481
Shipments	1,869	1,995	1,861	1,662	1,551
Ferromanganese	659	723	715	610	492
Spiegeleisen	186	150	155	158	112
Ferrosilicon	708	806	687	616	614
Others	316	316	304	278	333

Luxembourg.—After an almost complete collapse in 1945, production was stepped up to 1,504,000 short tons in 1946 and 1,651,000 tons in the first ten months of 1947. The Oct. 1947 output was at a rate in excess of 2,400,000 tons annually, or about one-third more than the prewar rate.

Steel.—Table V presents the steel output of countries having a production in excess of 1,000,000 tons a year.

In general, the postwar recovery among the European steel producers was somewhat behind that of pig iron. In Great Britain and some of the smaller countries the prewar level was approached or even exceeded, but the larger continental producers were still lagging.

United States.—The salient statistics of the steel industry in the United States are shown in Table VI.

The 1946 output was seriously curtailed by the steel and coal strikes. Although output in 1946 was considerably above the prewar output, it was still far short of current needs. The average rate of operations during the year was 72.5% and the highest month was 88.7% of capacity, while full capacity would still have failed to meet the demand.

The production rate was stepped up appreciably in 1947, with a total of 84,783,981 tons.

Canada.—The Canadian steel output declined from 2,881,323 short tons in 1945 to 2,334,631 tons in 1946, and was 2,945,166 tons in 1947.

Table V.—*World Production of Steel, 1941–46*

(In thousands of short tons)

	1941	1942	1943	1944	1945	1946
Australia	1,839	1,905	1,825	1,706	1,508	1,177
Belgium	1,785	1,526	1,839	701	807	2,513
Canada	2,712	3,110	3,004	3,016	2,881	2,335
Czechoslovakia	2,659	2,619	2,831	2,778	1,045	1,839
France	4,749	4,947	5,648	3,413	1,825	4,855
Germany	25,800	31,600	33,600	28,400	5,500	3,300
Great Britain	13,863	14,207	14,617	13,572	13,241	14,207
India	1,534	1,455	1,521	1,468	1,429	1,376
Italy	2,240	2,100	1,100	1,100	440	1,430
Japan	7,540	7,765	8,624	6,521	1,177	608
Luxembourg	1,155	1,720	2,368	1,389	291	1,429
Poland	?	264	286	187	595	1,349
Sweden	1,283	1,354	1,338	1,320	1,323	1,336
U.S.S.R.	23,100	12,000	13,000	15,500	20,000	21,500
United States	82,839	86,032	88,836	89,642	79,702	66,603
Total	176,000	176,000	183,000	173,000	134,000	128,000

Belgium.—Production increased from 807,000 tons in 1945 to 2,513,000 tons in 1946 and 2,242,000 tons in the first three-quarters of 1947.

Czechoslovakia.—The monthly production rate increased by two-thirds during 1946, giving a year's total of 1,839,000 short tons, and continuing to 2,090,000 tons in the first ten months of 1947.

France.—The monthly output almost doubled in 1946, giving

Table VI.—*Steel Industry in the U.S., 1942–46*

(In thousands of short tons)

	1942	1943	1944	1945	1946
Capacity	90,293	90,636	93,565	95,501	91,891
Production	86,030	88,836	89,642	79,702	66,603
Basic open-hearth	75,183	77,208	79,168	71,070	60,712
Acid open-hearth	1,319	1,414	1,196	870	
Bessemer	5,553	5,626	5,040	4,305	3,328
Electric	3,975	4,589	4,238	3,557	2,563
Shipments	60,465	59,906	60,353	57,242	

a year's total of 4,855,000 short tons, with continued improvement to 5,418,000 tons in the first ten months of 1947.

Great Britain.—British steel output rose from 13,241,000 short tons in 1945 to 14,207,000 tons in 1946, but dropped slightly to 11,357,000 tons in the first ten months of 1947.

Germany.—Steel production in Germany was still badly disorganized but was improving slowly. The 1946 output was 3,300,000 short tons, an amount that was almost equalled in the first three quarters of 1947.

Luxembourg.—With the monthly production rate almost doubling during 1946 the year's total was 1,429,000 short tons. In spite of a recession during the first quarter of 1947, production recovered to give a total of 1,531,000 short tons through October.

Poland.—The 1946 production of 1,349,000 short tons increased slightly to 1,263,000 tons in the first nine months of 1947.

Sweden.—Production dropped from 1,336,000 short tons in 1946 to 958,000 in the first nine months of 1947. (*See* also BUSINESS REVIEW; METALLURGY.) (G. A. Ro.)

Iron and Steel Institute, American: *see* SOCIETIES AND ASSOCIATIONS.

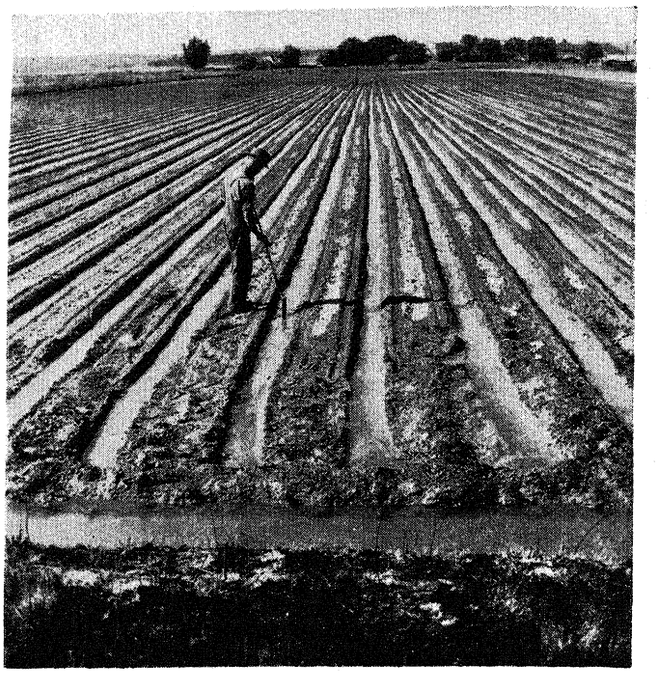
Irrigation. At the conclusion of the 1946–47 periodic U.S. snow surveys throughout the 17 western states, forecasts were made of a short snow crop throughout the high mountain areas of Arizona, California, Nevada and New Mexico. Severe irrigation water shortages thus appeared in prospect for hundreds of thousands of acres of irrigated lands in these states.

Generally ample water supplies for irrigation were forecast for the northern tier of western states; these forecasts were later verified by stream flow records. Stream flow for the 1947 irrigation season was considerably more than normal through Montana, Washington, western Canada, Wyoming and northern Idaho. Water supplies were about average in Colorado and northern Utah, but were less than normal in most of Oregon, southern Idaho and parts of Utah. Severe and damaging shortages developed in New Mexico, Arizona and parts of Nevada and California; but water stored in reservoirs was sufficient to offset the deficiency of natural stream flow.

At the end of 1947, snow fall covering the important watersheds of the west was greater than usual through Montana, Washington, western Canada and most of Idaho, Wyoming and Colorado. Mountain snow supplies were more than average in Utah and southern Colorado but less than average in Oregon and southern Idaho.

Plans and specifications were completed by the state of Montana for the Hysham pumping project to cost $220,000 and irrigate about 7,500 ac. of agricultural lands. A $330,000 project to irrigate 15,000 ac. was also contemplated for construction during 1948.

The United States bureau of reclamation resumed a schedule of construction of its many irrigation projects during 1947. In the Missouri basin, Enders dam, third unit of an elaborate irrigation program, was placed under construction about 50 mi. northwest of McCook, Neb., on Frenchman creek, a tributary of the Republican river. It was to be an earth-fill structure



RECLAIMED FARMLAND on the Boise project near Nampa, Ida. A farmer is shown irrigating a second crop of lettuce in Aug. 1947

100 ft. high, creating a multipurpose reservoir for flood control and irrigation with a total capacity of 83,000 ac.ft.—39,000 ac.ft. for flood control and 34,000 ac.ft. for irrigation; 10,000 ac.ft. was reserved for dead storage to provide for silt retention. The project was designed to supply irrigation water for 35,000 ac. already irrigated and supplemental water for an additional 17,000 ac.

Construction was also begun on the Tracy pumping plant in Alameda county, Calif., one of the major units of the Central Valley project and second largest pumping plant in the world. The contract cost of construction was estimated at $5,881,000 for this plant, which was designed to take surplus water from the Sacramento river and pump it into the 120-mi.-long Delta-Mendota canal. Completion of this feature of the Central Valley project would carry out one of the essentials of the project by supplying additional water to the water-deficient areas of northern San Joaquin valley's west side farms to compensate for the San Joaquin river water stored in Friant reservoir for delivery to lands in Madera, Fresno, Tulare and Kern counties on the east side of the valley. The pumping plant, designed to lift 4,600 cu.ft. of water per second to a height of 200 ft., was exceeded only by the pumping plant of the Grand Coulee dam project.

India.—India continued to lead the world in the extent of its irrigated area, exceeding 70,000,000 ac. (reported to be more than the combined total of the next ten most irrigated countries of the world). The total capacity of India's irrigation canals in 1947 was more than 4,000,000 cu.ft. per second or in excess of 8,000,000 ac.ft. per day. Nevertheless, it was estimated in 1947 that India was utilizing only 6% of the subcontinent's available water wealth.

The Thal project in the Punjab was formally opened in Jan. 1947. With a barrage consisting of 56 bays, each of 60 ft. span, the spillway was designed to pass a maximum flood of 950,000 cu.ft. per second. Extra freeboard was provided to permit passage of a super flood of 1,000,000 cu.ft. per second. When completed, the project would serve an area of 1,836,000 ac.

The proposed Bhakra dam (Punjab), a multipurpose project for irrigation and hydroelectric power development, was planned

to be 480 ft. high and impound 3,500,000 ac.ft. of water, sufficient to provide a mean discharge of 6,600 cu.ft. per second for a period of 270 days, approximately the extent of the dry season. The project was estimated to serve an irrigated area of about 4,500,000 ac. Release of the water at the dam would generate 160,000 kw.

Hajipur and Gudo barrages (Sind) were proposed for construction across the Indus river. Canals from Hajipur barrage were to be constructed for a capacity of 30,000 cu.ft. per second, to irrigate 2,600,000 ac. The second barrage would provide water for the irrigation of 2,300,000 ac.

In the United Provinces it was proposed to impound 9,000,000 ac.ft. of water by the construction of the Rihand dam across the Rihand river near Pipri village. The dam would be 250 ft. high and would release a perennial flow of 6,000 cu.ft. per second to be utilized for irrigation in Bihar. Release of the water would generate 150,000 kw. at the dam.

The Kosi dam project (Bihar), designed to provide for flood control, irrigation and power, was to comprise mainly the following component units and connected features: (1) a dam possibly 750 ft. high, across the Chhatra gorge above the temple of Bahara Kashetra; (2) a power plant at the dam site capable of generating 1,800,000 kw. of cheap power; (3) a barrage in Nepal across the Kosi with one canal taking off from either bank for irrigating about 1,000,000 ac. in Nepal territory; (4) a second barrage near the Nepal-Bihar border with two canals on the left bank and one on the right, for irrigating more than 2,000,000 ac.

Iran.—The government of Iran had under consideration a general engineering and economic investigation, including irrigation. The supreme planning board and the independent Irrigation corporation of Iran listed about 30 priority projects, scattered from Maghan steppe in the northwest to Iranian Baluchistan in the southeast and from the Meshed area in the northeast to Abadan Island in the Persian gulf in the southwest. Eleven separate projects were recommended for construction in the immediate future. Sufficient information had been collected on four projects to warrant recommendations for immediate final decision and construction at an estimated total cost of $65,000,000. These four projects would furnish supplemental and new water supplies for about 500,000 ac. of excellent agricultural lands.

Korea.—The national government and the Korean Water Utilization Association union had under construction and ranging from 10% to 90% complete, a total of 26 national irrigation projects, 9 tidal land projects and about 200 smaller provincial and community irrigation and tidal land projects.

The irrigation construction consisted of various dams, reservoirs, canals, diversion works, pumping plants, gates, dikes and levees.

All projects were in the area under U.S. administration.

(*See* also DAMS; METEOROLOGY; SOIL EROSION AND SOIL CONSERVATION.)

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Islam.

The creation of the state of Pakistan (*q.v.*) was the greatest event for Islam not only of the year 1947, but since the abolition of the caliphate by Ataturk in 1922. The human, natural and economic resources of the new state caused it to rank as one of the most important and influential Moslem powers.

The decision of the United Nations general assembly at the end of November to partition Palestine (*q.v.*) was followed by a call for the declaration of holy war by el-Azhar university in Cairo.

An interesting development in the long struggle between Sunni and Shia was the appointment in Iraq of the first Shia prime minister ever to hold office there. Seyyid Idris Al-Senussi, the most important Islamic figure in North Africa, remained in Cairo throughout the year, as delay in settling the future of the former Italian colonies prevented his return to Cyrenaica.

International co-operation in Islamic studies, interrupted by war, was re-established; Professor Leo Mayer, of the Hebrew university, Jerusalem, lectured in London, Oxford and Copenhagen, and Fr. Gonzague Ryckmans, of Louvain, and Harry St. John Philby, British explorer in Arabia, both published constructive contributions to the history of Islamic origins. (F. ST.)

Isle of Man: *see* BRITISH EMPIRE.

Isotopes: *see* ATOMIC ENERGY.

Italian Colonial Empire.

The ratification of the Italian peace treaty on Sept. 15, 1947, was something of a landmark for the former Italian colonies over which Italy on that day formally renounced its sovereignty. For a year from then they were to remain under British military administration, but if by Sept. 15, 1948, the United States, Great Britain, the U.S.S.R. and France should have failed to agree as to their future, the question would be brought up before the general assembly of the United Nations.

*Italian Colonial Empire**

Country and Area square miles (approx.)	Population (est. Dec. 1947)	Capital, Status, Governors, Premiers, etc.	Principal Products, 1947 (in short tons)	Imports and Exports 1947 (in £)	Road, Rail and Shipping 1946	Revenue and Expenditure (Actual 1945-46) (in £)
AFRICA						
Italian provinces of LIBYA† 213,821	1,098,786 (including Libyan Sahara)	Tripoli; included (1939) in the national territory of Italy; under British military occupation	barley 87,584 wheat 13,782 other cereals 11,100 dates 16,434	imp. 2,360,395 exp. 3,197,236 Trade with Great Britain (Jan.-July 1947): imp.: 183,564 exp.: 99,809	rds. 2,990 mi. ry. c. 150 mi. shpg.: tonnage entered at Bengasi and Tripoli harbours: 284,607	Rev.: 4,690,223 Exp.: 4,872,470
LIBYAN SAHARA 465,362	(see above)	Homs; colony; under British military authority				
ERITREA‡ 86,166	1,062,499 (including 26,499 Italians)	Asmara; colony; under British military occupation	five cereals 116,163 beans 6,068	imp. 3,534,232 exp. 2,296,504	rds. 780 mi. ry. 192 mi.	Rev.: 2,611,026 Exp.: 2,792,985
SOMALILAND, ITALIAN‡ 270,972	923,800 (including 3,000 Italians)	Mogadiscio; colony; under British military occupation	maize (bags) 70,000 rice 495 sugar 3,832 alcohol (gal.) 78,328	imp. 983,041 exp. 441,955	rds. 5,540 mi. ry. nil	Rev.: 1,043,085 Exp.: 1,251,219

*The political units listed here were, in 1947, under British trusteeship pending ultimate decision by the United Nations assembly concerning disposal of the prewar Italian Colonial Empire.

†Under British military administration Libya was divided in two provinces: Tripolitania (pop. 803,915) and Cyrenaica (pop. 294,871). There were 40,536 Italians in the former, but only 77 in the latter.

‡The areas given here existed during the time of occupation of Ethiopia by Italy in which parts of Ethiopia were assigned to Eritrea and Italian Somaliland. *De facto* and 1938 areas are: Eritrea, c. 46,000 sq.mi. and Italian Somaliland, c. 195,800 sq.mi.

This question of the Italian colonies seems, however, to have been the one problem about which the Four Powers found it—at least in the initial stages—relatively easy to agree, and during the year the prospect of Italy itself receiving the trusteeship over a portion of its prefascist empire increased very appreciably. While the Arab league would have liked to see Egyptian authority expand over Libya, and while Ethiopia was eager to acquire former Italian Somaliland and still more Eritrea, the French supported Italian trusteeship in Tripolitania in order to avoid any extension of Moslem influence along the frontiers of Tunisia. The Russians, who had originally made claims for themselves in Tripolitania, came around to the United States view, which also favoured Italian trusteeship there, and British objections melted away provided the British pledge to the Senussi with regard to no return of Italian authority in Cyrenaica was observed. This was the upshot of the Four Power conference on the former Italian colonies which opened in London on Oct. 3, 1947. The conference, further, appointed a commission of investigation (representing the Four Powers only) which left in November for a tour of Eritrea, Somaliland and Libya; after a preliminary dispute it was agreed to visit Libya last in order to have the latest information on the most complicated political situation. The commission was charged to collect all the necessary data, and in particular to ascertain the views of the local populations. It was to complete its reports not less than six and not more than seven months from the date of its departure from London; the other 19 signatories of the Italian peace treaty were to receive copies of the commission's reports. (*See* also PEACE TREATIES.) (E. WI.)

Italian Literature. Vigorous development characterized Italian literature in 1947 despite the disappearance of several independent politico-literary magazines (*Mercurio, Aretusa, Acropoli, Nuova Europa, Realtà Politica, Commento,* etc.), which were obliged to suspend publication because of lack of funds and mass following. Fiction, historiography, literary criticism and research all gave proof of astonishing vitality.

Italian novelists, particularly the young ones, had definitely turned their backs on surrealism and were beating along the path of realism. Some claimed to be writing proletarian novels, but they were in reality merely doing what their elders refused or felt little inclined to do—to live, observe and portray life in a world they knew. In this respect they took their cue from the renascent Italian motion pictures.

Among the writers harvesting rewarding fruits in this field were Vasco Pratolini, whose *Cronache di poveri amanti,* a stirring novel about Florence and its inhabitants in 1926, was animated by a profound tragic sense of life; Giuseppe Berto, whose first novel *Il cielo è rosso,* was a macabre yet poignant story of four homeless adolescents living in the ruins of a bomb-devastated city; and Carlo Coccioli who in *La difficile speranza,* told the story of a partisan, a family and a society yearning for a higher morality but crushed under the impact of historical events.

Other novelists, while drawing from reality, nevertheless either transferred that reality to a surrealistic plane or used it as a basis for psychological studies. Typical of the first group were *Il Sempione strizza l'occhio al Frejus,* Elio Vittorini's haunting story of unemployment, hunger and poverty in a family of workers; *Racconto d'autumno,* a contrast between old age and youth, with grotesque characters groping in a world of fable and reality; and Silvio Micheli's *Un figlio ella disse,* a swiftly-paced, cruel and nightmarish novel, not lacking in lyrical qualities. Among the writers of the second group were Natalia Guinzburg, who reflected the mistrust and suspicion pervading the times in her portrait of a wife (*E' stato così*); and Alberto Moravia, who turned out a distinguished fifth novel, *La romana,* about a Roman demimondaine.

Most of the well-known writers of established reputation published new works which added little to their stature.

The flow of literature on fascism and World War II continued unabated. An important work in this field was Antonio Gramsci's *Lettere dal carcere,* written by the intellectual leader of the Communist party to his family during the nine years of his imprisonment which ended in his death in 1937.

The Italian campaign was described in *La guerra non l'ho voluta io* by a U.S. judge, Michael A. Musmano, who took part in it.

Leo Valiani of the Action party, in *Tutte le strade conducono a Roma* and Luigi Longo, a Communist leader, in *Un popolo alla macchia* gave eye-witness reports of partisan warfare, while Gen. G. Messe in *La guerra al fronte russo* gave the first account of the fate of the Italian troops fighting against the Russians.

The few outstanding poetical works published during 1947 included Salvatore Quasimodo's *Giorno per giorno,* Raffaele Carrieri's *Lamento del gabelliere,* Franco Forlini's *Foglio di via,* Giuseppe Ungaretti's *Il dolore,* Mario Luzi's *Quaderno gotico* and Umberto Saba's *Mediterranee.* While these poets sang on different keys of nostalgia, anguish and despair, Leonardo Sinisgalli in *I nuovi campi elisei* celebrated in stern form the hopes and marvels of his youth.

Among the most notable works in literary criticism were the two histories of Italian literature by E. Gennarini and by N. Sapegno; Walter Binni's studies on Ariosto and Leopardi, Giovanni Getto's on Dante, Giuseppe De Robertis' essays on Leopardi and Luigi Russo's on *I promessi sposi.* (M. F. C.)

Italian Possessions in Africa: *see* ITALIAN COLONIAL EMPIRE.

Italy. A republic of southern Europe, bounded on the northwest by France, on the north by Switzerland and Austria, on the northeast by Yugoslavia, on the east by the Adriatic sea, on the southeast by the Ionian sea, and on the south and west by the Tyrrhenian sea and the Gulf of Genoa. The country also includes the large Mediterranean islands of Sicily and Sardinia as well as a number of smaller islands. Area: *c.* 119,733 sq.mi.; pop. (est. Dec. 31, 1946) 45,646,000. Chief towns (1936 census): Rome (cap. 1,562,580); Milan (921,515); Naples (739,349); Turin (608,211). Religion mainly Roman Catholic. Provisional president: Enrico de Nicola; prime minister: Alcide de Gasperi.

History.—The history of Italy during the year 1947 was dominated by three themes: (1) intensifying economic difficulties, helping to harden (2) the political deadlock between left and right; (3) the Italian peace treaty and the international rehabilitation of Italy.

The end of the United Nations Relief and Rehabilitation administration hit Italy with particular severity. Among other things U.N.R.R.A. imports had done much to check inflation, but with their end not only was there less to eat and less to work upon in the factories, but also the alarming rise in prices was accentuated and, with this, the constant increase of money in circulation. In March the enormous budgetary deficit could no longer be ignored; in April, therefore, the government acceded to the demands from the right to halve the bread subsidy (a two-edged measure which increased the cost of living further), while leftist demands for a better rationing system and the restriction of the luxurious living of the rich remained unsatisfied. There was a revival of confidence after the reconstruction of the

government in May when, as minister of the budget, the distinguished economist, Prof. Luigi Einaudi, inaugurated a deflationary policy with restrictions of credit. It was hoped that the United States would share this feeling and provide dollar loans. It did, in fact, reduce or convert a number of Italy's obligations (connected with the peace treaty and the Allied occupation) and offer financial help to certain major Italian industries, and during the early summer industrial production rose to more than 70% of prewar figures. Meanwhile prices rose more and more steeply. In March the cost of living was 42½ times that of 1938, in September 65 times as great; a succession of strikes to push up wages as well was inevitable. Even at the moment of greatest industrial production a formidable mass of unemployed had remained and this increased in the autumn. Thus, however deflationary the government had hoped its policy would be—and in April and October it made efforts to force prices down—its expenditure on public works was heavy and increasingly so. The bad harvest caused by drought and the freezing of a balance of about £10,000,000 in Great Britain made matters worse. In addition to the unemployed, the unskilled workers and professional classes were reduced to penury and ready to swell the ranks of the political extremists.

As in the rest of Europe the cleavage between right and left became more marked during the year in Italy. In spite of an unexpected success on April 20 in the elections to the new autonomous diet of Sicily, the left lost ground, and the right, which had recaptured control of the more influential newspapers, was able to expel the left from the government after the cabinet crisis in May. The first stage in this process was in Jan. 1947, when a group headed by Giuseppe Saragat seceded from the Socialist party in protest against its collaboration with the Communists. This led to the resignation of the Socialist foreign minister Pietro Nenni and a cabinet breakdown in February. From then until May an uneasy coalition—dominated by the Christian-Democrat party on the one hand and the Communists on the other, with Count Carlo Sforza at the foreign office and a few Socialist ministers in the background—struggled on, but once it was realized that the budgetary deficit had exceeded L.600,000,000,000, the days of this cabinet were numbered. In May Alcide de Gasperi, himself head of each successive government after Nov. 1945, formed a cabinet composed almost entirely of his own Christian-Democrat party, the largest single group in the assembly. In the municipal elections in Rome on Oct. 12 the Christian-Democrats scored a striking success mainly at the expense of the right-wing *Qualunquisti;* but although the Communist-Socialist bloc suffered slight losses it was still stronger by one councillor than the Christian-Democrat, and the continued existence of two evenly balanced groups on the city council of Rome reproduced the seemingly inevitable deadlock of Italian political life. In the middle of November this deadlock was disturbed by outbreaks of violence all over the country; these usually took the form of Communist attacks upon the offices of the right-wing political groups, especially those of the most obviously fascist one among them which called itself the Italian Social movement. On Dec. 14 De Gasperi formed a new—his fifth—cabinet by including Republican and right-wing Socialist parties in the government's coalition. Randolfo Pacciardi and Giuseppe Saragat, respective leaders of the two parties, became deputy prime ministers. The strengthening of the government found expression on Dec. 19 when the constituent assembly passed a vote of confidence by 303 votes to 118, with 14 abstentions.

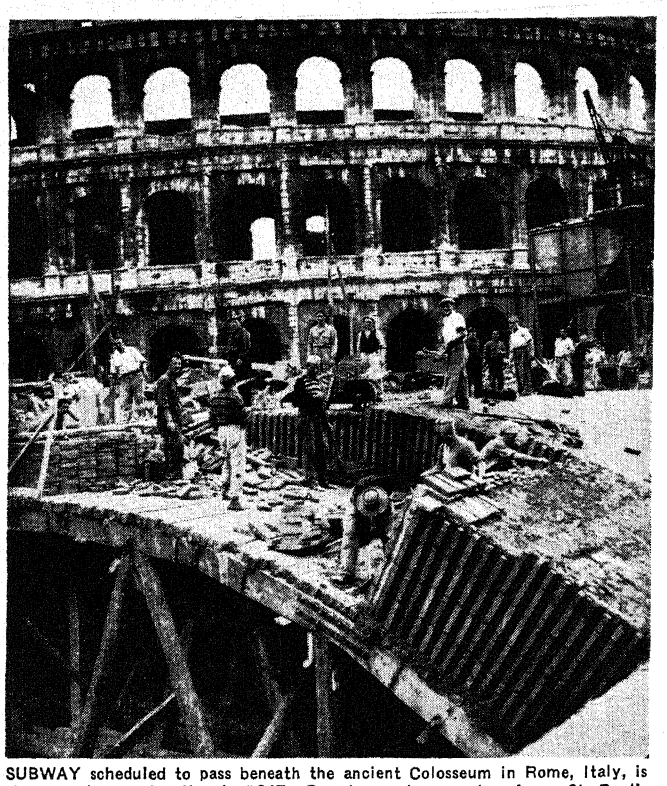
Alongside economic cares and political complications Italy was kept very busy making itself a constitution. The constitution had been drafted during the last months of 1946 by a commission of 75 members of the constituent assembly. The draft (or *Progetto di Costituzione*) proposed to guarantee all the personal liberties rather vaguely "within the framework of the law." To satisfy leftists it declared in favour of the right to work, the right to strike and the right to "participate" in the management of factories; in May 1947 "participate" was altered to "collaborate," and there was a certain amount of controversy in the assembly at about that time over the definition of Italy as a "workers' republic."

But the attitude which the draft most evidently expressed was that of the Catholic Church, and this awoke the sleeping dog of Italian anticlericalism. It was an article announcing the incorporation in the new republican constitution of the Lateran pact made by Mussolini with the Vatican in 1929 that created the most critical issue of the year. This meant the imposition upon the community as a whole of the views of the church with regard to such basic matters as marriage and education, regardless of all the guarantees of individual liberty to disagree with these views. Most of the intellectual leaders of the country, including Benedetto Croce, considered this proposal as the surrender of their 19th century heritage, but on March 26 the assembly accepted the article by 350 to 149 votes; to everyone's amazement the Communists had voted in its favour in the interest, as they claimed, of the religious peace which the *Osservatore Romano* had declared to be at stake. A month later, however, the indissolubility of marriage was rejected although the Lateran pacts vetoed divorce. In addition to the compulsory religious instruction in all schools which the church required, the Christian-Democrats also pressed for state aid without state inspection for private, which nearly always meant Catholic, schools; they obtained only freedom from state control (April 29). At the same time the most revolutionary article perhaps of the whole draft was agreed upon, by which eight years' free, compulsory education was promised to every child; in the past the theoretical minimum had been six years which, however, rarely materialized.

The other major controversy in the constitutional debates raged round the subject of regional autonomy. Here again the Christian-Democrats were attacked on all sides with regard to the decentralizing articles of which they were the keenest supporters; the subject was debated most of June and July and the upshot was that the Christian-Democrats had their way. It was planned to introduce a new authority with legislative powers between the state on the one hand and the provinces and communes on the other, and the constitution, as amended, even

GRIEF-STRICKEN Italian women mourning their relatives at a mass funeral for ten persons killed in the 1947 May day massacre of agricultural workers and peasants near Palermo, Sicily





SUBWAY scheduled to pass beneath the ancient Colosseum in Rome, Italy, is shown under construction in 1947. Running underground as far as St. Paul's gate, the line was to connect Rome with existing lines to Ostia

slightly increased the powers of this new authority of the *regione*. In answer to the criticism that nothing but confusion would result from the possibility of legislation at three levels, it was voted that a commissioner should be sent to the capital town of each region to co-ordinate the activities of state and region. Of the 22 regions, Sicily, Sardinia, the Valle d'Aosta and the Alto Adige received even greater autonomy than the other 18. During the autumn the machinery for the election of both parliamentary chambers was set up. The most interesting innovation was the introduction of the use of the referendum to put an end to the deadlock which might be created if the two houses disagreed. The new constitution was finally approved on Dec. 22 by 453 votes to 62, with no abstentions. The constitution was promulgated by President De Nicola on Christmas eve.

The last week in July was devoted by the constituent assembly to the question of the ratification of the Italian peace treaty. Its terms were known during 1946 but the resentment they aroused in Italy was increased in the opening months of 1947 by the arrival of thousands of refugees from the territory to be ceded to Yugoslavia. In view of Italy's contribution to the Allied war effort after 1943 there was general bitterness over the reparations to be paid, as also over the loss of Trieste, a bitterness which was enhanced by the sensation of being a pawn in the game between east and west: on the right there was also great indignation over the loss of the fleet and the former Italian "empire," while on the left it was felt that it would have been more consistent with Allied principles if the treaty had been less arbitrarily imposed upon Italy. On July 31, after opposition from both the right and the left, the government carried the ratification of the treaty through the assembly by 262 votes to 68; the hostile voters were members of the parties on the right, while Communists and Socialists abstained. One of the arguments advanced against ratification was the equivocal attitude of the U.S.S.R., which, however, at last agreed to ratify the treaty on Aug. 29; it came into force on Sept. 15.

Contemporaneously the year was characterized by the scaling down of the Italian peace treaty by the western powers; the United States and Great Britain waived their right to confiscate the property of Italy's nationals; the United States and Great Britain waived most of their rights with regard to the Italian navy. Italy was invited along with the other powers to help prepare Europe's response to the Marshall offer, and French and Italian representatives worked together on a customs union project. In fact by the end of the year the only serious obstacle to Italy's international rehabilitation was the soviet veto upon Italy's entry into the United Nations. (E. Wi.)

Education.—(1942) state elementary: teachers 12,960, scholars 4,900,329; parish schools: teachers 1,629, scholars 51,467; subsidized schools: teachers 1,164, scholars 24,241. Secondary (classical, scientific and normal) schools: 1,274, teachers 24,873, scholars 346,095. Agricultural schools: 887, teachers 5,612, scholars 42,983. Commercial schools: 717, teachers 13,188, scholars 196,921. Industrial schools: 764, teachers 9,089, scholars 179,408. Nautical schools: 37, teachers 619, scholars 5,393. Art schools: 94, teachers 1,778, scholars 9,932. Nongovernment secondary schools: 2,520, teachers 28,019, scholars 217,680. Universities: total students 145,793.

Finance.—(Est. 1947–48) revenue L.520,560,000,000; expenditure L.831,711,000,000; total public debt (Feb. 1947) L.1,303,000,000,000; bank deposits (1947) L.780,764,000,000; gold reserve (1947) L.522,000,000,000; note circulation (June 1947) L.557,600,000,000. Currency: lira; rate of exchange: U.S. $1 = L.350 (official rate) and L.590–600 ("free rate," October).

Trade and Communication.—Foreign trade (1946): imports L.84,210,000,000; (industrial raw materials L.40,710,000,000; food and cattle L.27,290,000,000; semifinished products L.8,610,000,000; finished products L.7,600,000,000); exports L.54,530,000,000 (finished products L.23,280,000,000; semifinished products L.15,020,000,000; industrial raw materials L.4,300,000,000; food and cattle L.11,930,000,000); imports (Jan.–June 1947) L.82,364,376,000; exports (Jan.–June 1947) L.42,112,706,000. Railways open to traffic (March 1947): steam 7,063 mi., electric 2,846 mi.; locomotives in service (1947): steam 4,065, electric 1,443; rail motor cars 907; coaches 5,182; luggage and mail vans 3,105; freight cars 116,212. Roads (1939) 110,712 mi.; load carrying road vehicles (1947): gasoline trucks 91,256; diesel trucks 27,606; methane, producer gas and other trucks 6,292. Radio receiving sets (Dec. 31, 1945) 1,596,431; telephones 835,700.

Agriculture.—(1946–47, in short tons) wheat 6,749,750; rye 116,800; barley 254,500; corn 2,099,300; rice 523,400; potatoes 2,580,800; pulses 498,100; tomatoes 928,900; fresh vegetables 3,879,000; sugar 275,500; cheese 186,200; butter 29,750; olive oil and seed oil 224,800. Exported produce (1946): fresh vegetables 30,660; citrus fruit 68,135; fresh fruit 112,159; wine, etc., 14,837,280 U.S. gal. Livestock pop. (1946): cattle 6,900,000; pigs 3,200,000; sheep and goats 8,692,000; horses 600,000; mules 210,000; asses 540,000; poultry 63,000,000; rabbits 40,000,000.

Industrial Products.—In short tons: Sardinian coal (June 1946–Feb. 1947) 866,467; other products (1946): steel 1,270,900; pig iron 194,716; wool 12,360; cotton goods 132,000; rayon 32,233; staple fibre 14,740; waste 3,490; nylon 55. Exported products (10 months of 1946, in short tons): marble and alabaster 61,934; sulphur 11,583; essential oils and essences 78,388; paper 4,100; reeled silk 1,888; hats and caps (numbers) 4,020,334. Vehicles produced (1946) trucks 16,837; passenger cars 11,038; buses 1,428; trailers 7,445. Total unemployed (April 1947) 2,169,400. (*See* also Fascism; Foreign Ministers' Conferences; Italian Colonial Empire.)

Ivory Coast: *see* French Overseas Territories.

Jamaica. The largest of the British West Indian Islands, lying to the southward of the eastern extremity of Cuba. The colony has two dependencies known, respectively, as the Cayman Islands and the Turks and Caicos Islands. Area: Jamaica: 4,765 sq.mi.; Cayman Islands: 93 sq.mi.; Turks and Caicos Islands: 202 sq.mi. Pop.: Jamaica (1946 census): 1,289,072, predominantly Negroes (77%) and mulattoes (18%), but including about 13,500 Europeans, *c.* 42,000 East Indians and *c.* 6,900 Chinese; Cayman Islands (1943 est.): 6,670; Turks and Caicos Islands (1943 est.): 6,138. Chief towns: Kingston (cap. 201,911); Spanish Town (12,007); Montego Bay (11,500); May Pen (6,038); Port Antonio (5,482). The new constitution brought into effect in Nov. 1944 provided for a governor (appointed by the British crown); a privy council (charged with the general function of advising the governor in all matters relating to the royal prerogative); an executive council, constituting the "principal instrument of policy in the colony" and consisting of 10 members, of whom 2 are normally members of the legislative council and 5 are elected by the house of representatives; a legislative council of 15, of whom 10 are nominated unofficials; and a house of representatives of 32 members elected on the basis of universal adult suffrage by the 32 constituencies into which the colony is divided. Governor: Sir John Huggins (appointed 1943).

History.—The outstanding event of the year 1947 occurred

in September when a conference met at Montego Bay to consider the question of closer association between the British West Indian colonies. It was attended by representatives of the various territories concerned. Arthur Creech Jones, the British secretary of state for the colonies, presided. It was agreed to recommend to the legislatures of the participating colonies that an intercolonial committee should be formed to work out a plan of federation and that this committee should be invited to conclude its deliberations by June 1949. Formal resolutions were passed: (1) accepting the principle of federation; (2) advocating an increased measure of responsible government in certain territories; and (3) recommending, as an interim measure pending federation, the establishment of a British Caribbean Shipping committee on lines proposed in the report of a fact-finding meeting on shipping held in Barbados in July 1947. A group of financial experts was appointed to consider and report upon the financial implications of federation.

Finance and Trade.—The monetary unit in Jamaica is the pound sterling, linked with the pound in the United Kingdom. Revenue (1946) £7,951,000; expenditure £7,781,000. Imports (1946) £12,523,000; exports £8,328,000. The leading products of the colony are bananas and sugar. Bananas constitute the largest single item of export. Other exported articles include sugar, rum, spices, coffee, timber and logwood extract.

(J. E. SH.)

Japan. An island nation in the western Pacific, under Allied military occupation following its defeat and surrender in 1945. In accordance with the terms of the Cairo and Potsdam declarations of 1943 and 1945, Japan was stripped of its former overseas possessions and reduced to the four main islands of Honshu, Kyushu, Shikoku and Hokkaido (total area 146,690 sq.mi.), and minor adjacent islands. The population was officially estimated at 78,220,840 in July 1947, an increase of approximately 5,800,000 over Nov. 1945. Net repatriation to Japan contributed 4,451,000 of the increase, and natural growth the remainder. About 761,000 Japanese were reported still held in soviet-controlled areas in October, but were being shipped home at the rate of 50,000 per month.

The chief cities of Japan, with populations according to the 1940 census, are as follows: Tokyo (capital) (6,778,804); Osaka (3,252,340); Nagoya (1,328,084); Kyoto (1,089,726); Yokohama (968,091); Kobe (967,234). In 1945 there were 17,613,000 adherents of Shinto sects in Japan and in excess of 40,000,000 Buddhists. The Japanese sovereign is Hirohito. Prime minister (after May 25, 1947): Katayama Tetsu.

Inter-Allied Policies.—The basic objectives and control machinery of the Allied occupation of Japan remained unchanged in 1947. Policy continued to be determined by the 11-power Far Eastern commission, sitting in Washington, D.C., and carried out by the supreme commander for the Allied Powers in Tokyo, Gen. Douglas MacArthur. The United States, as before, retained a preponderant control over occupation affairs and advanced most of the costs of occupation.

On June 19 the Far Eastern commission unanimously approved a basic postsurrender policy for Japan, to remain effective until a peace treaty should come in force. Designed to ensure that Japan would not again menace the peace and security of the Pacific and to encourage a democratic and peaceful regime in Japan, this statement of principles reaffirmed in its essentials the earlier U.S. declaration of Aug. 29, 1945. In 1947 the F.E.C. also prescribed certain revisions in the Japanese educational system (March 27); forbade any Japanese activity in the field of atomic energy "for the time being" (Jan. 30); approved principles to govern the rehabilitation of Japan's foreign trade (May 8); laid down standards for the reduction of Japan's capacity in war industries which is in excess of "the peaceful needs of the Japanese people" (Aug. 14); and defined those needs as being "substantially the standard of living prevailing in Japan during the period 1930–1934" (Jan. 23).

Other F.E.C. decisions dealt with reparations, restitution and subsidiary issues. The commission followed its 1946 program of interim reparations removal of industrial equipment with further decisions establishing criteria for plant selection (May 22), and for the allocation of reparations shares (May 8) and removal costs (Feb. 13). No Allied agreement was reached on the total reparations bill, or on its percentage distribution among claimant countries. In April, however, the U.S. on its own responsibility directed Gen. MacArthur to proceed with an advanced allocation of 30% of the initially available equipment in the following proportions: China 15%; Philippines 5%; the United Kingdom (for Malaya and Burma) 5%; and the Netherlands (for the Indies) 5%. (*See* also REPARATIONS.)

On July 11 the U.S. proposed a conference of the 11 powers represented on the Far Eastern commission to draft a peace treaty for Japan. It proposed further that voting should be by a two-thirds majority, and that when drafted the treaty be submitted to a general conference of all states at war with Japan. Nine countries agreed with the conference proposal and eight with the suggested voting procedure. The Soviet Union maintained, however, that the whole question should first be examined by the Big Four—China, the United Kingdom, the United States and Russia. China put forward a compromise suggestion for an 11-power meeting in which decisions would be by majority vote but would require the concurrence of each of the Big Four. No resolution of the impasse over voting procedure had been achieved by the end of the year.

The trial of Japan's war leaders on the charge of war crimes continued through 1947 in Tokyo. On Sept. 10 the International Military tribunal concluded the general defense phase of the proceedings and began individual defense cases. (*See* also WAR CRIMES.)

Political Trends in Japan.—The year in Japan was marked by further implementation of political reforms under the new constitution. In April, elections were held for the diet, for 46 prefectural governors, 209 city mayors, more than 10,000 town chiefs and village headmen and numerous local and prefectural assemblies. The Social Democratic party emerged the victor by a slim margin in the diet, with 143 out of 466 seats in the house of representatives, and 46 out of 250 seats in the new, upper house of councillors. Close on its heels were the 2 conservative parties, the Liberals taking 131 seats and the Democrats 124 in the lower house. Other seats were distributed among minor par-

THE OTSUKA FAMILY, first Japanese tenant farmers to purchase the land they tilled, under the Allied council's land reform program. Ending an era of agrarian feudalism, the sale took place in July 1947 in the village of Seya





DANCE PANTOMIME interpreting "City of Peace" during a three-day celebration at Hiroshima, Japan, in Aug. 1947, commemorating the second anniversary of the first atomic bombing

ties and independents, including four Communists. At the prefectural and local level the Social Democrats were much weaker. Here the preponderant group elected to office were independents, most of them supported by the Liberal and Democratic parties.

Following the elections, on May 25, the prime ministership passed from Shigeru Yoshida, president of the Liberal party, to Katayama Tetsu, veteran Christian Socialist. Since his party enjoyed only a weak plurality in the diet, Katayama was compelled to form a coalition cabinet with the other major parties. Through the year conservative influences represented in the Democrats and Liberals remained dominant in Japanese politics. By August the Liberals had passed into open opposition, and on occasion joined with the Communists in denouncing the government. Their overtures for a single majority conservative party to rule Japan and negotiate the peace settlement were rejected, however, by the Democratic party. The latter continued along with the Social Democratic and Peoples' Co-operative parties to support the Katayama government against both radical and reactionary opposition.

With only a summer recess, the 93rd diet continued in session from May 20 until near the end of the year. In addition to the acute economic problems facing the country, it was occupied with a mass of legislation revising the political and economic structure of Japan in conformity with Allied directives and the new constitution. Among basic laws drafted for enactment were measures dealing with the reform of the civil service, a new criminal code, improved labour standards, the reorganization of the judiciary, local government and taxation, political parties, education and the decentralization of private control over finance and industry. The augmented powers of the national legislature and of local governments under the new constitution began to be evident in 1947. Initiative tended to remain with the bureaucracy, however, where traditionally it had been lodged. No strong political leadership emerged in the diet to weld contending factions into a dominant political force. A coalition of divergent interests, the Katayama cabinet had only limited freedom of action and lacked the power to deal decisively with the overriding issues of economic stabilization. As the year ended it was under increasing pressure from both right and left.

Economic Reform and Recovery.—Slow progress was achieved in carrying out economic reforms initiated under Allied direction during the previous year. In March and July the government purchased 850,000 ac. of land at fixed prices from landlords as a first step in the program to acquire 5,000,000 ac., or 80% of all tenanted farm land, for resale to tenants. It also commenced the resale of about 40,000,000,000 yen (book value) of corporate securities which had been surrendered in payment of the anti-inflation capital levy or taken over under the program for breaking up Japan's giant combines and liquidating 157 other wartime institutions. The reorganization of Japanese banking and industry to clear away the wreckage of war and decentralize controls over economic life was still in its initial phases. Meanwhile, in the field of labour, rapid strides were made in raising legislative and administrative standards by a series of measures culminating in the organization of the new ministry of labour on Sept. 1. Trade unions, now fully legalized, had a membership of 5,724,851 on July 31, and for the first time were a potent force in Japanese politics.

As for economic recovery, two bright spots appeared in an otherwise gloomy picture. Crops were good; and the year witnessed progress toward the reactivation of foreign trade on a peacetime basis. Economic life continued to be demoralized, however, by shortages of food, fuel and raw materials, inflation of the currency, ineffectual price control and rationing measures and uncertainties over reparations. Industrial production in April was only 30% of the 1935–37 level. Labour productivity was correspondingly low. The government opposed determined demands from workers for higher wages, meanwhile attempting none too successfully to arrest the inflation and black-market profiteering which gave rise to popular discontent.

Under these conditions, living standards continued far below the prewar level, especially in the cities. By June the urban cost of living had soared to 60–70 times the 1937 index, while factory wages were only 23 times the 1937 daily average. Consumer goods shortages were universal; for example, the clothing supply was scarcely 1 lb. per capita during 1947, as compared with 10 lb. in 1937. In housing the war left an accumulated deficit of 4,500,000 dwellings, and by July 1947, only about 10% of the gap had been filled. Most serious was the food shortage. Compared with 1941 food consumption estimated at 2,105 cal. and 64.7 g. of protein daily per capita, consumption by urban workers in 1946 was 1,600 cal. and 60 g. of protein. In the late spring of 1947 the actual ration in the six large cities was only 1,100 cal. and 30 g. The average Tokyo family secured 20%–40% of its food from the black market where prices were ten times the official price for staple items. Farm families fared better; indeed, Japan's food problem consisted in good part in the difficulty of collecting and delivering food to the cities. To remedy the 1947 deficiency, about 1,600,000 tons of imported food had been released for distribution by October.

The cumulative effects of wartime and postwar hardships were recorded in the physical development of primary school children, which in 1946 lagged one full year behind the 1937 standard of weight and height. Public health records, on the other hand, were good in most respects. As a result of energetic immunization campaigns conducted by Allied headquarters, communicable diseases were reduced to the lowest level in Japanese history.

Finance.—Government finance continued through 1947 to reflect the economic paralysis and financial disorganization left in the wake of the war. At the root of inflation lay the national budgetary deficit, which again necessitated huge borrowings to meet expenditures. Expenditures

totalled 192,200,000,000 yen in the fiscal year ending April 1947. General revenue came to only 115,600,000,000 yen, leaving 76,600,000,000 yen, or 40%, to be financed by loans. Collections from the capital levy tax reached 16,650,000,000 yen on April 30, 1947, and were expected to total 40,000,000,000 yen by the end of the year. On Aug. 31 the national debt had climbed to 304,630,000,000 yen, as compared with 220,900,000,000 yen a year previously. Outstanding domestic bonds amounted to 200,715,000,000 yen, external loans 881,000,000 yen (at 1923 gold parity), and bank loans 93,304,000,000 yen. The general account budget for 1947–48 was set at 114,500,000,000 yen, with occupation costs figured at 27,000,000,000 yen. Progress was expected in closing the inflationary gap, but additional supplementary appropriations were anticipated in large sums. The Bank of Japan's note issue continued to increase at the rate of more than 200,000,000 yen per day in the first half of 1947, and on Aug. 31 totalled 150,684,000,000 yen. Exchange rate, 1947: 50 yen = $1 U.S.

Trade and Communications.—Imports into Japan were valued at $305,000,000 in 1946 and exports at $72,000,000. According to press reports, 1947 imports were $420,000,000 to $440,000,000 and exports $425,000,000. Food accounted for $229,000,000 of imports, and textile fibres $91,000,000, both mainly from the U.S. Raw silk and cotton goods were the chief export items. The largest single transaction was the import of 905,353 bales of U.S. cotton from June 1946, through Sept. 1947, under an arrangement providing for the re-export of 60% of the fibre as manufactured exports. Cotton also began to arrive from India in Oct. 1947, on a contract calling for 170,000 bales.

In August important steps were taken toward the normalization of trade on a more diversified and expanded basis. Authorized foreign traders were allowed to re-enter Japan to re-establish private trade; foreign banks were permitted to resume normal trade services; and tele-communications and mails were opened again to transactional messages. To assist in financing trade, Allied headquarters also created an Export-Import Revolving fund, utilizing as a credit base $137,000,000 of Japanese-owned gold and silver.

Government railways (length 32,000 km.) carried about 100,000,000 metric tons of freight and 3,000,000,000 passengers in 1946. Corresponding figures for Aug. 1947 were 9,272,000 tons and 304,552,341 passengers. At midyear the merchant marine comprised 763 vessels of more than 100 gross tons, totalling 1,330,000 tons and capable of transporting 800,000 tons monthly. Production and operation of aircraft by Japanese nationals was forbidden under the occupation. On Aug. 31 there were 1,072,772 telephones in service, 657 land radio stations, 6,000,000 licensed radio receivers and 750,000 unlicensed sets.

Agriculture.—The 1946–47 harvest was as follows in metric tons: rice, 8,977,000; wheat, 1,617,000; sweet potatoes, 5,512,000; silk cocoons (spring, 1947), 26,500. Collections of summer crops in 1947, as of Oct. 20, were as follows in metric tons: rice and substitutes, 439,000 (brown rice equivalent); wheat and barleys, 799,000 (brown rice equivalent); sweet potatoes, 188,000; white potatoes, 527,000. The food crisis in the cities, described above, was partly attributable to the decline of acreage and yields. Tilled acres per farm family also dropped from 2.45 ac. in prewar years to 2.08 ac. as a result of demobilization, repatriation and industrial depression. About 640,000 ac. had been reclaimed for cultivation from the end of the war to Aug. 1947, in a program to add 25% to the nation's cultivated area. Crop yields still suffered, however, from reduced supplies of commercial fertilizer. These totalled only 1,434,851 tons in the year ending June 30, as against a 1936–40 average of 4,191,900 tons. Wartime and postwar shortages of feed had also reduced livestock to the following figures: draft oxen and cows 1,830,000; milch cows 160,000; horses 1,070,000; pigs 90,000; poultry 20,400,000.

Manufacturing and Mining.—Japanese industries generally operated at a low level in 1947, as already noted. One major handicap was inadequate coal production, which came to only 28,000,000 tons in 1947 as compared with an estimated minimum requirement of 36,000,000 tons. Crude oil output was about 17,000 kilolitres monthly in the half year ending September. August output in other heavy industries was as follows in metric tons: pig iron, 33,467; steel ingot, 87,476; refined copper, 2,732; cement, 120,509; and caustic soda, 4,744. The textile industries were likewise handicapped by shortages of fuel and raw materials. Raw silk production in August was 8,725 bales; rayon, 1,684 tons; cotton yarn, 8,283 tons; and cotton cloth 56,257,000 sq.yd.—all far below prewar output. With the gradual revival of foreign trade, greater progress in industrial recovery was expected in 1948.

(*See* also NAVIES OF THE WORLD; OCCUPIED AREAS, ADMINISTRATION OF.)

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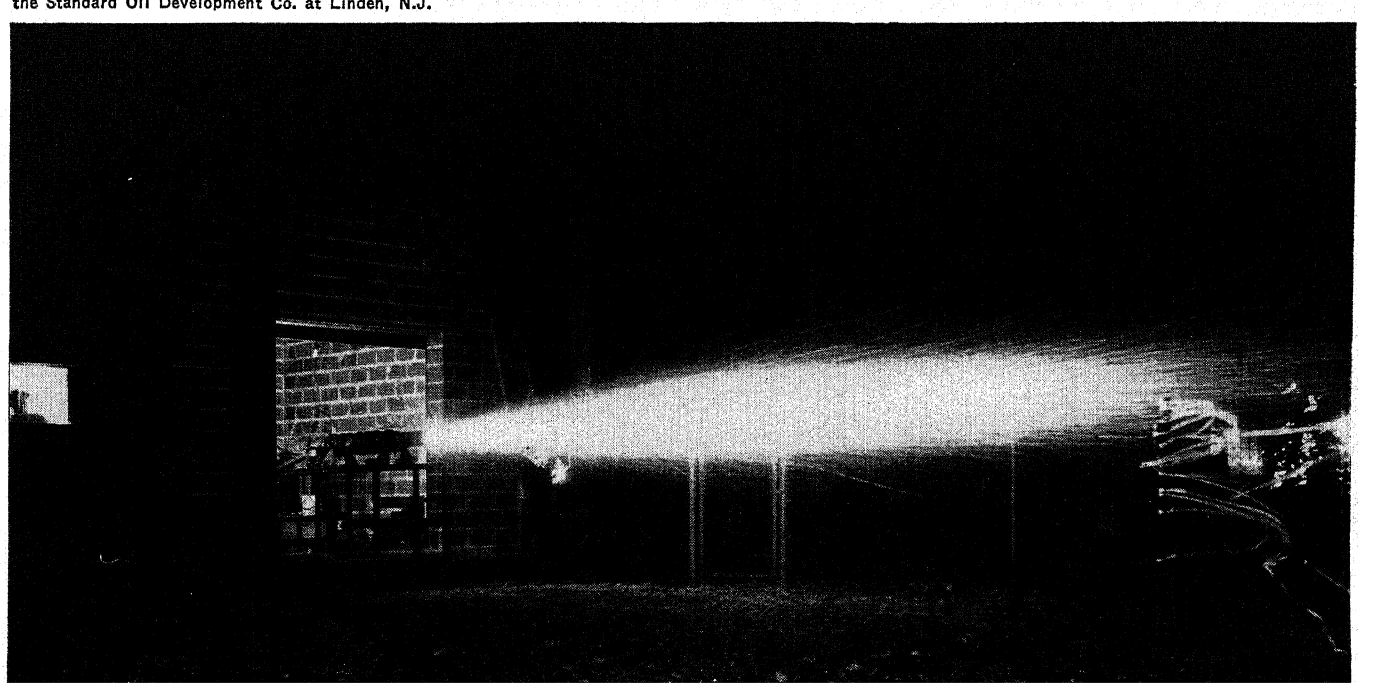
Java: *see* NETHERLANDS INDIES.

Javelin Throw: *see* TRACK AND FIELD SPORTS.

Jet Propulsion. The greatest gains in the new type reaction power plants were registered in the turbojet engine category during 1947. A wide variety of new fighters, multijet bombers and modified "mixed power" converted bombers were test-flown, powered by turbojets and in a few cases by turbopropjets, or propeller turbines. Several new companies in the U.S.A., Great Britain and other countries gained their initial experience with jet propulsion in the flight testing of their prototype aircraft. Behind the veil of military security, considerable progress could also be recorded in the non-turbine or duct-type reaction power plant—the ramjet, pulsejet and rocket. Successful experimental work for thrust augmentation by means of water/methanol injection, air bleed-off and afterburning technique was carried out. Component testing in several company laboratories, and research in jet fuels, high-temperature alloys and ceramics opened the way toward the solution of several problems.

Turbojets.—The most widely used U.S. turbojet engine in 1947 was the torpedo-shaped General Electric TG-180 (air force designation, J-35), with axial-flow compressor, delivering 4,000 lb. static thrust. During 1947 full responsibility for production and development passed to Allison division, General Motors, where more than 1,200 units were on order. The J-35 was the power plant of the North American XB-45 high-speed medium-range bomber (four units in twin nacelles) and the similar type Consolidated Vultee XB-46. The J-35 also powered the six-jet Martin XB-48, the eight-jet Northrop YB-49 Flying Wing and the six-jet, sweptback Boeing XB-47 Stratojet. The J-35 in August carried Marine Maj. Marion F. Carl to a world's high-speed record of 650.6 m.p.h. at Muroc lake in navy's Doug-

EXHAUST END OF A RAMJET issuing flame during a night test in 1947. Experimental work on the ramjet was being conducted at the laboratories of the Standard Oil Development Co. at Linden, N.J.



las 558 Skystreak trans-sonic-speed research aircraft. It also powered the North American FJ-1 carrier-based jet fighter, scheduled to go into production early in 1948.

Allison's redesigned version of the GE I-40 turbojet with centrifugal compressor (4,000 lb. thrust) was announced as its model 400 (air force J33-23), with 4,600 lb. static thrust, 20% more for take-off with water injection. This engine carried Lockheed's P-80R to an international speed record of 623 m.p.h. which held good for about two months. It was the power plant of the improved P-80B and was to be used in about half of the production Grumman F9F Panther carrier fighters.

The Westinghouse 19XB-2B version of the Yankee, with 1,600 lb. thrust, went into full production at Westinghouse and Pratt and Whitney for the McDonnell FD-1 Phantom twin-jet carrier fighter. The more powerful 24C (navy-U.S.A.F. designation, J-34) unit of 3,000 lb. thrust was test-flown in the faster McDonnell XF2H Banshee in May, and announced as the power plant of the Douglas 558-2 Skyrocket, along with Reaction Motors 6000C4 rocket engine. Four J-34's were announced as power plant of the Curtiss XP-87 "all-weather" long-range fighter. It was also reported as powering the McDonnell XP-85 and XP-88, Lockheed XP-90, Douglas XF3D-1 and McDonnell XF3H-1. An improved version of the TG-180 (J-35), designated TG-190, was bench-tested in 1947 by General Electric.

In Great Britain the Rolls-Royce Nene (5,000 lb. static thrust, 5,750 lb. with water injection) flew in a modified version of the D.H. Vampire, was publicly demonstrated at the Radlett air show in the Vickers Supermarine E. 10/44 Attacker, operated from a carrier deck in a British fleet air arm version of the 10/44, and was test-flown in the new Hawker N. 7/46 (Sea Fang) for the navy. An imported engine flew as power plant of the first prototype of the U.S. navy's Grumman F9F-2 Panther, and arrangements were being made at Pratt and Whitney to produce a U.S. version of the Nene during 1948 to power about 50% of the production Panthers. In Dec. 1947 the Armstrong-Whitworth AW 52 experimental tailless aircraft took to the air, powered by two Nene turbojets; the third model of the D.H. 108 tailless aircraft, with one Goblin III, also flew during the year. These were both forerunners of advanced high-speed, high-altitude commercial air liners. The power plant for one of these (D.H. 106) was the De Havilland Ghost (rating 5,000 lb. thrust, expected to develop more than 6,000 lb.) which was flight-tested as two of the power plants in the modified Ghost-Lancastrian. These were all radial-flow jet engines.

The only British axial-flow turbojet unit flight-tested up to the end of 1947 was the 3,500-lb. thrust Metropolitan-Vickers F 2/4 Beryl, two of which powered the Saunders-Roe SR/A1, the world's first jet-powered flying-boat fighter. A later version of the Beryl was rated at 3,750 lb. thrust. A much more powerful unit, the Rolls-Royce AJ-65 Avon, was first bench-tested in the spring of 1947 as that company's first axial-flow turbojet engine.

The Nene was going into production in France (by Hispano-Suiza) and in Australia for R.A.A.F. Nene-Vampires; the D.H. Goblin was being built in Sweden and Switzerland. Argentina imported some Derwent V's for a new jet fighter, and Canada some Goblins for R.C.A.F. Vampires. Sweden and Canada announced original turbojet engine developments, Canada's including the axial-flow Avro Chinook. The U.S.S.R. was reported to have made good headway with improvement of several German operational and development projects by Jumo, BMW and Heinkel, besides having imported some Rolls-Royce Derwents and Nenes.

Turboprops.—U.S. developments in the propeller-turbine field were mostly in the large high-powered units. These included the Flader XT-33, Wright XT-35, Northrop XT-37 Turbodyne and a big Allison unit—all in the 5,000–10,000 equivalent shaft horsepower class. The Wright XT-35 was test-flown as the fifth power plant (in the nose) of a modified B-17, but no details were announced. The big unit had an output of about 5,000 h.p. but was capable of much higher development; it was the world's most powerful propeller turbine to have flown up to the end of 1947. The fourth model of the Northrop XT-37 Turbodyne was reported to have a rating of 10,000 h.p. on bench tests. The Lockheed-Menasco L-4000 (XJ-37), a 5,000-lb. thrust unit, could be used as either a turbojet or turboprop. The Flader unit was dropped late in the year.

Flight testing of new airscrew/turbine units (turboprops) made considerable headway in England during 1947. These included the Theseus-Lincoln (2 Bristol Theseus 2,400-h.p. units, 2 Merlins). A second Avro Lincoln with four Theseus units was scheduled for flight tests early in 1948. In October the Mamba-Lancaster (Armstrong-Siddeley 1,400-h.p. Mamba as 5th power plant, in nose) and Dart-Lancaster (Rolls-Royce 1,300-h.p. Dart in nose, 4 Merlins) took to the air. The larger Armstrong-Siddeley Python (4,500 h.p.) was also scheduled for flight tests in 1948, in a modified Lancaster bomber. The promising Napier Naiad (1,590 h.p.) and Rolls-Royce Clyde (3,600 h.p.) were extensively bench-tested in 1947. Other British turboprops under development included the Power Jets 250 h.p. unit, De Havilland H-3 and Bristol Janus (500 h.p.) and the big Bristol Proteus (3,500 h.p.) for eventual use on the Brabazon I and Saunders-Roe SR/45 flying boat.

Ramjets, Pulsejets and Rocket Engines.—In tests off the Virginia capes, speeds up to 1,500 m.p.h. were attained by 16-in. model ramjets. Five different designs were under test, up to 20-in. diameter. Some were flight-tested in P-51 fighters (wing tips) and underslung from P-61 Black Widows and B-29 heavy bombers. The main problems included flame blowout at supersonic speeds and a more efficient method of bringing an aircraft or missile up to the 400 m.p.h. required for initial compression in ramjets. The U.S. navy was especially active in pressing fundamental research in the pulsejet engine, otherwise referred to as an intermittent ramjet or resonant (reso) jet. The effective valve life on current experimental pulsejet units was increased from the 45 min. on the V-1 buzz-bomb unit to about 7 hr. Specific fuel consumption decreased from 4 lb. per hour per pound of thrust to about 2.6 lb.

During 1947 several interesting developments took place in the rocket engine field (*see* also MUNITIONS OF WAR). Jato units were used commercially for assisted take-off of heavily loaded cargo planes, and a set of them was built into the air force's advanced six-jet bomber, the Boeing XB-47 Stratojet. The Bell XS-1 with a Reaction Motors 6000C4 rocket engine flew at better than Mach 1.00 (speed of sound) at more than 35,000 ft. The Douglas 558-2 with J-34 turbojet and 6000C4 rocket was unveiled and scheduled to be test-flown early in 1948. Several advanced air force turbojet-cum-rocket fighters were reported as under development. Britain's Vickers-Armstrong's pilotless trans-sonic research aircraft was test-flown by being dropped from a Mosquito bomber. Big research rockets by Boeing, Martin and North American aircraft were announced. (*See* also AVIATION, MILITARY.) (N. F. S.)

Jewish Religious Life. Outstanding in the story of Judaism in the year 1947 was its continued struggle to re-establish itself in Europe after the shattering blows of the preceding decade. The great centres of Jewish life numerically and spiritually had shifted to the United States and Palestine, and the only marked movement of displaced persons and other Jewish survivors of the European holocaust had been to the United States and to the internment

camps of Cyprus en route to Palestine. Thus, during the year hundreds of rabbis and students sailed from Shanghai, where many had found refuge from eastern Europe, and other points to the U.S.

In the other direction, U.S. organizations such as the Joint Distribution committee helped make possible the observances of Jewish religious life in the D.P. camps of Europe. Books, religious supplies and millions of pounds of kosher meat and Passover supplies were shipped to the suffering Jewish remnants in Europe from Canada and the United States, and U.S. aid was given with outstanding generosity for rebuilding ruined synagogues and reopening religious schools in the old world. Talmudic academies (yeshiboth) were re-established, and the rabbinical colleges in such centres as Paris, Rome and Budapest reopened. Prayerbooks, copies of the Talmud and other Jewish books were increasingly made available for furthering Jewish cultural life in the war-devastated countries of continental Europe.

All this work was done against consummate difficulties. The surviving Jews in the communities of a country like Germany were in large measure elderly people, the children having been the first to be massacred. The adults who survived were often those who had been on the extreme borderline of Jewish life and who had escaped annihilation only because of marriage to a non-Jewish partner, or because their children had been brought up in the church. Moreover, everywhere there was a lack of rabbis. Thus, of the 46 rabbis deported by the Germans from France, not one survived to return.

The shortage of religious teachers was equally catastrophic. In Basle, Switzerland, new courses were established for training Jewish religious teachers for German-speaking lands, and in the United States steps were taken to make Jewish religious teaching as attractive as that of other academic professions. An important world conference on the basic problems of Jewish education was held in Palestine.

In general, in a country like Belgium or the United States there continued the marked tendency toward more intensive methods of Jewish education. The movement was away from the superficial Sunday school to the weekday school, and all-day Jewish schools sprang up in larger metropolitan centres.

From many parts of the world synagogues reported increased membership, expansion of their facilities for more cultural and social activities and increased interest in such matters as synagogue music. The reform synagogues in the United States organized a preaching mission which they called the American Jewish Cavalcade. On the other hand, synagogues everywhere were struggling with the basic problems of maintaining traditional Jewish religious observances and intensifying Jewish religious education.

The action of the United Nations in declaring for the establishment of a Jewish state in Palestine was welcomed by synagogues everywhere with enthusiasm tempered by a belief that the exclusion of Jerusalem from the Jewish state made this action spiritually incomplete and unsatisfying to Jewish religious tradition. (*See* also ANTI-SEMITISM.)

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(D. DE S. P.)

Jewish Welfare Board, National.

The National Jewish Welfare board (J.W.B.), organized in 1917, is the national association of Jewish community centres and Young Men's Hebrew associations and Young Women's Hebrew associations in the U.S. and Canada. It is also the officially recognized agency for serving the religious, welfare and morale needs of Jewish men and women in the armed forces and in veterans' hospitals. During 1947, a survey of J.W.B.'s programs, functions and operations, which was begun early in 1946 by Dr. Oscar I. Janowsky, professor of history of the College of the City of New York, was completed. It was carried out under the direction of a survey commission composed of 35 Jewish educators and communal leaders headed by Dr. Salo Baron of Columbia university. The commission submitted 21 recommendations to J.W.B., 20 of which were adopted at the 1947 annual meeting of J.W.B. in Pittsburgh.



GEN. LUCIUS D. CLAY, U.S. military governor in Germany, addressing members of the Jewish community in Munich on May 20, 1947, as he rededicated the synagogue destroyed by nazi storm troopers a decade earlier

The major recommendation called for the formulation of a statement of principles defining the unequivocal Jewish purpose of the Jewish centres. These principles, later adopted by J.W.B.'s Jewish Center Division committee, become a condition for continued complete affiliation of existing Jewish centres (within three years) and for new ones (at admission).

In 1947, the J.W.B. served its 309 affiliates (with 500,000 members) with programs for youth, adult Jewish education, centre fund-raising, surveys of community cultural resources, religious holiday program aids and similar services. The Jewish Music council and Jewish Book council, both sponsored by J.W.B., conducted nation-wide celebrations furthering interest in Jewish literature and music.

Program needs of the centre in Jewish culture were met, in part, by J.W.B.'s Lecture bureau which booked 1,045 programs during the year, the majority dealing with Jewish themes. Activation of the World Federation of Y.M.H.A.'s and Jewish centres (formed 1946) of which J.W.B. is a constituent, was begun through dispatch of a representative to South America to aid the centre program there. Sponsorship of a campaign for a Jerusalem Y.M.H.A.—a World Federation project—was accepted in principle by J.W.B.

Culminating five years of fact-finding concerning participation of Jews in World War II, J.W.B. completed and published a two-volume record *American Jews in World War II*.

Officers in 1947: Frank L. Weil was elected J.W.B. president for his 8th term; Mrs. Felix M. Warburg was honorary vice-president; Mrs. Alfred R. Bachrach, Lloyd W. Dinkelspiel, Irving Edison, Mrs. Samuel R. Glogower, Mrs. Walter E. Heller, Carl M. Loeb, Jr., Donald Oberdorfer, Dr. David de Sola Pool, vice-presidents; Joseph H. Cohen, treasurer; Robert K. Raisler, assistant-treasurer; Joseph Rosenzweig, secretary; Ralph K. Guinzburg, assistant-secretary. On October 1, Samuel

D. Gershovitz became executive director succeeding Louis Kraft, who became general secretary of the National council.

(F. L. W.)

Jinnah, Mohammed Ali (1876–), Indian statesman and politician was born on Dec. 25 in Karachi. He studied law in England, and in 1906 he became an advocate of the Bombay high court. In 1910 Bombay Moslems elected him to the imperial legislative council. He joined the Moslem league in 1913 and was instrumental



LEADERS OF INDIA at Karachi, on Aug. 15, 1947, during the ceremonies ending British rule. Left to right: Fatima Jinnah, sister of the Moslem leader; Mohammed Ali Jinnah, governor general of the Dominion of Pakistan; Lord Mountbatten, governor general of the Dominion of India; and Lady Mountbatten

in getting Hindus and Moslems to hold joint sessions at the Lucknow conference in 1916.

Jinnah's zealous advocacy of an independent India cooled considerably in the aftermath of World War I. His disagreement with Mohandas Gandhi over methods of obtaining the desired independence grew sharper, and he no longer was the leading Moslem proponent of concord with the Hindus. At the London round table parleys (1930–31), Jinnah, although not a delegate, demanded separate electorates for Hindu and Moslem communities as well as equality for Moslems in the sharing of offices in the central and provisional governments. In the succeeding years, Jinnah, who had become head of the Moslem league, unswervingly pursued a single goal: establishment of a wholly independent Moslem state; his efforts were crowned with success on Aug. 15, 1947, when he was made governor-general of the Moslem state of Pakistan. Later Jinnah lent his voice to those protesting the bloodshed caused by the outbreak of Hindu-Moslem warring after India achieved its independence, but to little avail, at least in 1947.

Johns Hopkins University. Johns Hopkins university is a privately endowed institution of higher learning located in Baltimore, Md. It consists of: three undergraduate schools (1) arts and sciences, (2) engineering (mechanical, civil, electrical, aeronautical, sanitary, industrial) and (3) business; McCoy college; the faculty of philosophy (graduate); the school of medicine; the school of hygiene and public health; and the Hopkins applied physics laboratory. For the year 1947–48, 2 new buildings, 27 new faculty members and a new department of industrial engineering were added. Of undergraduate students 61% were veterans. Undergraduates study under a group plan, while graduate students study under the jurisdiction of department heads. There is no separate faculty for the graduate school, all faculty members teaching both graduate and undergraduate students. The following degrees are offered: A.B., M.A., B.S., doctorates in philosophy, hygiene, public health, engineering, history of medicine and education. President, Isaiah Bowman. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (I. Bo.)

Johnson, Herschel V. (1894–), U.S. government official and diplomatist, was born May 3 in Atlanta, Ga. He was graduated from the University of North Carolina in 1916, and served overseas with the A.E.F. during World War I. After the war he studied at Harvard law school and entered the U.S. foreign service. In 1941 Johnson was named ambassador to Sweden by Pres. Franklin D. Roosevelt.

Recalled from Stockholm in 1946 to become deputy to Edward R. Stettinius, Jr., then chief U.S. delegate on the U.N. Security council, Johnson was appointed a regular delegate to the U.N. general assembly in July 1947.

Johnson carried the burden of presenting U.S. policy before the general assembly throughout 1947. During an acidulous debate with Andrei Gromyko on July 23, he admitted that he held no brief for Greece, but said the latter at least was no menace to world peace as were, he contended, Albania, Bulgaria and Yugoslavia.

Annoyed by the soviet use of the veto, Johnson presaged formation of the "little assembly" plan on July 29, when he indicated to the general assembly that the U.S. would try to find some way of defying Russia on the veto.

Judaism: *see* JEWISH RELIGIOUS LIFE.
Jugoslavia: *see* YUGOSLAVIA.
Julius Rosenwald Fund: *see* SOCIETIES AND ASSOCIATIONS.
Jumping: *see* TRACK AND FIELD SPORTS.
Junior Colleges: *see* UNIVERSITIES AND COLLEGES.
Justice, U.S. Department of: *see* GOVERNMENT DEPARTMENTS AND BUREAUS.

Jute. The U.S. supply of jute, all imported, declined in the year ending July 1, 1947, to a total of 35,000 tons, compared with 78,000 tons in the previous year, and an average of about 80,000 tons during 1934–38. The cotton crop formerly required about 70,000 tons of jute bagging but the smaller crops of 1946 and 1947 reduced this need to about 40,000 tons.

(J. C. Ms.)

Juvenile Delinquency. In 1947 approximately 92,000 children's cases were handled by 220 courts in 17 states co-operating with the federal children's bureau. This juvenile court statistical reporting plan, in operation since 1927, remained the only reliable index of trends in delinquency. In 1947 the total number of delinquency cases decreased 15%. Boys' cases still represented more than four-fifths.

Of all cases disposed of in these reporting juvenile courts (91,851) 73% were delinquency cases and 27% were dependency, neglect and other cases. On Jan. 1, 1946, the children's bureau revived its plan of statistical reporting to include analysis of all children's cases, in the belief that persons planning and administering programs of service to children would find these data valuable.

Numerous conferences on prevention and control of juvenile delinquency were held in 1947. Philadelphia developed the Community Neighborhood plan to elicit citizen participation in prevention. The National Conference on Prevention and Control of Juvenile Delinquency (Miss Eunice M. Kennedy, executive secretary, Washington, D.C.) conducted meetings in New Jersey, in Washington, D.C., and in Kansas City, Mo. The conference assembled literature and information for state-wide attacks upon the problem.

Columbia university donated a research fund to the first *Year Book on Prevention of Delinquency,* scheduled for publication in 1948.

The year 1947 showed the most constructive gains both in treatment and prevention of delinquency throughout the U.S. since 1940.

(*See* also CHILD WELFARE; CRIME; FEDERAL BUREAU OF INVESTIGATION.) (M. V. W.)

Kameroons: *see* BRITISH WEST AFRICA; FRENCH OVERSEAS TERRITORIES; TRUSTEE TERRITORIES.

Kansas. Located in the geographical centre of continental United States, Kansas was admitted to the union as the 34th state on Jan. 29, 1861, and is referred to in popular usage as the "Sunflower state." Total area 82,276 sq.mi. of which 82,113 sq.mi. are land; the population in 1947 was reported as 1,835,011, an increase of 50,558 or 2.8% from 1946 (1940 census 1,801,028); 96.3% were white; 3.6% were Negro, the rest being all other races. Only 3% of the people were foreign born; the population was about equally divided between urban and rural. Capital, Topeka, pop. 85,117, a gain over 1946 of 5,963 (1940, 67,833). The two larger cities in 1947 were Wichita, 160,370 (1940, 114,966), and Kansas City, 140,250 (1940, 121,458).

History.—The principal state officials in 1947, elected in 1946 for two-year terms, were: Frank Carlson, governor; F. L. Hagaman, lieutenant governor; Frank J. Ryan, secretary of state; George Robb, auditor; R. T. Fadely, treasurer; E. F. Arn, attorney general; L. W. Brooks, superintendent of public instruction. Since 1880 Kansas has been a "dry" state, but in the election of 1948 the matter of repeal was to be submitted to a vote of the people, with indications of a hard fight. Kansas law defines intoxicating liquor as containing more than 3.2% alcohol.

Education.—There were 3,166 one-teacher schools in the state during 1947 with an enrolment of 35,387; a reduction by 4,230 schools in number of one-teacher schools during a 7-year period had been caused by consolidations. The enrolment (1946) in elementary and secondary schools was 323,457, of which 88,824 were in high schools and 234,633 were in elementary and secondary schools. A law requiring consolidation of school districts was declared unconstitutional by the state supreme court.

Social Insurance and Assistance, Public Welfare and Related Programs.—The populations of the various state institutions in 1947 were as follows: industrial school for boys 119; industrial school for girls 79; hospitals for the insane 5,609; state hospital for epileptics 707; state hospital for tuberculars 419; state school for the blind 69; state school for the deaf 233; state orphans home 125; state school for imbeciles 1,317; state penitentiary 1,003; state industrial farm for women 42; state industrial reformatory 288.

Communications.—In 1944 the state had 9,373 mi. of rural highways under state control; the steam railroad mileage was 8,448; the number of airports was 127, 38 of which were commercial and 45 municipal.

Banking and Finance.—The budget for the biennium 1947–49 totalled $37,213,993, representing an increase of $11,157,063 over the previous budget. Charitable institutions were to receive $8,134,965, compared with $7,171,196; penal institutions $2,652,018 compared with $2,169,876; educational institutions $17,459,314 compared with $9,858,043. Approximately $28,808,022 was collected from sales tax (2%) in 1947, the highest of record and $6,861,170 more than during the previous year. The bonded indebtedness of the state as of Dec. 31, 1947, was $7,250,000. In 1947 the state collected in excess of $9,000,000 in income tax, the largest in history. As of Oct. 1, 1947, there were 174 national and 439 state banks, with deposits of $1,500,000,000.

Agriculture.—Receipts from marketings the first nine months of 1947 indicated a total cash farm income for the year of about $1,367,000,000 or about 50% larger than the previous year and the highest on record.

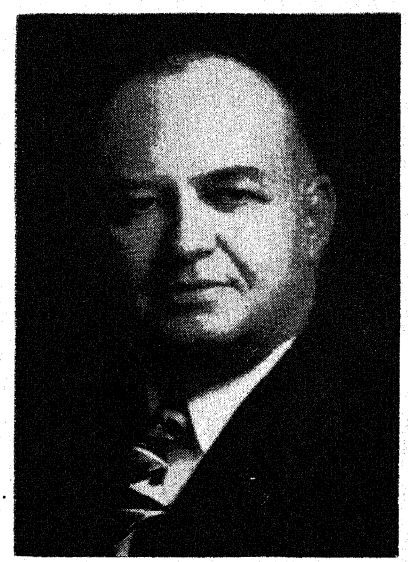
Leading Agricultural Products of Kansas, 1947 and 1946

Crop	1947	1946
Wheat, bu.	294,360,000	216,768,000
Corn, bu.	42,158,000	63,231,000
Sorghum (grain), bu.	10,860,000	11,448,000
Oats, bu.	40,860,000	40,556,000
Soybeans, bu.	1,760,000	2,178,000
Hay, tons	2,830,000	2,328,000
Barley, bu.	6,332,000	5,022,000

The year 1947 was the seventh consecutive year of favourable production in the southwest U.S. wheat belt, the Kansas crop comprising 27% of the total U.S. winter wheat production. Hay production exceeded the 10-yr. average and the oats crop was excellent, but the corn, sorghum and soybean yields were below average because of deficient moisture. The spring movement of cattle was about 8% smaller than in 1946—329,000 cattle and calves—but about 30% above 10-yr. average.

Manufactures and Mineral Production.—The mineral production of Kansas was valued at $210,187,000 in 1945, compared with $217,876,000 in 1944 and $220,413,000 in 1943. The state ranked ninth as a mineral-producing state. Its principal mineral products were petroleum, natural gas, zinc and coal. (F. CN.)

Kentucky. An east south central state of the United States, admitted to the union June 1, 1792, popularly known as the "Blue Grass state." Area, 40,395 sq.mi., of which 286 sq.mi. are water (chiefly the Ohio river). Population in 1940 was 2,845,627, of which 2,443,252 were white. Negroes constituted 209,721 or 7.5%, and 15,631 were foreign-born. The estimated population July 1, 1947, was 2,745,590. Capital, Frankfort (11,492); largest city, Louisville (319,077). Other cities: Covington (62,018); Lexington (49,304); Paducah (33,765); Owensboro (30,245); Ashland (29,537).



EARLE C. CLEMENTS, elected governor of Kentucky, Nov. 4, 1947, on the Democratic ticket

History.—In the quadrennial election Nov. 4, 1947, Earle C. Clements (Dem.) defeated Eldon S. Dummit (Rep.) for the governorship by 387,795 votes to 287,756. Other Democratic officers of the state were Lawrence W. Weatherby, lieutenant governor; George G. Hatcher, secretary of state; A. E. Funk, attorney general; Harry N. Jones, auditor; Edward F. Seiller, treasurer; Harry F. Walters, agriculture; Boswell B. Hodgkin, superintendent of education; Charles K. O'Connell, clerk of court of appeals.

Education.—Elementary schools in 1947 numbered 5,116, with 12,696 teachers and 415,296 pupils. In 576 public high schools there were 5,186 teachers and 116,500 pupils. The distribution of funds was $25.66 per capita.

Social Insurance and Assistance, Public Welfare and Related Programs.—The unemployment commission paid $400,000 monthly to about 40,000 civilians during 1947 and administered payments to 26,540 veterans in twice that sum. Old-age assistance was given to 47,285; aid to dependent children, to 9,150; and aid to needy blind, to 1,705. The population of the various correctional institutions was reported as follows: reformatory, 1,574; penitentiary, 835; women's prison, 52; house of reform for boys, 263; for girls, 53. At the close of 1947, 93 counties had voted dry.

Communications.—The highway department reported 10,252 mi. of highways under state control. Total receipts were $31,994,400, while

expenditures were $26,613,600. The Milton-Madison bridge was freed of tolls Nov. 1.

Banking and Finance.—On June 30, 1947, there were 93 national banks with resources of $621,946,000; 295 state banks and trust companies with resources of $898,858,000. From its general fund Kentucky drew $24,948,813 for education; $10,823,307 for welfare work; $7,714,985 for expenses of government. Receipts in the same period came from these sources: $8,917,902 from property and inheritances; $19,087,493 from corporations and incomes; $12,678,022 from alcohol taxes and licences; $1,893,141 from other licences. The surplus of $25,000,000 on June 30, 1947, was reduced from a higher figure by the "escalator" clauses of the budget law. No state debt exists.

Agriculture.—The leading crops of 1947 appear as reported in the table.

Leading Agricultural Products of Kentucky, 1947 and 1946

Crop	1947	1946
Wheat, bu.	5,184,000	4,976,000
Corn, bu.	76,265,000	77,824,000
Oats, bu.	2,415,000	2,200,000
Hay, all types, tons	2,678,000	2,583,000
Tobacco, all types, lb.	416,167,000	505,885,000
Potatoes, Irish, bu.	3,366,000	3,996,000
Soybeans, bu.	1,908,000	1,566,000

Mineral Products.—During 1946 coal mines yielded 69,271,470 tons, and employed 57,576 miners with a loss of 113 lives. The output of petroleum was 10,924,283 bbl. Natural gas was estimated at 80,000,000,000 cu.ft. (E. T.)

Kenya: *see* BRITISH EAST AFRICA.

Kidnapping. Kidnappings in 1947 were featured chiefly by political motives, with alleged communist influences involved in several of the highly publicized cases. Notable in this category were numerous kidnappings in Austria. For example, several students were reported as kidnapped in Vienna in June by three men wearing U.S.S.R. military uniforms. In the following month Austrian Minister Oskar Helmer claimed that there had been 11 political kidnappings by Russian troops during the immediately preceding weeks and that the soviet occupation forces were prohibiting Austrian police from reporting such occurrences.

Palestine recorded an important case late in January when H. A. I. Collins, former British army major, was abducted by an armed group.

China also held its place as a centre for such crimes when the Rev. J. L. Devine, a former U.S. army chaplain was reported killed by Chinese Communists operating as a guerrilla force, following his kidnapping in September and an unsuccessful attempt to collect ransom.

In Buitenzorg, Java, Gov. R. Hardjadiparta was reported kidnapped during the coup d'état of May 23.

Kidnappings in the United States during 1947 showed no marked evidence of racketeering influences, even though Illinois, as a former centre of business kidnapping rings, was again prominent in the dispatches. The year had scarcely opened when the kidnapping of a woman in Dixon, Ill., was followed by the conviction and sentencing of Frank Sickles on charges of kidnapping her and several others. Two months later, an inmate of the Illinois Training School for Girls at Geneva killed a nurse employed at the school, and kidnapped the baby of another inmate. In May, William G. Fuller was sentenced for the 1945 abduction of three-year-old Mary Ann Kubon from a Chicago nursery school.

The populous states of New York and Pennsylvania also appeared in the kidnapping news, although some of the cases were of doubtful authenticity. In Lodi, Calif., Alice Dean Devine reported she escaped from kidnappers who allegedly demanded $10,000 ransom. From Hollywood came a report in October that Earl Carroll, night club owner and once widely known as a producer of musical comedies, had been held up on entering his Beverly Hills home at dawn and robbed of $400. The gunman then forced Carroll and his chauffeur into the producer's car, and after driving with them toward Hollywood ejected them from the car. Several hours after the crime was reported, police in distant San Bernardino arrested a suspect, aged 26, in the Carroll car.

Perhaps the most shocking case of the year originated in Kearney, N.J., where 11-year-old John Preston, Jr., was reported missing from his home on Sept. 14. Although a ransom demand was made upon the boy's parents, and police broadcast an eight-state teletype alarm, no police results were secured for several days. Then the father of 14-year-old Fred Walter Smigelski presented his son before special agents of the FBI, where admission of kidnapping and murder was freely made. The motive, said the boy, was to "prove he was a man" and not a "sissy." Defense counsel sought to have young Smigelski tried before a court for juveniles, but he was held for action of the grand jury, on Sept. 19, and indicted for murder on Oct. 14. (*See* also FEDERAL BUREAU OF INVESTIGATION.)

(BR. S.)

King, William Lyon Mackenzie (1874–), Canadian politician, was born at Berlin (now Kitchener), Ont., Dec. 17. For a biographical account, see *Encyclopædia Britannica.*

King co-operated with the United States in measures for common defense of the two countries, and he participated in several Churchill-Roosevelt conferences. In the general elections held June 11, 1945, King's liberal party emerged victorious although it failed by a slim margin to obtain a clear majority. King himself was defeated in his constituency in Prince Albert, Sask., but was re-elected in a parliamentary by-election in Ontario, Aug. 6.

Several months after participating with Harry S. Truman and Clement R. Attlee in the Washington, D.C., Atomic Energy conference in Nov. 1945, Mackenzie King asserted (Feb. 15, 1946) that his government had unveiled a widespread espionage plot engineered by Russian agents, presumably seeking secret atomic information.

In the early spring of 1947, the prime minister visited President Truman during the course of a vacation spent in the United States; in June the president paid a return visit to Canada.

While touring western Europe in the fall, King stopped off in London where he was received by King George VI and given the Order of Merit (Nov. 17).

Kiwanis International: *see* SOCIETIES AND ASSOCIATIONS.

Kleffens, Eelco Nicolaas Van (1894–), Netherlands statesman, was born Nov. 17 in Heerenveen, the Netherlands. He was graduated with an LL.D. degree from Leyden university in 1918 and was a member of the League of Nations secretariat, 1919–21. He was appointed minister to Switzerland, and Netherlands representative to the League of Nations (1939). Van Kleffens fled to England after the German invasion in May 1940, becoming foreign minister for the Netherlands government-in-exile.

He attended the United Nations conference in San Francisco in 1945, the U.N. sessions in London in early 1946 and the following sessions in New York.

During the London meetings of the U.N. Security council, Van Kleffens and Andrei Vishinsky clashed over the latter's demand (Feb. 10, 1946) for an investigation of the Indonesian dispute. Van Kleffens replied that he would agree to an investigation provided it were limited to the original charge of whether or not Britain was threatening world security.

In 1946 Van Kleffens also represented the Netherlands on the U.N.'s Atomic Energy commission and in 1947 he was named (May 28) ambassador to the U.S. He asserted before the Security council (July 31) that the Dutch attack on Indonesia was a "police action" and therefore beyond U.N. jurisdiction.

However, the council rejected this contention as well as his later efforts to prevent the Indonesian delegation from getting a hearing on the ground that Indonesia was not a "sovereign state."

Knights of Columbus: *see* SOCIETIES AND ASSOCIATIONS.

Korea. A peninsula on the mainland of Asia directly west of Japan. On the north it is bounded by Manchuria, on the west by the Yellow sea, and on the east by the Sea of Japan. Area: 85,225 sq.mi., including 3,479 islands. Pop. (Oct. 1, 1940) 24,326,327. As a result of the Potsdam agreement of 1945, Korea is divided at the 38th parallel into U.S. and soviet zones of occupation. Leading cities in U.S. zone with estimated populations: Kyongsong (Seoul) 935,464; Pusan (Fusan) 249,734; Inch'on (Jinsen) 1,000,000. Leading city in soviet zone: P'yongyang (Pyengyang or Heijo) 285,965. Religion: Buddhism, Confucianism and Taoism. In 1938 there were 494,500 Korean Christians.

History.—A Peoples' Republic established on Sept. 6, 1945, by the Socialist and Communist parties was reorganized by the Russians into the Korean Peoples' Interim committee. Lieut. General John R. Hodge, commander of the U.S. occupation forces, denied recognition to the Peoples' Republic and organized the Korean Advisory council consisting of 11 members, all of them from the Korean Democratic party led by Kim Koo and Dr. Syngman Rhee. In Oct. 1946 Major General Archer L. Lerch, U.S. military governor, established an interim legislative assembly consisting of 45 members elected by the people and 45 appointed by the commanding general.

In 1946 and 1947 the joint commission established by the Moscow conference failed to agree on which Korean parties and social organizations should be consulted in the setting up of a government. The U.S.S.R. refused to consult with parties opposing the establishment of a trusteeship for Korea as provided in the Moscow agreement. This difference appeared to have been settled in May 1947 when Soviet Foreign Minister Vyacheslav Molotov agreed not to bar parties which had opposed the Moscow decision providing they now supported it. When the joint commission resumed negotiations on May 20, 1947, soviet representatives objected to parties which were members of a "Committee Against Trusteeship" and to some social groups which they considered unrepresentative. The United States representatives held that the soviet aimed to establish a government controlled by a Communist minority. On Aug. 28 the U.S. proposed to the U.S.S.R. that the four powers adhering to the Moscow decision meet at Washington to consider the Korean question. When the U.S.S.R. rejected this proposal, the U.S. referred the question to the United Nations general assembly. On Sept. 27 the U.S.S.R. proposed the evacuation of soviet and U.S. occupation forces by Jan. 1948. The United States maintained that evacuation should follow the establishment of a national government. In November the United Nations assembly created a commission to hold Korean elections by the end of March 1948 and to aid in the establishment of a government.

Education.—Attendance in primary schools in May 1947 was 2,177,980 students, in middle schools 158,325, and in universities and colleges 13,417. There were 3,208 primary schools and 384 middle schools in the U.S. zone. Less than half of almost 5,000,000 children of ages 6 to 12 were in school.

Finance.—Early in 1947 average family expenditures in Kyongsong were reported to have increased by 14,190% over 1937. Controls over sales of commodities and a program of grain collection were instituted to prevent hoarding and speculation. The official fixed rate of exchange was 15 yen for one U.S. dollar. In July the acting military governor approved a balanced budget not to exceed ¥17,500,000,000.

Trade and Communications.—Foreign trade was largely on a government-to-government basis. Japan was the chief source of parts and machinery for industrial rehabilitation. The U.S. government gave Korea $91,000,000 under the civilian supply program. Included in the foodstuffs sent to Korea were more than 395,836 metric tons of wheat, barley, flour and rice; 173,354,038 litres of petroleum products, and 106,423 metric tons of fertilizers. In June 1947 there were 617 locomotives of which 271 were operable, and 8,647 freight cars. Roughly the same amount was thought to be in the soviet zone.



KOREANS giving the communist salute as they greeted U.S. delegates of the joint U.S.-soviet commission arriving in the Russian occupation zone for a tour of inspection in July 1947

Agriculture, Manufacturing, Mineral Production.—Agriculture is the chief industry in Korea. The 1946 rice crop in South Korea was 1,849,535 metric tons, 18% below wartime production. Irrigation projects under construction were expected to add 101,320 ac. and an estimated 3,580,500 bu. of rice by 1948. The major spinning and weaving plants produced 8,740,400 lb. of cotton yarn and 21,700,040 yd. of cloth in 1946. Coal production totalled 208,476 tons in 1946. Korea has to import all bituminous coal. Shortage of coal was a major factor in delaying industrial recovery. In 1947 the military government in the U.S. zone was still engaged in the sale of former Japanese-owned property. Money proceeds were held by the national property custodian for delivery to the future government of Korea. (*See* also OCCUPIED AREAS, ADMINISTRATION OF.)

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Krug, Julius Albert (1907–), U.S. engineer and government official, was born on Nov. 23 in Madison, Wis. He received an M.A. degree from the University of Wisconsin in 1930. Associated with several federal agencies as power engineer and consultant in the years between 1936 and 1941, Krug held an executive post with the War Production board in 1943. The following year, he joined the navy as lieutenant commander, but was back again with WPB as chairman in the fall of 1944. Krug resigned in Oct. 1945. He later returned to government employ at Pres. Harry S. Truman's behest (Feb. 26, 1946) to succeed Harold Ickes as secretary of the interior. In this post, he played an important role in the government's attempts to mediate the strikes of the coal miners in 1946.

The Centralia (Ill.) mine disaster (March 1947) in which 111 persons lost their lives led to sharp exchanges between Krug and John L. Lewis, with the latter attacking the secretary of the interior for alleged failure to enforce mine safety conditions; Lewis also requested that all but two mines be closed because of perilous working conditions. Krug rejected Lewis' demands, hinting (April 10) that the United Mine Workers chief was prompted by "motives other than a concern for safety."

Great significance was attached by administration supporters to a report made (Oct. 18) by a committee of specialists headed by Krug to the effect that "a considerable program of foreign aid" could be undertaken by the government without putting any undue strain on the country's natural resources.

Kuwait: *see* ARABIA.

Kyanite Minerals. This group includes the closely associated minerals kyanite, andalusite, dumortierite and sillimanite.

Kyanite.—Production in the United States was 9,561 short tons in 1943, after which it increased, but was no longer reported. Imports dropped from 14,544 tons in 1945 to 10,782 tons in 1946, mostly from India. Consumption was estimated at 11,500 tons in 1946, down from 15,000 tons in 1945.

Andalusite and Dumortierite.—There was no U.S. production in 1946, as there were stocks to cover current demand.

Sillimanite.—The supply in 1946 was limited to 592 short tons imported from Australia, as there was no U.S. production.

(G. A. Ro.)

Labor, U.S. Department of: *see* GOVERNMENT DEPARTMENTS AND BUREAUS.

Labor Relations Board, National: *see* NATIONAL LABOR RELATIONS BOARD.

Labour: *see* AGRICULTURE; AMERICAN FEDERATION OF LABOR; CHILD WELFARE; CONGRESS OF INDUSTRIAL ORGANIZATIONS; EMPLOYMENT; FEDERAL MEDIATION AND CONCILIATION SERVICE; INTERNATIONAL LABOUR ORGANIZATION; LABOUR UNIONS; LAW; MOTION PICTURES; MUNICIPAL GOVERNMENT; NATIONAL LABOR RELATIONS BOARD; NATIONAL MEDIATION BOARD; NEGROES, AMERICAN; RADIO; RELIEF; SHIPBUILDING; STRIKES AND LOCK-OUTS; SUPREME COURT OF THE UNITED STATES; UNITED STATES; WAGES AND HOURS. *See* also under various states.

Labour Party, Great Britain: *see* POLITICAL PARTIES, BRITISH.

Labour Unions. **United States.**—Developments in organized labour during 1947 were dominated in the United States by new federal legislation and by the continuing postwar boom in business. At its first session the new Republican congress devoted itself to overhauling the nation's labour policy and labour law. On June 23, the senate passed the Taft-Hartley act over the president's veto.

Adoption of this statute marked the first major revision in New Deal labour policies of the 1930s and in the Norris-LaGuardia and Wagner acts. The authors of the new policy had in mind a variety of purposes, but taken together they amounted to curbing the power of organized labour. The act consequently was an "omnibus" measure, containing not only revisions of existing statutes but also many novel features.

Revision of the Wagner act was made in two directions. One set of provisions had as their purpose limiting the authority of the law's administrative agency, the National Labor Relations board. Accordingly, the judicial and prosecuting functions were assigned to separate and independent agencies—the board, with its membership increased from 3 to 5, retaining its judicial functions and a new officer, the general counsel appointed by the president, charged with the duties of prosecution. To limit the authority of these administrative agents further, their findings were made subject to broader review by the federal courts, and the standards of evidence on which they were permitted to act were raised.

The Wagner act was further amended and enlarged in order to impose on unions standards of conduct similar to those required in the original law of employers. Hence the Taft-Hartley act enumerated unfair labour practices of unions, outlawed the closed shop, strengthened the employer's right of free speech, redefined the authority of unions over their members, removed foremen's unions from protection of the law and required all unions to file with the department of labour their constitutions and financial and membership statements.



MOCK STALIN FIGURE, impersonated by a member of the United Auto Workers union employed at the Ford Motor Co. in Dearborn, Mich. Campaigning prior to the election of officers in March 1947, he charged communist control of leadership within his local

In addition to these features, the law removed the conciliation service from the department of labour and set up an independent agency to perform the same functions. There were also elaborate regulations of the calling and waging of strikes.

By the end of 1947, there had been little experience with the operations of the Taft-Hartley act and there had yet been no court decisions interpreting the meaning of the law and the powers of the administrators.

The business boom of 1947, on the other hand, added to the strength of organized labour. Full employment and rising prices and profits fortified the bargaining position of unions. They successfully negotiated a second round of postwar wage increases, amounting to roughly 15 cents an hour, and won many valuable concessions in working conditions. By the end of the year they had regained their early postwar losses in membership and probably added some 500,000 new members. All these advances were made under much more peaceful conditions than had prevailed in 1946. Time lost through strikes declined from 116,000,000 to 35,000,000 man-days. Both employers and unions were unwilling to repeat in 1947 the losses they had suffered in 1946. The unions, also, were apprehensive that a repetition of the labour troubles of 1946 would expose them to still more drastic regulation by congress.

The passage of the Taft-Hartley act and the changes in national labour policies implicit in this statute aroused all unions to renewed political activity. Even the independent railroad unions, though they were not subject to the act but continued to operate under the terms of the Railway Labor act, joined the A.F. of L. and the C.I.O. in uncompromising opposition to the new law. All branches of the labour movement were busy organizing new political agencies or reviving old ones to use in the national elections of 1948. Organized labour was unanimous in its intention to defeat the congressional supporters of the Taft-Hartley act and to erase that law from the statute books.

Political unity was not translated into union unity, however. The C.I.O. proposed that the A.F. of L. join with them in mobilizing the political strength of organized labour, but the A.F. of L. opposed any joint action short of a complete merger of the two organizations. This solution of the problem of disunity the C.I.O. refused to accept. Forces of dissension within the

labour movement thrived in 1947 as in previous years. John L. Lewis took the United Mine Workers out of the A.F. of L., with which they had become only recently reaffiliated, because he was unwilling to sign the anticommunist affidavit required by the Taft-Hartley act. In the C.I.O., the fight against communist factions broke out, notably in the large unions of automobile, electrical and radio, and mine, mill and smelter workers. There was some shifting of affiliations, the most important of which was the shift of several locals from the independent telephone workers to the C.I.O.

The struggle against the communist influence in unions in international labour organizations had swift repercussions in the United States. The new international labour policy of the U.S.S.R., by which unions became instruments of Russian foreign policy, caused a cleavage in the World Federation of Trade Unions. Since the C.I.O. was one of the founders of the W.F.T.U., this development proved highly embarrassing and it sent an emissary to Paris to present to the W.F.T.U. the case for the Marshall plan. The A.F. of L. was strengthened by these events since it had been, from the beginning, an implacable foe of the W.F.T.U. and had consistently opposed any traffic with communist unions. (*See* also AMERICAN FEDERATION OF LABOR; BUSINESS REVIEW; CONGRESS OF INDUSTRIAL ORGANIZATIONS; LAW; NATIONAL LABOR RELATIONS BOARD; STRIKES AND LOCKOUTS.) (L. Wo.)

Great Britain.—The Trades Union congress held at Southport in Sept. 1947 represented 7,540,000 workers, as compared with 6,671,000 in 1946, whereas the number of unions represented fell as a result of amalgamations from 192 to 187. The most important merger was that of the National Union of Distributive and Allied Workers (275,000) with the Shop Assistants' Union (101,000) to form the National Union of Shop, Distributive and Allied Workers. This fusion brought together into one body the well-organized co-operative employees and the much less well-organized workers in private shops and warehouses.

Considerable progress was made in collective bargaining in the distributive trades, in which there had been also an extension of statutory minimum wage regulation under the Wages Councils act. The increase of trade union membership was well spread over the majority of industries, the largest increases being in transport, building, and the engineering trades. The rise in total membership was, of course, largely the result of demobilization from the armed forces, which had increased the number of male workers in industry, whereas the number of women workers had fallen with the return of many married women to family life.

There were no startling developments in trade union policy during 1947. The most important development was a renewal of the pressure for the maintenance of joint production committees, which in many cases had been allowed to lapse after World War II, but were being reinstated in order to help in the production drive for higher exports. The government urged the development of joint production committees, but refused to apply compulsion, on the ground that the matter could be better settled by joint agreements in particular industries.

In face of the balance of payments crisis, the trade unions agreed to a limited measure of direction of labour, designed to secure a better distribution of manpower. Such direction was applied only in exceptional cases, where a worker was unemployed or desired a change of job; but it was recognized that more drastic measures might be needed if the action taken to squeeze out redundant workers by rationing raw materials and fuel to the less essential industries failed to achieve the required effect. The trade unions watched the situation with some anxiety, as they knew that "direction" would be very unpopular and wished to confine it within the narrowest limits that were found to be compatible with the national necessities.

Throughout the crisis, arising first in connection with the bad weather and fuel shortage difficulties in the early months of 1947 and later in connection with the exhaustion of the U.S. loan, there was close consultation between the Trades Union congress and the government. In the matter of wages the unions did their best to avoid exerting any pressure likely to have an inflationary effect, and wage-advances were kept within narrow limits (*see* WAGES AND HOURS) in order to avoid embarrassing the government.

The Trades Union congress of Sept. 1947 passed a resolution urging the need for an over-all production plan setting definite targets for the various industries; and the government responded with the Cripps plan of Sept. 1947. The congress also urged more effective control over prices and measures for the public investigation of costs and profits, including the costs of distribution. Proposals were also put forward for amending the Factories act in order to bring it into line with postwar developments in factory methods and organization. Florence Hancock, of the Transport and General Workers' union, was elected president for 1947–48.

The trade unions continued to collaborate with many government committees, including the working parties which made recommendations for the reorganization of a number of manufacturing industries. There were a number of changes in trade union leadership and in the composition of the Trades Union congress general council, because of the appointment of several trade union leaders to serve as members of the boards of newly socialized industries (mines, transport, electricity) or in other government posts. The civil service unions fully resumed their position in the Trades Union congress, which they were able to rejoin after repeal, in 1947, of the Trade Unions act of 1927.

The number of unofficial strikes was smaller than in 1946, and the agitation against the closed shop died down as it became apparent that the trade unions had no intention of pressing for it in any large number of instances. Total trade disputes were at much the same level as in 1946, involving up to August a loss of 1,610,000 working days, as against 1,498,000 in the corresponding period of the previous year. Coal mining accounted for 428,000 of these lost days, as against 326,000 in 1946. Disputes were most extensive among transport workers, who lost 558,000 days in Jan.–Aug. 1947, as against 67,000 in the first 8 months of 1946. All these totals, however, were very low. In general, disputes were small and of short duration.

The British Trades Union congress maintained its connection with the World Federation of Trade Unions (*q.v.*). Certain demarcation questions arose in connection with the organization of workers in the newly nationalized services, especially in respect to clerical and administrative staffs; but these seemed to be well on the way to amicable settlement. The Trades Union congress further expanded its educational work, especially in the training of trade union officials and the provision of short courses and summer schools for trade unionists. It maintained its representation on the National Council of Labour (with the Labour party and the Co-operative union), and sent a number of missions to help with trade union organization in colonial and other areas. (G. D. H. C.)

Labrador: *see* NEWFOUNDLAND AND LABRADOR.
Labuan: *see* NORTH BORNEO.

Lacrosse. This game, conceived by the American Indian, was expected to take on world importance as a major sport in 1948. It was expected that the sport would be included on the world Olympic program in London in the

summer.

The lacrosse season in the U.S. in 1947 prospered as never before with 32 institutions participating, a record number. In both the 1928 and 1932 Olympic games, lacrosse was demonstrated but not a part of the schedule.

National U.S. champions were Mt. Washington club of Baltimore, Md., in the Open; Johns Hopkins, of Md., in the intercollegiate. The women's national tournament was won by the No. 1 Westchester, N.Y., team which defeated the Philadelphia, Pa., first team. The Philadelphians were defending. The North team defeated the South, 15 to 3. (T. J. D.)

Lamb: *see* MEAT.

Laos: *see* FRENCH OVERSEAS TERRITORIES.

Lard. Production of lard in the United States rose in 1947 as the number of hogs slaughtered increased. Total output of lard was estimated at about 2,300,000,000 lb., compared with 2,114,000,000 lb. in 1946 and a somewhat higher average of about 2,398,000,000 lb. in the previous five years, 1941–45. Stocks were larger at the beginning of 1947—110,000,000 lb. compared with 69,000,000 lb. a year earlier. The civilian supply was estimated at more than 12 lb. per capita, compared with 11.8 lb. in 1946. Exports declined below the 1946 level of 469,000,000 lb. The price of lard reached a peak in March 1947 and then declined almost one-fourth.

World production followed the trend in hog production which declined slightly in 1947. In June, July and August the United States Department of Agriculture purchased about 85,000,000 lb. of lard for Austria, and the United States and British zones of Germany. The United Nations Relief and Rehabilitation administration made considerable purchases in the early part of 1947 to complete its obligations of foreign aid. Very small amounts were otherwise exported. (*See* also HOGS; MEAT; VEGETABLE OILS AND ANIMAL FATS.) (J. C. Ms.)

Latin America: *see* ARGENTINA; BOLIVIA; BRAZIL; BRITISH GUIANA; BRITISH HONDURAS; CHILE; COLOMBIA; COSTA RICA; ECUADOR; FRENCH OVERSEAS TERRITORIES; GUATEMALA; HONDURAS; NICARAGUA; PANAMÁ; PARAGUAY; PERU; SALVADOR, EL; SURINAM; URUGUAY; VENEZUELA.

Latter Day Saints: *see* MORMONS.

Latvia. One of the Baltic states of northeastern Europe, north of Lithuania, south of Estonia; an independent republic 1920-40, a republic of the U.S.S.R. 1940-41, part of the German "Ostland" 1941-44, reintegrated into the U.S.S.R. after the reconquest of 1944-45. Area 25,395 sq.mi.; population (census 1935) 1,950,502, (est. 1940) 1,994,506. Capital, Riga (393,211 in 1939); the other principal city is Liepaja (57,098 in 1935). Language, Latvian. Religion, Christian (Protestant 56%; Roman Catholic 24.5%; Greek Catholic 9%; Greek Orthodox 5.5%). Chairman of the Council of Ministers: Vilis Lacis.

History.—Latvia suffered severely during World War II from both Russian and German armies which swept through the country. The old part of Riga was hardest hit by Russian bombers during the German occupancy. More terrifying to the people were the mass deportations carried through by both great power conquerors. Thousands were taken to Germany as forced labourers and many of them were still in Germany in 1947, either unable or unwilling to return to soviet-controlled Latvia. Thousands more, particularly farmers and intelligentsia, were deported by communist authorities to the interior of the U.S.S.R., these to become labourers or settlers. Russians were then sent in to Latvia to take over the jobs or the farms of the deportees. Often, it was reported, these newcomers would even take the names of the dispossessed, and the Russian political leaders in charge of the country also assumed Latvian names. Still a third class of exiles attempted escape across the Baltic to Sweden.

According to a report to the London *Economist,* Latvia was becoming rapidly Russified, and the Russian language had become official. To a large extent, small peasant proprietorship characterized the landholding system, continuing the basic policy of the agrarian reforms of the 1920s. Skilled artisans continued to operate independently and private business thrived. During 1947, however, Latvia probably experienced some farm collectivization just as did Estonia to the north. Evidently the process would be slow.

Latvia continued a very peculiar twilight existence internationally. Neither the U.S. nor Great Britain recognized the establishment of the Communist republic in 1944; Latvian diplomats continued to enjoy the hospitality of London and Washington. In May 1947 the British undersecretary C. P. Mayhew stated that Britain recognized *de facto* the regimes created by the U.S.S.R. in the three Baltic states, and he refused to guarantee that *de jure* recognition would not follow.

That all was not well in Latvia was clear from Russian sources where it was admitted by the Russian finance minister A. Zverev that the soviet state was having difficulties collecting taxes in the country.

Industrial reconstruction and expansion was proceeding. Libau served as the main port because of the destruction of Riga and carried on an active trade. Meanwhile, Riga's port facilities were being rebuilt, and the city was booming. The railway to Moscow was being double-tracked all the way, with occasional stretches of three and four track line. (F. D. S.)

Law. Congress freed business from most of the remaining entanglements of emergency and war laws during 1947, but threw a net of controls about labour unions and their officials through the passage of the Taft-Hartley act. The First Decontrol act of 1947 revoked the president's broad emergency and war powers under the Second War Powers act except for specified purposes; and on July 25 congress wiped out the bulk of control laws still on the books. Slight concessions to the proponents of control were made in three enactments: The Second Decontrol act, extending the president's power over certain materials in critically short supply; the Housing and Rent act, extending rent control in a relaxed form to Feb. 29, 1948; and the Anti-Inflation bill which congress tossed into the president's lap in December at the end of its special session as its answer to his demand for a ten-point inflation control program. This bill tendered the president authority to limit the use of grain for distilled liquors for five-week periods and extended export controls and the power to allocate transportation facilities and equipment, but beyond that provided no economic controls.

Shying away from drastic measures in any field except labour-management relations, congress gave its attention mostly to patching up existing statutes and to housekeeping problems. As a sequel to the Reorganization act of 1946, designed to streamline congress, an act was passed establishing a Commission on Organization of the executive branch of the government to study and report on means for improving the economy and efficiency of service in departments, agencies and bureaus. Congress also attempted to forestall the difficulties which might follow the death, resignation, removal from office or disability of both the president and vice-president by enacting the Presidential Succession act which provided that in such a contingency the powers and duties of chief executive should devolve in turn upon the speaker of the house of representatives, the president pro



"STRIP MINING," Burck's conception, in the *Chicago Times*, of John L. Lewis' legal setbacks after the coal strike of late 1946. In March 1947, the U.S. supreme court upheld the contempt charges made against Lewis by a U.S. district court

tempore of the senate and thereafter upon the cabinet officers in the order of their traditional rank.

On March 24 by joint resolution congress proposed an amendment to the constitution providing that no person shall be elected to the office of president more than twice and that no person who has held office of president for more than two years of a term to which some other person was elected shall be elected more than once. To become operative the amendment must be ratified by the legislatures of three-fourths of the states within seven years.

No distinct trends were discernible in the development of private law, although a spate of litigation, often novel in the issues presented, arose out of the pressure of inflation and housing and production shortages. Trial and appellate courts were called upon to adjust bitter battles between landlords and tenants and to determine disputes growing out of the frustration of persons desiring automobiles. Not only were many actions still coming to trial for the enforcement of penalties for black market deals prior to the expiration of price control, but suits were also brought, seldom successfully, to obtain cars by writs of replevin and specific performance of sales contracts.

Only the more important legal developments of general interest are reported in this article.

Administrative Law.—The supreme court applied the substantial evidence rule to sustain three rulings (later nullified by the Taft-Hartley act) of the National Labor Relations board upholding the right of foremen and plant guards to representation through their own unions. In another case, which had been sent back to the labour board to enable an employer to present evidence previously rejected, the supreme court said that the board did not have to hold a trial *de novo* and listen to a rehearsal of evidence already recorded in some 13 volumes of 5,000 typewritten pages (*NLRB* v. *Donnelly Garment Co.*, 67 S. Ct. 756).

Some interesting aspects of judicial review were expounded by the supreme court in *SEC* v. *Chenery Corp.*, 67 S. Ct. 1575. The court supported the authority of the Securities and Exchange commission to evolve rules on a case-to-case basis for meeting and solving new administrative problems. The court also pointed out, in affirming an SEC order, which it had previously reversed, that the commission had originally grounded its rulings on a wrong view of the law. The court had been powerless, it said, to affirm the results, even though correct, by substituting a sound basis for that advanced by the agency. The case had therefore been remanded to the commission which "had re-examined the problem, recast its rationale and reached the same results." Thus properly supported, the ruling was affirmed.

The actions of other agencies were upheld by the supreme court in decisions which approved: the removal by the board of directors of the federal reserve system of the director of a member bank on the ground that he violated the statutory prohibition against employees engaging in the underwriting business; the appointment by the Federal Home Loan Bank board of a conservator for a savings and loan association without notice; the authority of the price administrator to delegate to regional and district directors the function of signing and issuing subpoenas, which was implicit in the broad rule-making powers granted by the Price Control act; and the jurisdiction of the Federal Power commission to regulate sales of natural gas conveyed by pipeline across state boundaries.

The high court, however, declared that the Interstate Commerce commission exceeded its statutory powers when it attempted to modify a certificate of convenience granted to a water carrier and also when it approved freight rates that destroyed the advantages of low cost barge shipment of grain. Similarly the treasury department was ruled out of bounds in two cases for its classification of employees under the Social Security act.

The attempt of a litigant to by-pass agency procedure by obtaining a declaratory judgment in court when a statute expressly provides for a preliminary administrative decision was rebuffed by the supreme court. It dismissed a suit brought by a government subcontractor to have the Renegotiation act declared unconstitutional on the grounds that he should have taken the matter to the tax court which was given authority by congress to make the initial decision in such a case (*A & D Equipment Corp.* v. *Hirsch,* 67 S. Ct. 1493).

Agriculture.—Two Idaho farmers paid dearly for their failure to read the regulations of the Federal Crop Insurance corporation published in the *Federal Register.* In a 5 to 4 decision the supreme court denied them compensation for the loss of 400 ac. of spring wheat reseeded on winter acreage. The regulations, which precluded such coverage, were binding on all who sought crop insurance, the court said, even though they may have been misled by a government agent into thinking they were protected. The government's liability in this respect is not the same as that of a private insurance company (*Federal Crop Ins. Corp.* v. *Merrill,* 68 S. Ct. 1).

The protection of the Crop Insurance act was further narrowed by congress through amendments which restricted crop insurance to counties where (1) income from insured crops is of primary importance, (2) the failure of such crops would bring disaster and (3) a sound program can be successfully provided.

Among other enactments affecting agriculture was the Sugar act of 1948 (adopted in 1947) designed to stabilize sugar producing, refining and importing industries through the use of quotas allocated to certain areas.

The Kansas supreme court strengthened the position of farmers' co-operatives by a decision which approved the far-flung

activities of one of the nation's largest co-operative enterprises. The organization's charter permitted it to engage in any activity connected with manufacturing, selling or supplying its members with machinery, equipment or supplies. This by implication included the authority to own and operate oil refineries, canning plants and lumber mills, to engage in international trade and to sell its products to nonmembers as an incident to its other activities (*Kansas* v. *Consumer's Co-op. Assn.*, 183 P. 2d 423).

Aliens and Citizenship.—The attempt of a labour contractor to evade the provisions of the Immigration act under cover of the wartime Farm Labor Supply act was blocked by the supreme court. The latter law did not authorize a would-be employer to circumvent the established immigration process. The contractor was rightly prosecuted for writing to persons in Mexico offering to smuggle them into the United States for the price of $25 each (*U.S.* v. *Lem Hoy*, 67 S. Ct. 1004).

In two decisions the supreme court passed upon the application of provisions of the First War Powers act of 1941, amending the Trading with the Enemy act of 1917. In the first case the court ruled that a Swiss national had a right to the return of property seized by the alien property custodian even though these statutes authorized the seizure of property of any foreign nationals whether or not they are enemies or allies of enemies. Congress intended to reach enemy interests masquerading under innocent fronts but not to appropriate assets belonging to friendly or neutral nations where there was no possible enemy taint (*Clark* v. *Uebersee*, 68 S. Ct. 174). In the second case the court supported the authority of the custodian to vest in himself shares of stock of a U.S. corporation held by a Swiss corporation as pledgee for the benefit of a German corporation in spite of a provision of the original Trading with the Enemy act that a pledgee who is not an enemy or an ally of an enemy may continue to hold property under the terms of the pledging agreement (*Silesian Corp.* v. *Clark*, 68 S. Ct. 179).

The claims of four German heirs to land in California devised to them by a relative residing in that state were upheld by the U.S. supreme court against the contention of American heirs that a California statute barred German nationals from sharing in the estate. The court ruled that a 1923 treaty between the U.S. and Germany, guaranteeing reciprocal rights of inheritance to the citizens of the two signatory nations, was paramount to state law. Neither the subsequent war nor U.S. war statutes abrogated the treaty rights (*Clark* v. *Allen*, 67 S. Ct. 1431).

The immigration laws were amended for the benefit of U.S. servicemen who had married or pledged themselves to marry aliens while overseas. The so-called Brides act of 1945 was revised to permit racially inadmissible spouses of U.S. citizen members of the armed forces to enter the U.S., if otherwise admissible. This was intended to enable soldiers of Korean and Japanese descent, who had married girls of the same racial origin, to bring their wives into the country. The time limitations of the Fiancee act of 1946, which permitted aliens betrothed to members of the armed forces to enter the U.S. on visitor's visas, were extended.

Business Regulation.—Southern and western states won the first round in their long fight to wipe out sectional discrimination in railroad freight rates. The supreme court sustained an order of the Interstate Commerce commission increasing "class rates" in eastern territory and decreasing them in the south and west. The court found legislative authority for the order in the 1940 amendment to the Interstate Commerce act which enlarged the commission's power to prevent discrimination (*N.Y.* v. *U.S.*, 67 S. Ct. 1207).

The supreme court gave some comfort to the proponents of vigorous antitrust law enforcement by approving a complaint charging Chicago taxicab interests with restraints of trade in violation of sections 1 and 2 of the Sherman act. In sending the case back to the district court for trial, the supreme court threw out the defendant's arguments that its interstate activities affected national commerce only slightly and constituted only a small part of its entire business. Neither the relation of the defendant's interstate trade to interstate business generally nor to the defendant's entire business was material. "It is enough if some appreciable part of interstate commerce is the subject of monopoly" (*U.S.* v. *Yellow Cab Co.*, 67 S. Ct. 1560).

How valuable this ruling might become remained to be seen. The difficulties of making the antitrust laws effective were illustrated by the government's unsuccessful attempt to set aside the sale by the Pullman company of its car servicing and operating business to a group of railroads which handle 95% of the passenger traffic in the U.S. The sale, which followed a court order for divestiture, was attacked by the attorney general on the ground that it substituted a more powerful monopoly for the one dissolved. But the supreme court, dividing 4 to 4, left the sale undisturbed.

The problem of enforcing the antitrust laws became even more difficult when the government's antitrust division tackled business combinations which were buttressed by legalized monopolies granted under the patent laws. The government's suit against the titanium trust was only partially successful. Through control of more than 300 patents the two defendant corporations dominated 90% of U.S. trade in titanium, which had become the chief base for making paint. The defendants also practically divided the world market between them. Nevertheless the district court merely directed the defendants to issue patent licences to applicants on a reasonable basis, overruling the attorney general's plea for royalty-free licensing and that each defendant be required to divest itself of one of its principal plants. In affirming this decree, the supreme court refused to send the case back to the district court with directions to make the relief more effective. The decree should not be broadened, the court said, because it represented an exercise of sound judicial discretion. Actually the trial judge had limited the relief because he thought he had no discretion under the high court's prior rulings (*U.S.* v. *National Lead Co. and du Pont Co.*, 67 S. Ct. 1634).

The supreme court found no difficulty in banning a simpler type of restraint on trade exercised in connection with patent rights. Leases of patented salt dispensing machines which required the lessees to use only salt produced by the lessor violated the Sherman act, the court ruled. Such tie-in agreements were a misuse of the patent monopoly to restrict competition in an unpatented product (*International Salt Co.* v. *U.S.*, 68 S. Ct. 12). In several other cases private litigants pleaded that violations of the antitrust laws had invalidated patent licensing agreements. Patent owners, who sought to recover royalties under agreements fixing the resale prices for the patented articles, were told by the supreme court that such agreements violated the antitrust laws. The licensees could therefore properly contest the validity of the patents, even though they had specifically waived such right in the licensing agreement. The way should be kept open, the court said, for interested persons to challenge patent monopolies. In a third case the purchaser of a business had also acquired the exclusive licence to make and sell certain machines under the vendor's patents, but the agreement required the purchaser to assign to the seller any improvements patents which might be acquired during the period of the agreement. By a 5 to 4 decision the supreme court held that such an agreement was not in itself illegal. The use of one legalized monopoly to acquire another is not a violation of the antitrust laws, the court said.

A limit was set by the supreme court, however, on the extension of another form of legalized monopoly. A producer of sparkplugs had obtained a lower court order prohibiting the sale of reconditioned secondhand sparkplugs bearing its trademark, but the high court held this went too far. The sale of such reconditioned articles is lawful provided that the words "used" or "repaired" are stamped on them. The removal of all labels on secondhand articles offered for resale is not necessary to prevent deception (*Champion Sparkplug Co.* v. *Sanders,* 67 S. Ct. 1136).

The 1945 Insurance Moratorium act, exempting insurance business from federal regulation, was extended to June 30, 1948.

Civil Rights.—The year was not notable for any far-reaching decisions on civil rights by the supreme court of the United States. Most significant were its pronouncements in reviewing the proceedings of state courts in criminal cases. The court insisted that due process requires that a defendant be fully advised of his rights, especially his right to counsel. The court also ruled that the guarantee of equal protection of the laws was violated by the systematic exclusion of Negroes from grand and petit juries in Mississippi for 30 years. The equal protection clause also brought relief against discrimination to a racial minority in California when a federal circuit court forbade school officials in that state to segregate children of Mexican descent by sending them to separate schools.

A majority of the supreme court justices eloquently defended freedom of the press in *Craig* v. *Harney,* 67 S. Ct. 1249, holding that the contempt power of the courts must not be used unreasonably to infringe this right. Applying the familiar "clear and present danger" test, the court reversed jail sentences against the publisher, editor and a reporter of a Texas newspaper for characterizing the conduct of a local judge in a pending eviction trial as high-handed and outrageous. "The vehemence of the language used is not alone the measure of the power to punish for contempt," said Justice Douglas. "The fires that it kindles must constitute an imminent, not merely a likely, threat to the administration of justice."

In two cases, which might have considerable impact on the operations of political machines, the supreme court upheld provisions of the Hatch act as valid limitations on freedom of speech. The court affirmed the discharge of a worker in the federal mint for violating the Hatch act by taking active part at the polls during an election. If strictly applied, this decision would bar some 3,000,000 U.S. employees from political activity in federal elections (*United Public Workers* v. *Mitchell,* 67 S. Ct. 556). The application of the Hatch act was further extended to nearly 1,000,000 state employees by another decision that its restrictions also apply to all who work in departments receiving federal aid (*Okla.* v. *U.S.,* 67 S. Ct. 544).

A Massachusetts trial judge pronounced the novel *Forever Amber* not guilty of obscenity in proceedings under an amendment to the state law permitting suit to be brought to ban an indecent book without requiring inflicting a penalty upon the seller. The judge adopted the view of defense witnesses that the story was more conducive to sleep than to immorality.

Perhaps more important than court decisions was the report entitled *To Secure These Rights,* released by President Harry S. Truman's commission on civil rights, headed by Charles E. Wilson, president of the General Electric company. The commission recommended a carefully worked out program to strengthen the machinery for the protection of civil rights through legislative, administrative and judicial processes. (*See* also the article CIVIL LIBERTIES.)

Decisions on other aspects of civil rights are reported in this article under *Constitutional Law* and *Criminal Law.*

Constitutional Law.—A fierce controversy over the ownership of oil lands under water off the California shore was adjudicated but not ended by a supreme court decision holding in favour of federal ownership. The U.S. has paramount rights in all land underlying the Pacific ocean within three miles of the low tide mark on the California coast except for bays, harbours and other inland waters, the court ruled. The contention of California that the original states owned the land under navigable tide waters in trust for their states was rejected. The court, however, said that congress has power to dispose of property belonging to the U.S. This pronouncement stimulated the campaign for legislation transferring tidelands from national to state ownership, but congress took no action (*U.S.* v. *California,* 67 S. Ct. 1658).

Another *cause célèbre* revived the age-old controversy over separation of church and state. By a 5 to 4 decision the supreme court approved a New Jersey law under which the parents of children attending parochial schools may be reimbursed for bus fares. While ruling that the first amendment, which prohibits any law respecting an establishment of religion, applies to the states as well as the federal government, the court found that the New Jersey statute made no provision for state support of religious schools. It merely provided a general program to help parents send their children to school safely without regard to religion (*Everson* v. *Board of Education,* 67 S. Ct. 504). For similar reasons the California supreme court upheld a "released time" plan by which the state provides transportation for pupils whose parents wish them to be released from school for religious instruction outside of school. The supreme court of Iowa, however, approached this highly controversial subject quite differently in ruling that school districts had no right to furnish transportation to students attending parochial schools even though their parents were ready to pay their share of the cost. There was serious danger, the court said, that private schools might thereby come under the control of the state. In Illinois the atheist mother of a public school child lost her fight against a program of sectarian religious instruction to voluntary segregated groups of children in a public school. This arrangement did not interfere with the religious freedom of the individual pupil nor constitute state aid to religious institutions and therefore did not violate either state or federal constitutional guaranties, according to the Illinois supreme court.

The commerce clause was applied by the supreme court to support the regulation by the Federal Power commission of rates charged by a natural gas company which mingled its gas with that of other producers before selling it to pipeline companies which then pumped it across state lines (*Interstate Natural Gas Co.* v. *FPC,* 67 S. Ct. 1482). But in another case the court held that the power of the national government in this respect is supplementary to that of the states and does not preclude the state of Indiana from regulating rates on sales of gas delivered directly to industrial consumers even though brought in from other states (*Panhandle etc. Co.* v. *Pub. S. Comm.,* 68 S. Ct. 190).

Following the trend of the past few years the supreme court held that persons engaging to any degree in interstate business subject themselves to federal regulatory laws. A defendant, so engaged, was held liable to prosecution for making a false guarantee that his products were not adulterated or misbranded in violation of the federal Food, Drug and Cosmetics act, even though there was no proof that the articles so guaranteed had actually entered interstate commerce (*U.S.* v. *Walsh,* 67 S. Ct. 1283).

The rapidly developing doctrine of *forum non conveniens* was used to qualify the constitutional right of litigants to resort to the federal courts in diversity of citizenship cases. Corporation defendants were successful in obtaining the dismissal of actions

brought against them in districts where it was inconvenient for them to defend. In approving these dismissals the supreme court indicated that district courts should have considerable discretion in weighing the inconvenience to the defendant against the convenience to the plaintiff. The court's own convenience might also be considered.

The voters of New Jersey approved the state's new constitution to go into effect on Jan. 1, 1948, except for the judicial article which would become effective Sept. 15, 1948. The new basic law revamps the judicial system by changes which include the replacement of the 16-member court of errors and appeals with a new supreme court of 7 justices. New rights and privileges are added to those formerly guaranteed. No person may be limited in his privileges because of race, colour, sex, religion or national origin. New Jersey thus became the first state to give equal constitutional rights to women. Labour is guaranteed the right to organize and bargain collectively in private employment and to organize and present grievances through representatives of its own choosing in public employment. The right of trial by jury is modified to permit verdicts by a majority of five-sixths of the jurors. The governor's term was increased from three to four years with elections in odd numbered years to avoid confusion with national elections. Twenty executive departments would replace the 80 former departments, agencies and commissions. The legislature is authorized to assist slum clearance projects through grants of tax exemptions to private enterprises for a limited period.

Criminal Law.—The United States supreme court exercised its right to review the proceedings of state courts in criminal trials in a series of cases involving the right to counsel, the constitutional prohibition against cruel and unusual punishments, the privilege against self-incrimination and the manner of selecting jurors. The court took the view that justice should be sure but not too swift. It set aside the conviction in Michigan of a 17-year-old boy for murder, because he had been "hurried through unfamiliar legal proceedings without a word being said in his defense" and without representation by counsel or advice concerning his rights (*DeMeerleer* v. *Michigan,* 67 S. Ct. 596). The court found an even more flagrant deprivation of due process in Illinois where an 18-year-old defendant, unable to speak English, had been sentenced to life imprisonment for murder, without representation by counsel, within one week after his indictment. The record did not show that the defendant had been advised of his right to counsel. Repeated attempts to obtain a review of his case had been blocked by procedural technicalities. In remanding the cause, after the defendant had served 22 years in prison, the supreme court excoriated the state of Illinois for the "procedural morass" of its laws relating to criminal appeals. Convicted defendants who seek relief from the violation of their constitutional rights "are required to ride the Illinois merry-go-round of *habeas corpus, coram nobis* and writ of error before getting a hearing in a federal court." (*Marino* v. *Ragen,* 68 S. Ct. 241.)

In two other Illinois cases, however, the supreme court by votes of 5 to 4 rejected claims that the defendants had been unjustly denied counsel since the docket entries showed that they had been fully informed of their rights (*Carter* v. *Illinois,* 67 S. Ct. 216; *Foster* v. *Illinois,* 67 S. Ct. 1716). Similarly the high court refused to disturb the conviction by a New York court of a defendant who had declined the services of a lawyer when asked by the court if he wanted one (*Gayes* v. *New York,* 67 S. Ct. 1711).

Another aspect of due process came before the supreme court on the appeal of a defendant convicted of murder who had declined to testify in his own behalf for fear that he would thereby have to admit a former conviction. The defendant complained that the provision of the California constitution which permitted the judge and prosecutor to comment on his failure to take the stand had deprived him of a privilege or immunity and denied him due process as guaranteed by the 14th amendment. But the court ruled 5 to 4 that there had been no deprivation of due process. Nor did the protection of the 5th amendment against incriminating one's self become available as a "privilege" of national citizenship guaranteed by the 14th amendment (*Adamson* v. *California,* 67 S. Ct. 1672).

In two cases the high court passed upon the practice of hand picking juries in criminal cases. A new trial was ordered for a Mississippi Negro, condemned to the electric chair for murdering a white man, on the grounds that there was a strong showing of "purposeful racial discrimination" through the systematic exclusion of Negroes from the state grand and petit juries for more than 30 years (*Patton* v. *Mississippi,* 68 S. Ct. 184). On the other hand the practice of selecting a "blue ribbon jury," sanctioned by New York statute, was approved by the court in a 5 to 4 decision rejecting the defendant's contention that he had been discriminated against by the exclusion of labourers, foremen, service employees and women from the jury panel. The majority of the court found that there was no showing that the specially selected jurors were more likely to convict than ordinary jurors (*Fay* v. *N.Y.,* 67 S. Ct. 1613).

The supreme court dealt with a unique problem in considering the appeal of Willie Francis, a 17-year-old Louisiana Negro, for freedom on the ground that he should not be executed for murder because the state had failed in its first attempt to electrocute him. He lost his fight for life but won a place in legal history when the supreme court by a 5 to 4 vote held that execution of the sentence was not a cruel and unusual punishment in violation of constitutional rights. Two other points raised on his behalf, namely, that he was being deprived of equal protection of law and was placed in double jeopardy, were brushed aside by the court (*Louisiana* v. *Resweber,* 67 S. Ct. 374).

Another 5 to 4 decision of the supreme court evoked a storm of criticism. The court upheld the search of a citizen's home and the seizure of his papers without a search warrant as an incident to his arrest. Officers, who had gone to arrest the defendant on a charge of passing forged checks, could find no such checks but did discover an envelope marked "personal papers." Upon opening this they found draft registration cards unlawfully held. The defendant was prosecuted for possessing such cards. The court's ruling rested on the ground that the defendant was committing the crime of unlawfully possessing draft cards in the very presence of the arresting officers, but in effect it gave authority to officers who are making a lawful arrest to search both the person arrested and his home (*Harris* v. *U.S.,* 67 S. Ct. 1098).

The law of treason was somewhat elaborated by the supreme court in sustaining the conviction of Hans Max Haupt at his second trial for sheltering and aiding his son, Herbert Haupt, executed nazi saboteur. The constitutional requirement that treason must be proved by the testimony of two witnesses to the same overt act had been fulfilled even though the treasonable character of the act was not proved by the same two witnesses (*Haupt* v. *U.S.,* 67 S. Ct. 874).

Family Relations.—In its only decision of the year affecting family relations, the supreme court ruled that a New York court had the power to modify a Florida decree granting a mother custody of her child. While suit was pending the father had managed to take the child from the mother in Florida to New York. The next day the Florida court granted her a divorce and custody of her son. She then brought habeas corpus proceedings in New York and was awarded the child subject to the father's right of visitation, a proviso which she contested. The

supreme court said, however, that an out-of-state court, in doing what the Florida court might have done, did not violate the full faith and credit clause of the federal constitution (*N.Y. ex rel. Halvey* v. *Halvey,* 67 S. Ct. 903).

The perennial conflict over proposals to tighten or to relax divorce laws was waged in many state legislatures with a slight trend toward liberalization. Most startling was the adoption by the South Carolina assembly of a resolution providing for a referendum at the next general election in 1948 on the proposal to repeal the state's constitutional prohibition against divorce and to permit divorce for adultery, physical cruelty, desertion or habitual drunkenness.

Arkansas joined the small group of states permitting absolute divorce from an insane spouse where the mental illness has continued for three years.

Efforts to slow down the operation of Chicago divorce mills through special legislation which by its terms could only apply to Cook county were checked by the Illinois supreme court. The new law, which provided for the appointment of four special masters in chancery to hold preliminary hearings in family relation cases, was designed to reduce the number of split families and insecure children through reconciliation procedures and thereby to decrease juvenile delinquency. This objective was commendable, the court said, but the statute was invalid because it could apply only to one county (*Hunt* v. *County of Cook,* 76 N.E. 2d 48).

Housing and Rent.—The Housing and Rent act of 1947 removed government controls over all construction except certain amusement and recreational facilities and amended the National Housing act by giving the administrator power to insure loans for the mass production of housing for World War II veterans. As a further stimulus to building, congress by various enactments increased the amount of mortgage insurance available for construction loans on private homes; made $750,000,000 of mortgage insurance available to veterans for the purchase of permanent housing including war housing built by the government; authorized federal home loan banks to accept mortgages with a 25-year maturity as collateral instead of restricting them to 20-year maturity paper; and released local housing authorities from building cost limitations on low-cost-housing and slum-clearance projects. These federal efforts to relieve the housing shortage were supplemented in many states by the appropriation of funds to provide new dwellings of various types with special emphasis on the needs of veterans.

Proponents of urban redevelopment programs were encouraged by a decision of the Pennsylvania supreme court which upheld the constitutionality of a state law empowering cities to condemn blighted areas for redevelopment by private builders.

Rent controls in a greatly modified form were extended to Feb. 29, 1948, under Title II of the Housing and Rent act, to be administered by the housing expediter. Certain types of accommodations, including hotels, motor courts and tourist homes serving transient guests, newly built, newly rented and converted units and luxury priced quarters were exempted from further control. But the rents of other housing units in defense-rental areas were frozen at the level of June 30, 1947, except (1) that a landlord and tenant might before Dec. 31, 1947, enter into a lease at a rental 15% above the maximum, running to the end of 1948, (2) that the expediter was authorized to make such rent adjustments as might be necessary to correct inequities, and (3) that he might remove all rent ceilings in any defense-rental area if in his judgment the need for control had ceased. The OPA rent regulations and controls over evictions were terminated, and the emergency court of appeals was abolished. The expediter was also directed to create local advisory boards in each area with five or more members to be appointed by him on recommendations made by the state governor. Such boards were authorized to make recommendations for decontrol of an area, the adequacy of rent levels and the operation of the local office, but the weight to be given such recommendations was not indicated.

Many states and municipalities adopted rent control laws to go into effect if and when federal rent controls should expire.

Labour.—The strong legal position acquired by unions under the Wagner, Norris-LaGuardia and Wage-Hour acts was shaken by a series of events commencing with the struggle between John L. Lewis and the U.S. government. A succession of strikes in key industries had culminated late in 1946 with the walk-out of soft coal miners in disregard of a district court injunction. The consequent entry of an order finding the United Mine Workers union and its president in contempt of court was affirmed by the U.S. supreme court in March 1947. The assessment of $3,500,000 against the union was cut, however, to $700,000 contingent upon compliance with the court's order, but the fine of $10,000 against Lewis was not disturbed. This case provoked an extraordinary divergence of views among the justices who aligned themselves in five groups supporting five different opinions on different aspects of the controversy. In substance the court held that the miners were government employees under the government's seizure of the mines, that the government was not subject to the provisions of the Norris-LaGuardia act outlawing injunctions by federal courts in labour disputes, and that the trial court had power to issue a restraining order to preserve existing conditions pending a decision upon its own jurisdiction. Arguments by union counsel that civil and criminal contempt proceedings could not be merged were swept aside on the ground that no substantial prejudice had been shown.

Following upon this decision congress enacted the Labor-Management Relations act of 1947 (Taft-Hartley act) as an amendment to the National Labor Relations or Wagner act, thus inaugurating a new era in labour law. Through a series of interlocking provisions the new statute imposes a complex of duties, restrictions and liabilities upon unions and their officials and expands the rights and powers of management and government. It prescribes standards of conduct for organized labour, declaring it an unfair practice for unions to do any of the following: to coerce either employers or employees, to force discrimination under union-shop contracts, to refuse to bargain, to engage in certain types of strikes or secondary boycotts, to engage in "featherbedding," or to extort excessive dues or fees. The check-off is permitted only in case the employee has given his employer a written assignment authorizing the deduction of union dues from his pay check. The new act sanctions union-shop contracts but forbids closed-shop agreements which require the hiring of union members or that hiring be done through unions. Strikes are barred during a 60-day cooling-off period; and injunctions are authorized (free from the prohibitions of the Norris-LaGuardia act) to stay strikes of industry-wide character for a period of 80 days. Unions are also made liable as entities to court proceedings and judgments. A new Federal Mediation and Conciliation service is created to help settle disputes threatening tie-ups in interstate commerce. Unions are required to file with the secretary of labour financial reports, copies of union rules and regulations, and the affidavits of their officers denying communist affiliation. Unions as well as corporations are forbidden to make campaign contributions in federal elections. Strikes by government employees are outlawed. Certain provisions of the Wagner act defining unfair practices by employers are continued but their liabilities as to the expression of opinion and the discharge of employees are narrowed. Employers are also given the right to file charges of unfair practices against unions.

The passage of the Taft-Hartley act set off a chain reaction in state legislatures. Union control laws, variously aimed at curbing jurisdictional strikes, secondary boycotts, sympathy walkouts, work slowdowns, mass picketing and closed-shop contracts, were enacted in a dozen or more states. At least 11 states adopted laws designed to prevent strikes in transportation and public utility industries by imposing penalties or providing by state seizure and operation to assure the continuation of essential services.

North Carolina's new anti-closed-shop law was held constitutional by the state supreme court, but no controversies under similar state statutes or the Taft-Hartley act were determined by the U.S. supreme court during the year. Several decisions of the federal high court were nullified, however, by provisions of the Taft-Hartley law which relieved employers from recognizing unions of supervisory personnel and isolated organizations of plant guards from rank-and-file unions. The supreme court had recognized the rights of both types of employees to the benefits of the Labor Relations act.

On the very day (June 23) when congress passed the Taft-Hartley act over the president's veto, the supreme court dealt union leaders another blow in a decision overruling the contention of James C. Petrillo, head of the musicians' union, that the Lea act is unconstitutional. Petrillo had been charged with using coercion to compel radio stations to employ more persons than needed to perform actual services. The court held that the statute did not violate the due process clause, nor was it too vague or uncertain as contended by counsel for Petrillo (*U.S.* v. *Petrillo,* 67 S. Ct. 1538).

Concern over the potential liabilities of corporations under the overtime pay decision in the Mount Clemens Pottery company case in 1946 inspired enactment of the Portal-to-Portal act of 1947, which exempts employers from liability under the Fair Labor Standards act and related statutes for failure to pay minimum wages or overtime for activities of employees in travelling to and from the actual place of performance of their principal work unless otherwise covered by contract or consumer practice.

Social Security.—The status of employees under the Social Security act was determined by the supreme court in two cases. Workers who unloaded coal under contract with a coal dealer, were held to be employees covered by the act; while drivers, who operated their own trucks under contract with coal dealers and motor carriers, were held not to be employees but independent contractors. There is no absolute test, the court said, but the total situation, including the risk undertaken, the control exercised, opportunity for profit, permanency of the relationship and skill required must be considered in deciding the status of workers. No one element is controlling nor is the list complete. The decision construed two sections of the Social Security act and two sections of the Internal Revenue code (*U.S.* v. *Silk,* 67 S. Ct. 1463).

In the second case the commissioner of internal revenue had ruled that a union contract which designated the owner of a ballroom as the employer of a dance band shifted the social security tax from the leader of the band to the ballroom owner. The supreme court, however, told the commissioner that he should have examined the facts instead of construing a private contract which was beyond his authority. Since the band leader hired and fired the band members, told them what to do and how they should do it, paid their salaries and expenses, took the profit and bore all losses, he was the employer and must pay the social security tax (*Bartels* v. *Birmingham,* 67 S. Ct. 1547).

The 1% social security tax rate on wages was extended by congress through the year 1949 both as to employers and employees with provisions for stepping up the rate to 1½% during 1950 and 1951 and 2% thereafter. Federal grants-in-aid to states for assistance to blind, needy and dependent children were continued.

Taxation.—In two decisions of general interest to taxpayers the supreme court ruled that all income tax refund claims must be filed within three years from the filing of the income tax return or within two years from the date of paying the tax. A four-year period allowed by the internal revenue code for claiming refunds on certain other types of levies does not apply to income taxes. The fact that refunds are asked for taxes erroneously or illegally collected makes no difference. Relief from any resulting injustices can be provided only by congress (*Jones* v. *Liberty Co.,* 68 S. Ct. 229).

The efforts of taxpayers to reduce income taxes through the shift of investments between members of a family were thwarted by the supreme court. The sale by one spouse of shares of stock and the purchase of an identical number of shares of the same stock by the other spouse on the same day could not be used to create capital losses. Such transactions were in effect sales between members of a family which are expressly disallowed as deductions by the internal revenue code (*McWilliams* v. *IRC,* 67 S. Ct. 1477). The court also ruled that the distribution of bonds and new common stock for old common stock in a family corporation was a taxable dividend and not a tax-free reorganization, since its purpose was merely to convey accumulated earnings to the stockholders (*Bazley* v. *IRC,* 67 S. Ct. 1489).

Widespread agitation for the enactment of community property laws resulted in such statutes in Michigan, Nebraska, Oregon and Pennsylvania. Various types of provisions made it possible under these laws for a married couple to operate as a financial partnership, dividing their income equally for the purpose of their income tax returns. The Pennsylvania law was killed, however, by a unanimous opinion of the state supreme court because it was so uncertain and contradictory as to be unworkable. (*See* also TAXATION; UNITED STATES.) (M. DN.)

Great Britain, the Commonwealth and Europe.—In most European countries and in the commonwealth there were three types of legislation during the year. These dealt with currency, crime and constitutions. The shortage of food, goods and foreign exchange in many countries resulted in nearly all cases in the imposition or extension of currency laws, under which the import or export of foreign (and, often, domestic) currency was hedged about with restrictions aimed at securing that no substantial sums should go into, or out of, the country concerned in a manner which might prove embarrassing or undesirable to the policy of the local government. Secondly, a wave of criminal law reform swept over most countries with the result that the death penalty was abolished in many, and the question of abolition discussed in others without legislative results: this reform affected primarily the eastern European countries. Thirdly, constitutional reforms were carried into effect in many British commonwealth countries, and minor reforms and abortive discussions on reforms took place in many others. There were also signs of the beginning of serious efforts to co-ordinate the laws of different countries. This desire appeared to have arisen from the frequent meetings of representatives of the many members of the United Nations, and although not yet manifested in legislation, it began to be shown in such ways as the lifting of restrictions on international travel and visas in Europe (except in the eastern European group of countries) and in the formation of smaller countries into customs unions.

Great Britain and Northern Ireland.—In Great Britain a number of acts were concerned with nationalization of industries; in this respect, an inclination to follow in principle the most war-damaged countries (who had passed extensive na-

tionalization laws in 1945 and 1946) was noticeable, but very different methods of working out nationalization were found: the British laws, although giving wider powers to the executive than usual in time of peace did not go as far in that direction as did the earlier nationalization laws of such countries as Poland and Czechoslovakia. A remarkable and important act concerned with agriculture, for example, provided for effective but decentralized government control of that industry, but did not go so far as to nationalize the land, its owners and occupiers and its profits.

Foreign currency continued to be strictly controlled, and as the kingdom's foreign exchange position worsened, so regulations were tightened. The export of currency even to countries within the sterling area, such as South Africa, was not entirely unrestricted by the end of the year. Heavy fines, amounting frequently to thousands of pounds, were imposed for breach of these restrictions.

Acts for the regulation and control of penicillin and atomic energy were passed. Acts concerned with industrial organization and trade statistics increased government powers in the investigation and direction of most industries. The Trafalgar estates, which had previously been inalienably held (together with an annual pension) by the heir of Admiral Lord Nelson, were made alienable and the pension discontinued: thus the last of the estates given by the country to national heroes of the past was put on a level with ordinary private property.

Important bills placed before parliament during the year but not passed by the end of it included the Criminal Justice Amendment bill, which gave an opportunity for proposals to be made for the abolition of the death penalty (permanently or for a trial period) and of corporal punishment, and the Parliament bill, by which the government intended to reduce the power of the house of lords to delay certain types of legislation to one year, with retrospective effect. Emergency laws due to expire at the end of the year included those relating to the control of furnished houses and of rents.

Interesting decisions of the courts confirmed the validity of ministers' administrative decisions under town planning and similar acts without any requirement to exercise their powers of determination in a judicial manner and without being subject to any interference from the courts. There was no diminution in the mass of subordinate legislation by rules, regulations and orders under acts, nor was there any indication of greater care being taken than in previous years to make the interpretation of these orders obvious to the wide and legally untrained classes to whom for the most part they applied.

During the year interest revived in the Canon law of the Church of England, on which a number of books were published.

In Northern Ireland a progressive Births and Deaths Registration act removed a hardship by providing for a new (and alternative) form of birth certificate, from which it was impossible to tell whether the child was legitimate or otherwise.

British Commonwealth.—In Australia the stevedoring industry was regulated by an act. A curious trial occurred in which a man who had been charged with murder in 1935 and found unfit to plead was tried and convicted 12 years later. In Canada the important Canadian Citizenship act was passed, by which children born outside the dominion could become Canadians; it was established that the final court for appeals should be in Canada and not in London. Steps were commenced to establish a court of criminal appeal for Basutoland other than the judicial committee of the privy council in London. India was given dominion status as the two dominions of India and Pakistan, and the Ceylon Independence act was passed, granting similar status to Ceylon. Burma became an independent republic and Cyprus was given constitutional government.

A bill to restrict rights of final appeal to courts within the dominion (as had been done in Canada) was introduced into the parliament of the Union of South Africa, but not passed.

Europe.—In Bulgaria, the death penalty was abolished soon after the execution of Nikola Petkov.

The people of Finland appeared not wholly to approve the working of the Special law, under which those responsible for bringing the country into World War II were made liable to a ten-year sentence.

A monarchy law in Spain (*q.v.*) made that country nominally a kingdom again, but without apparent practical result.

The U.S.S.R., followed by a number of other eastern European countries, abolished the death penalty. The wives of some foreign nationals were refused permission to leave the country to rejoin their husbands abroad. (*See* also AGRICULTURE; BANKING; BUSINESS REVIEW; CONSUMER CREDIT; INTERNATIONAL LAW; PATENTS; PUBLIC UTILITIES; RELIEF; TAXATION; WAR CRIMES.) (A. L. C.)

Lawn Tennis: *see* TENNIS.

Lead. The world production tables presented during the years of World War II included many estimates that have been replaced with more reliable figures.

Table I.—*World Smelter Production of Lead, 1941–46*
(Thousands of short tons)

	1941	1942	1943	1944	1945	1946
Argentina	19.9	22.9	26.2	21.1	23.3	17.8
Australia	239.1	231.8	202.3	173.1	174.6	169.3
Belgium	9.8	17.9	8.8	8.5	8.0	26.2
Canada	228.0	243.3	223.9	142.6	162.5	165.8
France	25.6	13.7	15.1	5.0	7.7	38.3
Germany	190.5	154.4	173.3	154.2	?	?
Italy	37.5	31.7	13.7	?	0.9	15.4
Japan	28.3	29.7	35.8	8.8	13.9	?
Mexico	166.7	212.7	234.2	196.5	221.7	151.8
Peru	36.2	41.8	47.6	42.9	44.1	40.2
Spain	51.7	45.4	40.5	34.1	35.1	35.6
U.S.S.R.	?	110	129	121	?	?
United States	544.7	548.9	469.5	464.7	443.5	338.1
Total	?	1,883	1,736	1,502	1,378	1,285

World lead production declined consistently each year after 1942, with a total drop of one-third.

United States.—The more important features of the lead industry in the United States are shown in Table II.

Table II.—*Data of Lead Industry in the U.S., 1940–46*
(Thousands of short tons)

	1940	1941	1942	1943	1944	1945	1946
Mine output	457.4	461.4	496.2	453.3	416.9	390.8	335.5
Refinery output	533.2	571.0	566.8	469.6	464.8	443.6	338.2
Domestic ores	433.1	470.5	467.4	406.5	394.4	356.5	293.3
Foreign ores	100.1	100.5	99.5	63.1	70.3	87.1	44.9
Imports	282.5	381.2	492.5	319.1	319.7	300.3	159.2
Exports	49.1	14.4	5.8	13.3	15.5	1.8	0.7
Secondary	260.3	397.4	323.0	342.1	331.4	363.0	392.8
Consumption	782	1,050	1,043	1,113	1,119	1052	956.5
Stocks, year-end							
Producers	143.4	100.1	117.2	129.5	125.1	161.8	189.7
Consumers	78.5	101.0	81.7	115.2	86.9	102.9	41.9
Government	—	—	248.4	173.9	90.5	68.7	45.5

Mine production had by 1946 declined to almost one-third less than the 1942 peak, and to the lowest figure after 1935, and for the first time was surpassed by the secondary recovery. A drop of nearly one-half in imports further accentuated the shortage. Much of the 1946 decline was caused by strikes in the mines and smelters, and in addition the price situation was unfavourable until after the abandonment of price control.

Without the strike handicap in 1947, mine output in the first three quarters of the year rose to 278,070 short tons, primary metal output was still better, with 477,624 tons through October, and secondary recovery doubled the 1946 rate.

Canada.—The output of primary lead increased from 173,497 short tons in 1945 to 176,987 tons in 1946, but dropped back again in 1947, to 162,000 tons. Refinery output was 165,744 tons in 1946 and 161,444 tons in 1947, the difference be-

tween these and the primary figures being the exports of lead in ore and concentrates.

Mexico.—The production rate increased in 1947, to 163,000 short tons in the first three quarters.

Australia.—The primary output through Aug. 1947 was 143,957 short tons, nearly one-third better than the 1946 rate. (*See* also MINERAL AND METAL PRODUCTION AND PRICES.)

(G. A. Ro.)

League of Women Voters of the United States: *see* SOCIETIES AND ASSOCIATIONS.

Leahy, William Daniel (1875–), U.S. naval officer, was born at Hampton, Ia., on May 6. He was graduated from the U.S. naval academy, Annapolis, Md., in 1897 and advanced to rank of admiral in 1936. In Nov. 1940, Pres. Franklin D. Roosevelt named him ambassador to the French government at Vichy. In April 1942, Roosevelt summoned Leahy to Washington where, on July 21, he became chief of staff to the commander in chief. In this capacity he accompanied the president to the many wartime Big Three conferences. In Dec. 1944 Admiral Leahy was promoted to the five-star rank of admiral of the fleet.

Leahy was appointed by Pres. Harry S. Truman, March 28, 1946, to a special ten-man national defense board composed of top leaders of the armed services. Although remaining quietly in the background, the admiral was a powerful factor in the shaping of U.S. foreign policy in 1947. One of the chief proponents of an anticommunist global effort, his already considerable influence in the White House grew even stronger after the resignation of Secy. of State James F. Byrnes. It was generally believed that Leahy had a large share in formulating the so-called "Truman doctrine" and that he encouraged the president to push vigorously the anticommunist "containment" policy and the Marshall plan.

Lease-Lend: *see* LEND-LEASE.

Leather. World conditions in the leather industry became more clearly defined in 1947, and for the first time after the start of World War II, it was possible to obtain accurate information about world raw stock supplies and leather tanning activities, although the information was still incomplete and inconclusive in its relation to future activities.

From all available reports, a gradual restoration of the prewar pattern of the leather industry was taking place. In European countries where tanning activity had been sharply increased to meet national military needs, factory output of leather was reportedly declining to normal levels for home consumption and moderate exports.

Even more important, was the apparent abandonment by South American countries, especially Argentina and Brazil, of a war-inspired program to develop a strongly competitive tanning industry. Those countries were normally important suppliers of hides and skins, and the withholding of supplies from world markets had caused considerable apprehension, especially among U.S. tanners. Although nothing in 1947 indicated that this program had failed completely, there was considerable evidence that it would not reach planned proportions and that more raw stock and less finished goods would be shipped to world markets in the future.

Added to this favourable restoration of world balance in the industry was the reopening of raw material supply sources and practically all supplying areas were making normal shipments by the end of 1947, although much of the stock remained below normal quality standards.

Depletion of herds in the war zones was not as great as had been feared, department of agriculture reports in 1947 revealed. These reports estimated world cattle numbers at the beginning of 1947 at about 716,000,000 head, an increase of 3,500,000 over the preceding year and 6,000,000 above the 1931–40 average.

The quality of raw stock supplies, both imported and domestic, was not pleasing to U.S. tanners and consumers. Considerable amounts of inferior raw stocks were tanned into inferior leather, and consistent efforts were made through the year to better the situation—which was aggravated still further by high prices all along the line, allowing no margins for variable qualities.

Although the U.S. leather industry was confronted with many problems of raw stock supply, factory productivity, and other postwar factors, production in 1947 continued at a high level. The following table shows the average monthly production in the U.S. of the principal types of leather for the years 1943–47, with the monthly average for the 1931–39 period.

Average U.S. Monthly Leather Production, 1943-47

(000's omitted)

	1947	1946	1945	1944	1943	1931–39 inclusive
All cattle hides (including kips for side leather)	2,373	2,253	2,297	2,179	2,138	1,628
Calf and whole kip	1,057	907	970	911	926	1,070
Goat and kid	3,039	2,011	2,002	2,888	3,113	4,000
All sheep and lamb	2,954	3,998	4,370	4,608	4,991	2,800

1947 figures are based on an average of ten months' production. Compiled from data of the Tanners Council of America and the U.S. bureau of the census.

The greatest problems of the U.S. leather industry in 1947 revolved around economic factors, directly and indirectly affecting operations. Summed up briefly these represented high production costs, high wage levels, general economic factors that might affect shoe production trends (shoe production accounts for more than 90% of all U.S. leather used), unsatisfactory quality standards, efforts to raise advertising and merchandising standards within the industry or affecting the industry, and the competition of leather substitutes.

On June 1 export restrictions on hides, skins and leather were removed, and the last trace of wartime controls over these commodities was ended. The U.S. was the first major power in the world to revert to a prewar free market basis for hides, skins and leather.

Reports of progress in the advancement of leather making science were significant during the year, and not only revealed a continuance of the scientific interest that had been well under way before World War II, but also disclosed many important developments that had come about through wartime research and study.

In February the Tanners Council Research laboratory at the University of Cincinnati offered a fellowship of $1,000 a year and free tuition in the university to graduate chemists or chemical engineers, preferably young men who had indicated some interest in tanning and who had sufficient chemical education to permit them to do graduate work.

At the beginning of the year, the Leathersellers' Technical college, of Bermondsey, London, reopened after having been closed since 1941.

Among the scientific developments interesting to the leather industry in 1947 was the employment of spectroscopy. One of the first applications in leather chemistry was made by Dr. E. R. Theis, of Lehigh university, Bethlehem, Pa., and his associates. This work had to do with chrome analysis. Another application of the spectrophotometer by tanners was in the identification of their leathers. This is done by incorporating in the leather some inert chemical in small quantities—for instance it can be put in with tanning or fatliquoring. Then, no matter how much use the leather receives, it is possible to leach

out a sample, put it in the spectrophotometer and determine the presence of the identifying chemical. In this way, the tanner can tell whether it is his leather which fails in shoes, even when labels or marks are removed.

Dr. L. Masner, of the Bat'a corporation, Zlin, Czechoslovakia, reported that European tanners were using quebracho alone to tan sole leather, and obtaining good substance leather. The report was of considerable interest to U.S. tanners, as supplies of chestnut, a principal sole leather tanning material, were fast dwindling in the U.S. because of the nation-wide blight.

The Tanners Council Research laboratory conducted experiments in the use of infra-red as a leather drying medium, and reported that at the existing stage of development, and the price of electricity, the process was too expensive. However, the laboratory stated that when infra-red is used on finishes of leather, the results are beneficial.

There was some interest in the U.S. industry in reported details of hide preservation through a mummifying process, developed in Argentina in 1943. In general, the process consists of a rapid unhairing (30 min.) by the use of strong sulphide-lime liquors in a drum. The hair is lost as such. The unhaired hides are washed in the drum, delimed with buffer salts and bate material. The third step consists of treatment of the delimed hides in a bath of bran, yeast, salt, bisulphite, formaldehyde, oil and ammonia. This requires two hours. The hides are then dried and are ready for shipment.

Difficulties in securing a uniform wetting of hides and skins were overcome in practice by the use of sodium polysulphides in a procedure developed and reported by the Tanners Council Research laboratory. If skins and hides are wet in a dilute solution of polysulphides, the dry salted hides become uniformly wetted in short order and from then on will process as well as the best green salted hides. Dry hides (flints), instead of requiring six to eight days of soaking, can be well wetted in less than half the time.

Important work was also inaugurated by the laboratory in 1947 in the adaptation of sulphonyl chlorides, developed in Germany during World War II, to U.S. tanning processes. The project was underwritten by the army quartermaster department.

The U.S. department of agriculture's Eastern Regional Research laboratory staff devised methods of extracting canaigre which give yields much higher than obtained by current leaching methods. The laboratory also found several strains of bacteria which act upon canaigre extract and, by reducing the sugars, improve its purity. Canaigre is an annual crop and could be harvested annually, thus providing much-needed domestic vegetable tannins.

The state of California also reported developments in its study of potential tanning materials, and tanners showed special interest in reports of California wattle development. (*See* also SHOE INDUSTRY.) (R. B. B.)

Lebanon: *see* SYRIA AND LEBANON.

Leeward Islands. The Leeward Island colony, with a total area of 423 sq.mi., consists of a group of islands forming the northern part of the Lesser Antilles in the Caribbean. Politically it is divided into four presidencies, viz.: Antigua (with Barbuda); St. Christopher (or Kitts) and Nevis (with Anguilla); Montserrat; and the Virgin Islands. Pop. (1946 census): Antigua, 41,757; St. Kitts-Nevis, 46,253; Montserrat, 14,322; Virgin Islands, 6,508. The capital of the colony is St. John's (Antigua) with a pop. of 10,962. Basseterre (St. Kitts) is the only other large town (pop. 12,201). Executive authority is vested in a governor appointed by the British crown, assisted by an executive council and by a general legislative council consisting of the governor (as president), eight official members, eight elected members (three from Antigua, three from St. Kitts and two from Montserrat) and one unofficial member from the Virgin Islands. Each of the larger islands has an island council to deal with its local affairs. Acting governor in 1947: W. A. MacNie.

History.—The Leeward Islands colony was represented at the conference held in Jamaica in Sept. 1947 to consider the general question of West Indian federation. The narrower issue of closer union between the Leeward and Windward Islands also came under discussion during the year. A conference was held in St. Kitts in Jan. 1947, attended by representatives of the legislatures of the two colonies, at which a series of resolutions on matters of constitutional reform was passed, the most important of which was to the effect that all the islands in the Leeward and Windward groups should be combined in one federation under a strong central government. These resolutions were referred in the first instance to the island legislatures; it was expected that the considered recommendations of the governor would be submitted in due course to the secretary of state in London. Grants were approved under the Colonial Development and Welfare act in the course of 1947 for a number of schemes affecting the Leeward Islands. These related to such matters as the training of teachers, the appointments of federal education officer and chief veterinary officer, the development of civil aviation and the water and electricity supply in Antigua.

Finance and Trade.—The usual currency in the Leeward Islands is British silver, but United States coins also circulate. Revenue (1946) £800,000; expenditure £839,000. Imports (1946) £1,542,060; exports £1,284,000. The chief products of the group are sugar and cotton. In Montserrat the cultivation of sugar, once the staple industry of the island, had been reduced to small dimensions; and sea-island cotton, tomatoes, onions and limes were the principal products. (J. E. SH.)

Legislation: *see* BUSINESS REVIEW; LAW.

Leland Stanford Junior University: *see* STANFORD UNIVERSITY.

Lemons: *see* FRUIT.

Lend-Lease. The Lend-Lease act, "an Act to Promote the Defense of the United States," was enacted by the congress on March 11, 1941, nearly a year before the United States actively entered the war against the axis powers. The act provided a means whereby the countries opposing axis aggression could obtain much needed war supplies in the United States although lacking the necessary dollar resources. It also provided a mechanism for efficient foreign procurement of war materials in the United States. During the period of hostilities most lend-lease aid was rendered under agreements with the recipient countries providing for future determination of the amounts and terms of settlement. Many lend-lease countries supplied as reverse lend-lease essential goods and services needed by the United States.

With the conclusion of hostilities on V-J day, Sept. 2, 1945, lend-lease and reverse lend-lease on a wartime basis were halted except for aid to China, which was continued for clean-up operations against the Japanese, and for certain other minor cases. However, noncombat goods on hand or on order on V-J day, aggregating in value about $1,200,000,000, were in large measure furnished to the countries for which they were originally intended, on a cash payment basis or on credit terms contained in so-called "pipeline" agreements with the recipient countries. These agreements were concluded under the authority of section 3(c) of the Lend-Lease act, as amended, under which the powers necessary to carry out any contract or agreement made prior to July 1, 1946, were continued in effect until July 1, 1949.

By the end of 1946 more than 97% of all "pipeline" goods had been delivered. The Third Deficiency Appropriation act,

1946, approved July 23, 1946, which provided funds for the liquidation of lend-lease activities, contained a proviso that prohibited the use of these funds for any expense incident to the shipment abroad of any commodities after Dec. 31, 1946. Upon receipt of a ruling by the comptroller general that, in view of this act, shipments could not be continued even with funds which had been deposited by the recipient countries for the purpose, all shipments were suspended early in Jan. 1947. Some lend-lease articles, title to which had passed to the soviet government prior to Dec. 31, 1946, under the terms of the soviet "pipeline" agreement of Oct. 15, 1945, were delivered to soviet custody up to the end of March, at which time even these deliveries were suspended pending action by the congress. The Supplemental Appropriation act, 1948, approved July 30, 1947, provided funds and authority for continuation of deliveries to ten of the affected countries, but made no provision for further shipments to the Union of Soviet Socialist Republics. The articles for the Soviet Union still remaining undelivered were authorized for disposal as surplus property. Deliveries of articles for other countries were continued.

During the year 1947 final settlements for lend-lease were concluded with the governments of the Netherlands and the Union of South Africa. In both cases a final disposition of various wartime claims and accounts was effected, and payments were agreed for South Africa in the amount of $100,000,000 in cash and for the Netherlands in the amount of $67,500,000, of which $19,500,000 had been paid and the balance would be due over a period of 30 years from July 1, 1951. Previously, settlement agreements had been concluded with Australia, Belgium, France, India, New Zealand, Turkey and the United Kingdom. At the year's end settlements were in process of negotiation with China, Czechoslovakia, Ethiopia, Greece, Norway, Poland, the Union of Soviet Socialist Republics and Yugoslavia.

Following the principles of the original lend-lease "master agreements," the settlements were such as not to burden commerce between the countries. In general no payments were asked for lend-lease articles destroyed, lost or consumed in the war effort and, in return for payment of current value, full title was given to nonmilitary lend-lease articles remaining at the end of the war. Military supplies were left with the recipient government without payment but subject to recapture by the United States. Naval vessels must be returned to the United States in accordance with law, and in some instances the United States required the return of other articles of use in other government programs.

Lend-lease aid to Canada, Egypt, Iceland, Iran, Iraq and Panamá was on a full cash payment basis. Aid to Liberia consisted of a port construction project with payment to be made from future revenue of the port. The terms of payment for lend-lease assistance to the American republics, other than Canada and Panamá, were specified in the original lend-lease agreements with those countries.

Total lend-lease aid rendered to all countries both during the war and in the post-war period amounted to $50,243,996,000, as reported through June 30, 1947. Of this amount $1,848,761,000 represented losses, expenses, etc., not charged to specific recipient countries. The balance of $48,895,235,000 was distributed among 43 allied nations. The British empire, including Australia, Canada, India, New Zealand, South Africa, the United Kingdom and Colonies, received by far the largest portion, namely $31,384,810,000. The Union of Soviet Socialist Republics was the second largest recipient, receiving $10,982,089,000. Reverse lend-lease received by the United States was reported as $7,819,323,000 through June 30, 1947. Of this amount $6,752,073,000 was received from the British empire. Total cash payments received from foreign governments for various lend-lease settlements and transactions aggregated $1,502,144,000 to June 30, 1947.

After Oct. 20, 1945, the lend-lease liquidation program was administered by the department of state, while fiscal operations were handled by the treasury department. (*See* also AGRICULTURE.) (N. T. N.)

Leprosy. Clinical experimentation in the treatment of leprosy during 1947 continued as a by-product of tuberculosis research. Human leprosy had not yet been reproduced in a lower animal, nor had the *Mycobacterium leprae* been cultured so that the antibacterial effectiveness of new drugs could be tried in test tubes. The sulfone drugs showing promise in tuberculosis—promin, diasone and promizole—were used in treating leprosy. Diasone seemed preferred since it can be given by mouth and has low toxicity. In addition to the previously reported favourable results with use of these drugs at Carville, La., there were reports from the British West Indies, British Guiana and Argentina indicating that many advanced cases of leprosy had shown clinical improvement following prolonged therapy, although reversal of bacteriologically positive to negative cases rarely occurs. From British Guiana came a preliminary report of use in leprosy of another member of the sulfone group—sulfetrone—which had shown promise in tuberculosis. Though the report was based on only six cases for a period of six months, optimism was expressed on account of its low toxicity and apparently beneficial effect. The real value of the sulfone drugs in treating leprosy, however, would not be known for many years because there is probably no other bacterial disease in which the evaluation of treatment is so difficult.

When streptomycin became available there was some evidence of its usefulness in experimental and human tuberculosis; consequently it was necessary to try its effect in leprosy. In the last half of 1946 treatment of 10 patients by this drug was begun at Carville, La. The patients received 2,000,000 units daily for four months and one half that dose for another four months. All cases selected were of the advanced lepromatous type. Improvement was noted in 7 of the 10, but the results appeared no better than those generally obtained with the sulfone drugs. No patient became bacteriologically negative. Serious toxic effects were noted. One patient became deaf and all had symptoms of vertigo; other undesirable effects were anaemia, loss of weight and nephritis. Eosinophilia occurred in all. The investigators concluded that unless streptomycin could be improved so that it would not be toxic, it would not become a useful drug in the treatment of leprosy.

Although leprosy is one of the oldest of diseases, controversy still existed in 1947 concerning its transmission by inoculation and its incubation. Many human inoculation experiments had been attempted in Europe and in Hawaii with negative results. The celebrated case of Keanu, the condemned prisoner in Hawaii, who was inoculated and developed leprosy, had not been accepted as proof because he came from a leprous family. Other isolated cases of inoculated leprosy had been accepted skeptically on account of the endemicity of leprosy in the geographical areas involved, and the well known fact that in lepers lesions frequently develop at the site of an injury. From Michigan came a report which furnished strong evidence that human leprosy could be transmitted by inoculation. Two young men, friends from the same Michigan town, while serving with the U.S. marines in 1943, were successively tattooed in Melbourne, Australia, by the same man. In the tattooed emblem of each, leprous lesions developed two and one-half years later. The diagnosis of leprosy seemed well established. At the time of the tattooing, according to the report, the marines and the tattooer were inebriated, and several needles were broken. The de-

velopment of leprosy in two people with this history, plus the fact that they lived in a community without other known lepers, probably offered the best published evidence so far that leprosy can be transmitted by inoculation. It had to be assumed, of course, that the needles had been used on a leper or that the tattooer was leprous.

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(C. H. BD.)

Lettuce. Lettuce was one of the few U.S. vegetable crops that exceeded the high record of 1946. Total production in 1947 was estimated at 34,254,000 crates, compared with 33,801,000 in 1946 and the ten-year (1936–45) average of 23,575,000. Acreage was smaller than in 1946, but the yield rose to 182 crates per acre compared with 164 crates in 1946.

U.S. Lettuce Production 1947, 1946 and 10-yr. Average 1936-45

(In thousands of crates)

Crop	1947	1946	10-yr. average
Winter	8,710	9,387	5,710
Early spring	8,960	8,391	6,598
Late spring	1,288	1,315	926
Summer	7,615	7,450	5,148
Fall	7,681	7,258	5,194

Prices were relatively strong through 1947 in spite of the large crop. In August producers received $4.25 per crate, compared with $2.30 per crate in 1946. The larger indicated production of the fall crop depressed prices toward the end of the year. (*See* also VEGETABLES.) (J. C. MS.)

Lewis, John Llewellyn (1880–), U.S. labour leader, was born Feb. 12 in Lucas, Ia. For his early career, see *Encyclopædia Britannica.*

In 1935 Lewis formed the Committee for Industrial Organization, later renamed the Congress of Industrial Organizations. He refused to heed the American Federation of Labor's order to dissolve the committee, and the participating unions in the C.I.O. were suspended in 1936 and expelled from A.F. of L. membership in 1937.

Lewis supported Franklin D. Roosevelt in 1936, but in 1940 he switched his support to Wendell Willkie and promised to resign as chief of the Congress of Industrial Organizations if Willkie lost. He made good his promise but retained the presidency of the United Mine Workers of America. In Oct. 1942, he led the mine workers out of the C.I.O. and after three years of negotiations, his union was finally readmitted to the American Federation of Labor, Jan. 25, 1946.

Lewis called two major strikes in 1946. The first (April 1–May 29) was terminated upon the signing of a contract, to continue during government operation of the country's coal mines, which included a wage increase and other benefits for the miners. However, the second strike, called in November after he unilaterally terminated the contract with the government on the ground that it had been violated, came to grief. The government, contending Lewis had no authority to abrogate the contract, brought him up before a federal district court and on Dec. 3 Lewis and the union were convicted of civil and criminal contempt. Lewis was personally fined $10,000 and the U.M.W. $3,500,000. Upholding the conviction, the U.S. supreme court on March 6, 1947, sustained the fine against Lewis, but reduced the union penalty to $700,000. Although Lewis assailed the government's "blackjack" tactics, he yielded to the supreme court on March 19 and withdrew the contract termination notice that had started the strike.

However, after the Centralia, Ill., mine disaster which occurred later that month, he ordered a "memorial" shutdown of the mines in protest against the accident, explaining that working agreements with the operators permitted observance of such memorials.

In October, Lewis attacked the A.F. of L. for its willingness to comply with the ruling of Robert N. Denham, general counsel of the National Labor Relations board, requiring union officers to sign non-communist affidavits.

The federation's executive council voted, however, to amend the union constitution so that its locals could avail themselves of N.L.R.B.'s facilities. Two months later (Dec. 12), Lewis sent a curt note to Pres. William Green announcing his union's decision to leave the A.F. of L. in the following two words: "We disaffiliate."

Liberal Party: *see* POLITICAL PARTIES, BRITISH.

Liberia. The Republic of Liberia is situated on the west coast of Africa at the lower curve of the continental bulge; it faces the Atlantic narrows at the point where Africa most nearly approaches South America. It is approximately 43,000 sq.mi. in area. On the northwest, Liberia is bordered by the British colony of Sierra Leone, and on the north and northeast by the French colonies of Guinea and the Ivory Coast. The population was estimated in 1947 to be 2,000,000 (all Negroes) of which approximately 12,000 persons were direct descendants of the original settlers from the United States. The remaining majority was composed of indigenous Africans. Many of these have become detribalized and have adopted the life and customs of the more advanced section of the population, but the larger part still live under tribal conditions. English is the official language; the tribal languages are divided into some 28 dialects which stem from Arabic, Bantu and Nilotic language bases. Monrovia (pop. approx. 10,000) is the capital city.

Liberia has a constitution modelled after that of the United States and its government functions through executive, legislative and judiciary branches. The president is elected for a term of eight years. The Hon. William V. S. Tubman was inaugurated in Jan. 1944. Liberia has granted suffrage to women and given political representation in the house of representatives to the tribal peoples. Liberia grants religious freedom to all denominations. Nearly all of the U.S. church organizations have maintained missions in Liberia for many years.

History.—In 1947, a new port at Monrovia, which had been under construction for three years at a cost of approximately $19,000,000, was opened to world commerce. This port accommodates large vessels alongside its 2,000 ft. of wharfage. The depth of water within the harbour permits vessels drawing up to 30 ft. to enter the channel and provides a 32-ft. depth alongside the dock. Two American shipping lines established new services between the U.S. and Liberia during 1947. A preliminary survey was completed for the construction of a railroad through the Western province from the new port to a terminus at Nzerekore in French Guinea. Arrangements were made during 1947 for the operation by U.S. and Liberian interests of Roberts air field near Monrovia, built by the U.S. as a war measure, which would permit maintenance of international commercial air transportation and the operation by a Liberian company of a coastwise air service. Work was continued on the development of the valuable iron ore deposits at Bomi hills; a vehicular road through the Central province to connect the Liberian coast with roads in French Guinea and to open this area to trade was completed. Forestry and agricultural surveys by the U.S. Economic mission, including special work on coffee,

palm oil and cacao production, were made during the year. The U.S. Public Health mission also continued its operation and expanded its training program. Plans were prepared and arrangements were being discussed for construction of a public water system and improved electric lighting for the city of Monrovia.

In July 1947, the republic celebrated its 100th anniversary; delegations representing 13 countries were present at the ceremonies. The U.S., France and Great Britain sent both diplomatic and naval missions for the occasion.

In October, the government announced its decision to create an official instrument for over-all development to be known as The Liberia company. The Government and Stettinius Associates Inc., a U.S. company, had agreed jointly to participate in a co-operative effort to bring together the advantages of private resources in capital and specialized knowledge from the United States, and the natural resources of Liberia, with a view to improving the levels of living in Liberia and to expand the people's opportunity for economic and social advancement.

Education.—In 1947, institutions included 84 government, 81 mission, a number of schools supported directly by the tribes and 25 private schools. The most important were: Liberia college; College of West Africa; and Booker T. Washington Industrial and Agricultural institute. These schools and colleges receive partial support from the government. The U.S. government makes a yearly grant to the Booker T. Washington institute. Substantial sums for education are expended yearly in Liberia by the Protestant Episcopal Church, American Lutheran Church, American Baptist Church, South, the African Methodist Episcopal Church; the American Zion Churches and Seventh Day Adventists maintain schools as does the Roman Catholic Church. Education for children from 6 to 16 is by law compulsory and free, although the facilities are inadequate and many children are unable for that reason to attend a school. The Liberian government steadily increased its annual appropriations for education during the presidency of William V. S. Tubman. In 1947, 38 Liberian students were in the U.S., principally on government scholarships.

Finance.—Revenue receipts for the fiscal year 1947 were the largest in the history of the republic—$3,075,000 as compared with $2,337,000 in 1946 and $1,933,000 in 1945. Liberia's external debt as of Nov. 1947 was $650,000. There was no internal debt. For the 12 months ending Aug. 31, 1947, imports were reported to the value of $8,317,000 and exports for the same period, $13,067,000. The number of vessels calling at Liberian ports during the fiscal year was 201 as compared with 144 in 1946. The fiscal year is Oct. 1 to Sept. 30.

Trade and Agriculture.—The largest U.S. institution in Liberia is the Firestone Plantation company, a subsidiary of the Firestone Tire and Rubber company. Liberian rubber exports are estimated to average approximately 20,000 tons of crude rubber annually. The company employs between 22,000 and 30,000 Liberians and has a foreign staff in excess of 100. The second most important export is gold; the average annual export is about 22,000 troy oz. Piassava fibre, palm oil, palm kernels, kola nuts, cacao and coffee also are exported. Liberia regularly imports from the U.S. petroleum products, textiles, hardware, automobiles, machinery, steel and construction material, clothing, shoes and radio equipment. (S. DE LA R.)

Libraries.

The 1947 problems, resembling those of 1946, were intensified by rising costs and staff shortages. Carl H. Milam, executive secretary of the American Library association, stated that operational costs had increased 50%, income about 12%. Mary U. Rothrock, outgoing A.L.A. president, estimated a shortage of 4,900 professionals. Yet, it was a constructive year.

American librarians attended the Documentation conference (Bern, Switzerland), the Scandinavian Library congress (Oslo, Norway), the United Nations Educational, Scientific and Cultural organization (U.N.E.S.C.O.) conference (Mexico City, Mexico). They visited occupied countries as special consultants. They aided in U.N.E.S.C.O.'s library activities (1947 budget, more than $6,000,000). The Special Libraries association joined the International Federation of Library Associations. The Library of Congress' European mission ended; books, etc., secured in occupied countries, were going to U.S. libraries. The 1946 Princeton conference on exchanges brought results. Army regulations allowed flow of cultural materials to and from the occupied countries. Eligibility of librarians under the Fulbright bill (scholarships to countries owing the U.S. for lend-lease) was being explored. Dr. P. P. Sevensma, former League of Nations librarian, accepted the U.N. librarianship in New York.

U.S. information libraries under the state and war (21 in occupied countries) departments continued, the former reduced to 67 because of slashed funds. The American Book centre, closed Dec. 31, had shipped 1,250,000 volumes, mainly scholarly, to Allied libraries, fewer to others (the U.S. delegation was urging national book exchanges at the Mexico City U.N.E.S.C.O. meeting). At the May–June Assembly of Librarians of the Americas, more than 50 representatives from 37 Latin American libraries discussed both technical and administrative matters.

The A.L.A. Federal Relations office (Paul Howard, director) concentrated on the $25,000,000 Library Demonstration bill before congress, with fair hope of passage in 1948. The A.L.A. national plan (reorganization of about 7,500 public libraries into 1,200 regional units) was approved and would be published early in 1948. The public library survey by the Social Science Research council (Robert D. Leigh, director; staff of economists, sociologists, etc.), financed by a $175,000 Carnegie corporation grant, would study 23 projects in 49 libraries to determine their eligibility to conduct adult education programs. The superintendent of documents revised both distribution procedures and the monthly catalogue of government publications (Jerome K. Wilcox, consultant). The Association of Research Libraries' documents expediter, Washington, supplied 59 subscribing libraries, including non-letter-press material. A.R.L. approved the original "Farmington plan" (at least one copy of every foreign publication in some American library) and would commence on Jan. 1, 1948, to secure Swedish, French and Swiss publications.

Growth and Development.—Libraries had, in general, more income, but rising costs nullified increases. To the 1946 list of 1,000,000-vol. holdings were added New York State library, Albany, N.Y., and St. Louis Public library, St. Louis, Mo. Detroit Public library, Detroit, Mich., planned an industrial research service for subscribing industrial concerns. More regional and county systems were established, the most important being Erie county, N.Y., which includes Buffalo. Librarians at the November Conference of Eastern College Librarians called upon the president and congress to protect freedom of conscience; Paul North Rice, incoming A.L.A. president, had urged libraries to abandon "traditional neutrality" in their collections. The Massachusetts and California library associations fought censorship.

Salaries.—Authorities agreed that increased federal library salaries (Library of Congress median about $3,100) had good effect. Yet many increases were mere cost-of-living advances. Some public libraries graded positions in making increases, among which (tables in the *Library Journal*) were Baltimore, Md.; Buffalo, N.Y.; East Orange, N.J.; Erie, Pa.; Flint, Mich.; Gary, Ind.; Grosvenor (Buffalo, N.Y.); Hartford, Conn.; Lincoln, Neb.; New York, N.Y.; New York State, Albany; Newark, N.J.; St. Paul, Minn.; White Plains, N.Y.; Youngstown, O.

University of California and Yale instituted elaborate library job classification and pay plans. The Special Libraries association began a salary survey of members.

Library Schools.—In part, low salaries accounted for an annual shortage of 3,600 recruits, but overemphasis of library techniques in training was also a deterrent. The Association of American Library Schools was advocating revisions which would recognize subject specialization. School headship changes: Louis S. Shores, dean, University of Florida, Gainesville, Fla. (new); Lewis F. Stieg, director, University of Southern California, Los Angeles, Calif. Bernard R. Berelson succeeded Clarence H. Faust as dean, the University of Chicago.

States.—Library agencies (state libraries, extension agencies) fared well: Illinois, New Mexico, South Carolina and Texas received notable budget increases. The Tennessee Valley authority (TVA) commenced a two-year survey (Marion A. Milczewski, director) of nine states: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Virginia. Maryland completed a survey, New York state's continued, New Jersey contemplated one. Many states passed important legislation, chiefly directed at establishing county library systems, instituting or continuing state aid (total, 16), or recognizing librarianship. States would be asked to implement the A.L.A. national plan, mentioned above; the proposed 1949 A.L.A. regional meetings would strengthen state organizations. Theresa C. Stuart (Maine) and Frank L. Tolman (New York state), both leaders in state development, retired.

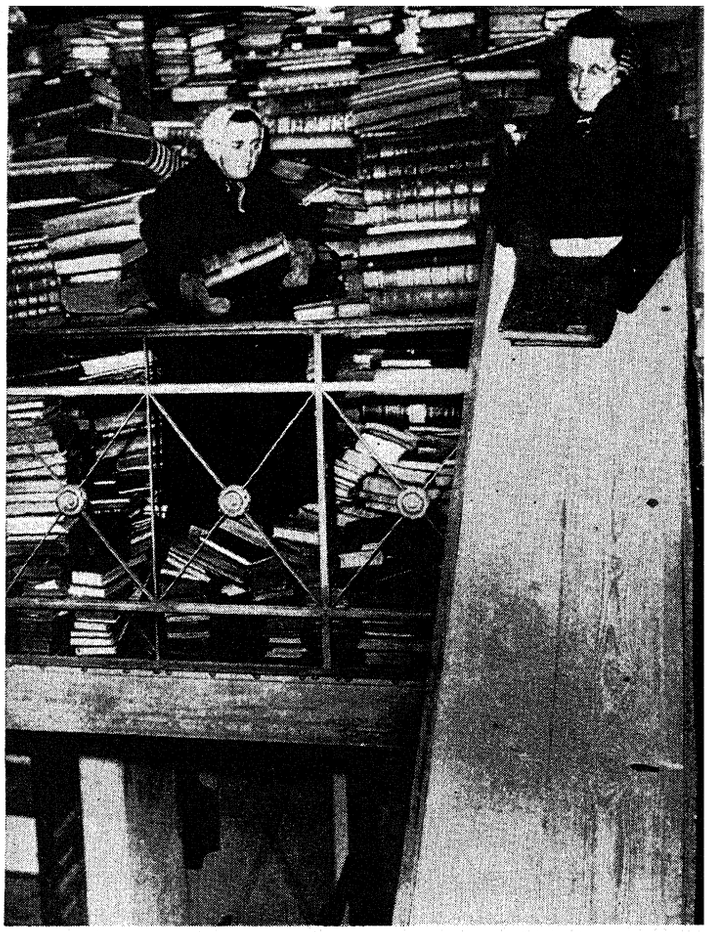
Adult Education.—The New York State survey, commenced in 1945, found public libraries wanting as adult education agencies. The public library survey by the Social Science Research council (mentioned above) would produce a nonlibrarians' estimate. Yet, libraries were working effectively. They were helping to honour the Freedom Train visits. They continued to espouse such community programs as health drives, veterans' guidance, parent education, etc.; libraries in Akron, Boston and Milwaukee were serving labour groups. In 1947, Baltimore's Atomic Information institute and Louisville's "neighbourhood college" (classes in library branches) were high spots. About 28 leading public libraries participated in Great Books discussion groups, many more unofficially.

But libraries no longer confined themselves to having printed materials, alone; phonograph records, 16-mm. films, pictures (framed and unframed) were lent freely on borrowers' cards. The 290 libraries having $25,000 or more budgets could serve an estimated 50,000,000 with audiovisual materials; R. Russell Munn (Akron Public library) estimated that an initial $3,700 was needed for films.

Children's Work and Schools.—Scarcest among professionals were children's librarians, because of low salaries and unclear staff status, in many instances. Book awards included: the John Newbery medal given to Carolyn S. Bailey's *Miss Hickory* (Viking); the Caldecott medal awarded for Leonard Weisgard's illustrations to *The Little Island* (Doubleday). The first Caroline A. Hewins lecture (F. G. Melcher, sponsor) was delivered before the New England Library association. Several states added school library supervisors. Mrs. Mary Peacock Douglas, nationally known, resigned from North Carolina's school library supervisorship.

Buildings and Equipment.—Municipal bond issues were approved at Baltimore, Md. ($1,500,000 for branches), Topeka, Kan. ($650,000 for main building) and Newark, N.J. ($781,000 for expansion and renovation). Several private colleges launched drives.

Princeton university, Princeton, N.J., laid the cornerstone of its $9,000,000 Firestone library; Washington State college, Pullman, Wash., broke ground for a $2,500,000 building, as did University of California at Los Angeles for a $790,000 wing. Gustavus Adolphus college, St. Peter, Minn., resumed work on its $420,000 library.



BOOKS being sorted at the University of Vienna library after being returned by soviet authorities from the Russian occupation zone in Austria in 1947. The volumes were removed from Vienna by the nazis during World War II

Colby college, Waterville, Me., secured enough equipment to open part of its $500,000 Miller library; University of Nebraska, Lincoln, Neb., moved into its new Love library, completed in 1943 but occupied since by the services. Bowdoin college, Brunswick, Me., and Oberlin college, Oberlin, O., installed distinctive rare-book rooms. Overpopulation forced Union college, Schenectady, N.Y., University of Kansas, Lawrence, Kan., and St. Michael's college, Winooski, Vt., to convert surplus war buildings into reading rooms.

Public libraries did little or no building. Sacramento, Calif., and San Antonio, Tex., converted former residences into young people's libraries. New Orleans, La., moved and converted a war hut into a branch. Many libraries refurbished their rooms with bright paint and informal furniture. Grand Rapids, Mich. installed a fiction room which was promptly dubbed a "fashion room." Philadelphia, Pa., successfully modernized a branch with "commercial" lighting.

Engineering was improving bookmobiles. The Shaw photocharger for circulation work (Library bureau) got off to a good start. Ceiling projectors for books on film (projected books) were available to civilian hospitals. The Veterans' Administration Library service was experimenting with an Elliott addressing machine to produce 300,000 sets of cards for 5,000 titles to send to its 126 hospitals. A new microcard reader was unveiled but not announced. The Carnegie corporation granted funds to the Massachusetts Institute of Technology, Cambridge, Mass., for exploration of scientific mechanical aids to documentation: printing, photoreproduction, sound recording and visual presentation.

Publications.—Notable typographical improvement was made in library publications: the National Publicity council placed the New York Public library's 1946 annual report among the six best reports published during 1947 in the U.S. Among new serials, Harvard library's *Bulletin* was outstanding.

Gifts and Collections.—The year's dramatic event was the $1,000,000 surprise gift from John Deferrari, former fruit peddler, to the Boston Public library. The Abraham Lincoln papers at the Library of Congress, opened 21 years after the death of Robert Todd Lincoln, enhanced historical scholarship. The A. S. W. Rosenbach collection of early children's books went to the Free library of Philadelphia. The *Bay Psalm Book*, auctioned for $151,000, went from friends to Yale university. Municipal archives were transferred to New Orleans Public library.

(*See* also AMERICAN LIBRARY ASSOCIATION; SOCIETIES AND ASSOCIATIONS.)

BIBLIOGRAPHY.—For further information about U.S. libraries consult: *Bulletin* of the American Library Association; *Library Journal; College and Research Libraries; Library Quarterly.* Important contributions to library literature were: S. Ditzion, *Arsenals of a Democratic Culture* (1947); H. C. Link and H. A. Hopf; *People and Books* (1946); American Library Association, *Civil Service and Libraries* (1947); American Library Association, *Books Published in the United States, 1945* (1947); Special Libraries Association, *Special Library Resources*, 4 vols. (1946–47); *Classified List of Reference Books and Periodicals for College Libraries* (1947); *Cumulative Catalog of Library of Congress Printed Cards* (monthly, quarterly, annually, 1947–); A. H. Holway and D. A. Jameson, *Good Lighting for People at Work in Reading Rooms and Offices* (1947); *Ulrich's Periodicals Directory* (1947); C. S. Brigham, *History and Bibliography of American Newspapers, 1690–1820* (1947); B. H. Mahony and others, *Illustrators of Children's Books 1744–1945* (1947); H. R. Galvin, *Films in Public Libraries* (1947). (K. BN.)

Army Library Service.—In the year 1947, the Army Library service continued as a recognized activity of the U.S. army with 800 libraries in the U.S. and overseas. The professional character of the service was maintained by the employment of librarians paid from appropriated and nonappropriated funds.

The library branch of office, chief of special services, department of the army, inaugurated a new service in the spring of 1947. This project consisted of the purchase and distribution of a set of 25 books a month for each overseas library. The titles are selected in advance of publication with books distributed overseas simultaneously with publication dates.

(P. E. P.)

Navy Library Service.—The scope and basis of the library service program for naval personnel, including the marine corps afloat and ashore both in the United States and overseas, remained unchanged during 1947 with modifications to meet postwar needs. There remained about 1,600 active libraries ranging in size from a few shelves on small naval craft to station libraries containing many thousand volumes. Large shore station and hospital libraries were administered by approximately 50 professionally trained librarians. These civilian librarians also assisted in organizing and administering shipboard libraries and those at small stations. Each library is kept up to date by regular shipment of current books of technical and professional interest, for general information and for recreational reading with issue of replacements or special material on request. Scientific and technical libraries required for naval research and development programs continued to expand to meet the increased demand for highly specialized research materials. (D. F. DR.)

Great Britain.—The public libraries of Great Britain and Northern Ireland issued approximately 300,000,000 vols. during 1947, an issue of about seven books per head of the total population of the country. The demand made upon the resources of research libraries appeared to be equally heavy. The increased demand accentuated the difficulties caused by the inadequacy of accommodation in many libraries, and the economic situation dictated the postponement of new building as well as overdue alterations to existing premises. As a temporary measure many library authorities opened branches in shop premises, prefabricated buildings or schools, while an increasing number of mobile or travelling libraries were used to serve outlying districts. Loan collections of gramophone records were introduced for the first time in a number of public libraries.

The removal of the statutory limitation on rates for public library purposes in Northern Ireland was effected by a clause in the Public Health and Local Government (Administrative Provisions) act (Northern Ireland). In Scotland the rate limitation was still in force, although a campaign was afoot to obtain its abolition. On the other hand, the Public Libraries acts were adopted for the county of Argyllshire; the acts were then in operation for the whole of Scotland.

In the British museum, London, an important new appointment was that of Sir Henry Thomas, previously keeper of the department of printed books, to the newly-created post of principal keeper of the department. There was a change at the Bodleian library, Oxford, where J. N. L. Myres was appointed Bodley's librarian in the place of H. R. Creswick (resigned). Two well-known public librarians, R. J. Gordon of Leeds and W. C. Berwick Sayers of Croydon, also retired.

Europe.—The first conference of U.N.E.S.C.O., held in Paris in Nov. 1946, had discussed the program of U.N.E.S.C.O. formulated by its preparatory commission, and the section concerned with libraries had given priority to the rehabilitation of damaged libraries. Other matters for early attention included the wider provision of public or "popular" libraries throughout the world, the removal of barriers to the export and import of books and periodicals, copyright problems, international exchange of books and periodicals, and the encouragement of the preparation of bibliographies and catalogues as a means of facilitating the exchange of bibliographical information. Tentative agreement was reached for the formation of a United Nations library. The former Inter-Allied Book centre which was established in London for the collection and distribution of books and periodicals for war-devastated libraries was administered by U.N.E.S.C.O. for the greater part of 1947. It was then made the nucleus of a British national book centre, housed in the National Central library; it was hoped that considerable reserves of books and periodicals would be built up to meet the urgent needs of other countries. Following up the work of the Inter-Allied Book centre and that of the American Book centre for the Restoration of War-Devastated Libraries, Inc., the French government gave 5,000 copies each of five French classics for distribution by U.N.E.S.C.O. and 300 sets of *Encyclopædia Britannica* were presented by Encyclopædia Britannica, Inc.

Further news was received about book losses in Germany during World War II, and possibly the greatest of these occurred at the Bavarian state library in Munich, where more than 500,000 volumes were destroyed, including special collections of some fame. It was, however, presumed that the famous collection of incunabula had been evacuated and was therefore saved. An estimate of the total losses of learned libraries in Germany is 15,000,000 volumes, while the popular libraries (*Volksbüchereien*) lost something between 5,000,000 and 10,000,000 books. The *Deutsche Bücherei* at Leipzig had recovered most of its previous holdings and it was estimated that the library now consisted of about 2,000,000 vols. The *Oeffentliche Wissenschaffliche Bibliothek* is the title which was given to a new public scientific library in Berlin, formed by combining the *Preussische Staatsbibliothek* and the library of the *Technische Hochschule*. The serious war damage to the Bulgarian national library in Sofia, one of the largest in the Balkans, which was nearly completed at the outbreak of the war, was repaired. In Greece, steps were being taken towards the organization of a

public library service for the whole of the country in the Greek national library. Professional library training was initiated in Greece.

A further sign of the resumption of normal library activity on the continent of Europe was given by the meeting of the committee of the International Federation of Library Associations in Oslo in May 1947, where 18 countries were represented by more than 60 delegates. This was the first meeting of the committee since 1939 and was largely concerned with reviewing reports of work carried out under difficult conditions during the war years by the *sous-Commissions,* and with planning for the future. The conference also served as a valuable opportunity for co-operation between the International Federation and U.N.E.S.C.O. (D. C. H. J.)

Libya: *see* ITALIAN COLONIAL EMPIRE.

Lie, Trygve (1896–), Norwegian statesman and United Nations official, was born July 16 in Oslo. After graduating from Oslo university law school in 1919, he became secretary general of the Norwegian Labour party. Lie was justice minister in the Nygaardsvold cabinet in 1935 and minister of commerce in 1939. After the Germans invaded Norway in 1940, he joined the Norwegian government-in-exile in England; he was first minister of shipping and supply and later foreign minister. On Feb. 1, 1946, Lie, who was Norway's delegate to the United Nations, was elected secretary-general of the Security council of that organization.

In his statements on world affairs in 1947, he pleaded for a return to the spirit of Yalta and warned that "chaos and endless suffering" would be the world's lot unless the great Allied Powers worked together in the postwar era with the same spirit of co-operation that marked their wartime alliance. In his speech closing the second regular general assembly session, Nov. 29, he urged greater co-operation among the big powers.

Liechtenstein. A small principality on the eastern frontier of Switzerland. Area: 61 sq.mi.; pop. (census 1941): 11,138. Capital: Vaduz (pop. 2,020). Language: German; religion: mainly Roman Catholic. Ruler: Prince Franz Josef II.

Education.—(1943): schools 62, scholars 1,701.

Finance.—Revenue (est. 1946) Fr.2,693,760; expenditure (est. 1946) Fr.2,809,377; public debt (1945) Fr.2,669,615. Currency: Swiss franc. Exchange; 1 franc = 23.4 U.S. cents.

Foreign Trade.—In customs union with Switzerland. According to the British board of trade, imports and exports to and from the United Kingdom (1947, first eight months) were: from Liechtenstein £156,837; to Liechtenstein £115.

Life Insurance: *see* INSURANCE.
Life Span: *see* BIRTH STATISTICS; DEATH STATISTICS; INFANT MORTALITY; SUICIDE STATISTICS.
Lighting: *see* ELECTRICAL INDUSTRIES.

Lilienthal, David Eli (1899–), U.S. government official, was born on July 8 in Morton, Ill. A graduate of De Pauw university in 1920, he studied law at Harvard university. In 1933, President F. D. Roosevelt named him director of the newly-created Tennessee Valley authority and in 1941 he became chairman of TVA. He was also a consultant with the atomic project at Oak Ridge, Tenn. In 1946, he headed a committee whose report to the state department formed the basis for the U.S. proposals for establishment of a United Nations Atomic Energy commission.

Pres. Harry S. Truman's nomination of Lilienthal in October of 1946 as chairman of the new U.S. Atomic Energy commission provoked a hot political fight in the senate that split party lines. Opposition to his appointment was led by Senator R. A. Taft, Republican leader (who felt Lilienthal was "too soft" toward Russia) and Sen. K. D. McKellar, Democrat, of Tennessee (who had long feuded with Lilienthal over the latter's refusal to grant patronage deals in TVA). Sen. A. H. Vandenberg headed the defenders of the former TVA chairman. Following protracted debate, Lilienthal finally was confirmed on April 9, 1947, by a 50–31 vote. After being installed as chairman of the new body, he upheld vigorously the administration policy that the U.S. would continue to develop atomic weapons until a foolproof system of world atomic controls had been established.

Lime. The production of lime in the United States increased from 5,920,600 short tons in 1945 to 5,990,700 tons in 1946, including 4,344,300 tons of quicklime and 1,648,400 tons of hydrated lime. Reduced industrial demand made available the needed increase in building lime, without much advance in production. (G. A. Ro.)

Limes: *see* FRUIT.
Limestone: *see* STONE.

Linen and Flax. While some recovery was made from the disruption caused by World War II, the flax and linen industry in 1947 was still snarled in the uncertainties of industrial dislocation, new farm interests and difficult labour conditions. The U.S.S.R., principal source of flax prior to World War II, indicated that it might manufacture its own linens and sell the finished product, rather than the flax, thus removing the largest prewar supplier of raw material to the linen-weaving countries. The 1947 acreage of flax in the Soviet Union was estimated at 3,211,000, with a prospective yield of 400,000 tons of flax, compared with a planting of 2,717,000 ac. in 1946 with a yield of 240,000 tons.

In Northern Ireland, traditional home of linen goods, the industry was rapidly disintegrating, although organizations of linen weavers were making valiant efforts to rebuild it. Flax acreage in 1947 was about 18,000, instead of the 70,000 that the industry estimated were needed. Farmers found greater profits in food crops.

Exports of linens from the United Kingdom for the first ten months of 1947 were as follows, in thousands of square yards:

United States	9,077
Australia	4,396
South Africa	2,368
Argentina	1,996
New Zealand	1,975
All others	18,191
Total	38,003

The average earning of all workers in the flax-spinning and linen industry was 58*s* 11*d* a week in April 1947—or 97% more than 1938 rates.

In Belgium, the scutching mills in the Lys valley continued to serve as the processing machinery for flax straw grown in France and the Netherlands. Production in 1947 averaged 975 metric tons per month. Weaving mills found it difficult to operate at full capacity, and in November operations were down to 25%. Production of linens was at an average monthly rate of 849 metric tons in 1947, compared with 663 metric tons in 1946 and 753 metric tons in 1938. Lack of skilled workers was still a problem, and few apprentices had been trained during World War II. Labour-saving devices were being employed in an effort to offset the shortage of personnel.

In Eire, the 1947 flax acreage was estimated at from 17,000 to 18,000, continuing the decline from wartime levels. Up to July 31, 1947, 3,792 long tons of flax had been sold, compared with 5,402 in the same period of 1946. The British ministry of

supply was the sole customer, and future maintenance of flax acreage was said to depend largely on continuation of price inducements from Britain. Production of linen yarn and woven fabric was negligible.

In Czechoslovakia, the first four months of 1947 saw a substantial revival in the linen industry. The 1947 flax acreage was expected to be 61,780, an increase over that of 1946, despite continued labour shortages.

Egypt's war-born flax industry continued to decline in 1947. The 1945–46 planting was the lowest in several years—3,600 ac. Two new flax-spinning mills which began operation during the latter part of 1946 were working largely on imported short-cut staple fibre. Since Oct. 1946, export of fibre and tow had been under government control.

Polish flax farmers planted 21,000 ac. in 1947, an increase of 33% more than 1946, although exports (120 tons) in the first 3 mo. of the production year (Oct.–Dec. 1946) were only about one-fifth of that for the same period of 1945. Sweden planted about 11,000 ac. in flax for 1947, twice the acreage of 1946, but none of the crop was exported.

A comprehensive survey of the German linen industry was issued in Oct. 1947, by the U.S. department of commerce, in which special emphasis was laid on the possibilities of the material known as "Flockenbast," prepared on cotton-spinning machinery from flax. The finest of its fibres are coarser than Irish dam-retted flax after wet spinning. No statistics of production were given.

In the United States, the department of agriculture offered a federal crop insurance program to 232 counties in the major flax-producing areas, including Minnesota, North Dakota, Kansas, Montana and Iowa. Imperial county in California was listed as a potential producer in 1949.

Only the flax grown in Willamette valley, Oregon, is considered suitable for spinning fibre. Between 8,000 and 10,000 ac. are grown annually, with a yield of about 350 lb. per acre. Thirteen mills were operating in that area by 1947, with a fixed investment in excess of $1,250,000. Weaving of linen in the United States was carried on by eight or ten companies located in New York, Massachusetts, Rhode Island, Pennsylvania, New Jersey, Minnesota and Oregon. Government loans enabled flax growers to continue during the war years, but in 1947 the accumulated loans covered more than 1,000,000 lb. of domestic flax fibre, and the domestic support loan was higher than the open market price on competitive foreign flax fibres.

(I. L. Bl.)

Lions Clubs, International Association of: *see* Societies and Associations.

Liquor Control: *see* Liquors, Alcoholic.

Liquors, Alcoholic.

The postwar year of 1946 and the first few months of 1947 saw a shift in emphasis within the beverage distilling industry from all-out war alcohol production to a limited resumption of beverage spirits output. The period thus covered, therefore, was a transitional one for the industry, especially in view of the fact that after only nine months of relatively normal production, another period of restriction was facing distillers of the U.S.

Responding to the urgent need for industrial alcohol, both at home and abroad, the beverage distilling industry began voluntarily to convert its production facilities to war use during the latter part of 1941. In Oct. 1942, the War Production board halted the manufacture of whisky, gin and beverage neutral spirits completely. During this period until the end of the war, the beverage distillers turned out approximately 691,000,000 gal. of war alcohol for use in making munitions, synthetic rubber, hospital supplies and essential civilian and industrial products. This represents almost half of the total amount of industrial alcohol manufactured by all producing sources.

Another activity of the beverage distilling industry developed during World War II was its contribution to the production of penicillin and other antibiotics. This addition to the regular output has since been further developed and enlarged.

In addition, the beverage distilling industry continued to produce high protein animal feed as by-product of distilling process. During distillation, the nutrient value of the grain is increased through the addition of yeast proteins, vitamins and fats. According to the department of agriculture, this animal feed played an important role in the tremendous increase in meat, chicken and egg production during the war over prewar levels. In the fiscal year ending Oct. 30, 1947, distillers produced a total of 409,600 tons of dried distillers grains, an increase of 20% over the previous year and an increase of almost 40% over the 1937–42 average of 224,000 tons per year.

From 1942 until V-J day in Aug. 1945, distillers were permitted to produce potable alcohol during only three one-month periods when supplies on hand were at sufficiently satisfactory levels to warrant the release of distilling facilities from war work. The revocation of the WPB control order at the end of Aug. 1945, did not bring with it a return to normal production. Basing its action on increased demands for grain to meet the need for export to grain-deficient countries abroad, the department of agriculture issued new restrictions on grain allocations to the industry. The use of wheat was banned, rye use was limited, and distillers were permitted the use of corn grades 4, 5 and sample only. Distilleries were allowed to operate for various restricted periods ranging from three to ten days monthly.

Production of beverage spirits proceeded under severe government restrictions for the better part of 16 months following the close of the war.

Not until Dec. 1946, did distilled spirits production reach a relatively normal level. At that time the department of agriculture, in the face of record crops of corn and other grains, lifted its restrictions to allow distillers unlimited quantities of corn for the manufacture of spirits and modified its restrictions on rye to allow its use to the extent of 6% of the total quantity of grains used in any one plant in a given month.

Whisky production increased in the last month of 1946 and the first few months of 1947, reflecting this move. The industry's concentration on war alcohol production and postwar restrictions had severely cut into stocks of aged whiskies and had seriously disrupted aging schedules.

U.S. whiskies are aged anywhere from two to eight years before bottling—the average aging period for most whiskies is about four years. Flavour, colour and body develop in a slow chemical process which involves reactions between substances originally contained in the whisky and others extracted from the toasted wood of the oak barrel in which they are stored.

Consumers had continued to be supplied with beverage spirits during the war years, although the whisky thus used was not being replenished by new production, so that in spite of a relatively favourable production year in 1946, net whisky inventories as of Dec. 31 of that year were still well below normal prewar levels: 327,000,000 tax gal. as against 424,000,000 gal. in Dec. 1941.

The over-all increase in production during the early part of 1947 did effect some improvement in the total supply picture. At the end of Sept. 1947, net whisky inventories (after estimating evaporation and leakage losses) totalled 401,400,000 tax gal. —only 12,100,000 gal. below the prewar level of Sept. 31, 1942.

Age composition of supplies on hand, however, was still seriously out of balance. As of Sept. 30, 1947, less than 20% of

net whisky inventories was more than 4 years old; slightly more than 7% was between 2 and 4 years old and the balance—73% —was only 2 years old or less. As a consequence, the industry was forced to conserve its stocks of matured spirits carefully.

Withdrawals in 1946 and the first nine months of 1947 were maintained on the conservative basis of the war years. During the fiscal year ended June 30, 1947, withdrawals of whisky totalled 58,822,676 tax gal. and of gin 6,764,660 gal. Withdrawals of grain neutral spirits were maintained at the high level of the previous year, 99,391,442 tax gal. and were used principally to make the popular whisky spirit blends.

Production of distilled spirits in the fiscal period ended June 30, 1947, amounted to: whisky, 167,994,805 tax gal.; gin, 7,359,998 tax gal.; rum, 908,083 gal.; brandy, 40,850,527 gal.

On Oct. 5, 1947, at the request of President Truman, the beverage distilling industry agreed to halt production of all grain distilled spirits for a period of 60 days, in order to aid the food conservation program. Following the short period of relatively normal production, after three years of almost complete shutdown, and with aged whisky stocks extremely low, the industry was in 1947 confronted with the problem of adjusting its production program to the world food program. In Dec. 1947, the president was granted the power to allocate grain for the production of beverage distilled spirits on a temporary basis.

Although total imports of distilled spirits during 1947 declined from levels of the previous year, Scotch whisky imports for the first 9 months of the year showed a marked increase over the same period in 1946—4,531,980 tax gal., as against 2,917,884 tax gal. in 1946. On May 1, 1947, British whisky distillers were ordered by the minister of food to revise their ratios of Scotch whisky released for consumption. It is difficult to say to what extent the grain situation would affect whisky production in Canada and the United Kingdom. In Aug. 1947 the British ministry of food allocated 150,000 tons of barley to Scotch whisky producers. The Scotch production target for the 1947–48 fiscal year was reported at 38,000,000 gal. as against 17,500,000 gal. in 1946. Whisky withdrawals for the home market were reduced from 50% to 25% of total withdrawals, while allocations for export to "hard currency" countries were increased from 50% to 75% of the total.

Table I.—*Revenues from Alcoholic Beverages*

	Distilled Spirits	Beer	Wine	Grand total
1941	$ 558,547,795	$348,876,726	$20,008,266	$ 927,432,787
1942	777,793,659	403,436,418	33,943,923	1,215,174,000
1943	906,378,809	515,063,123	32,759,793	1,454,201,725
1944	1,408,368,230	627,458,724	47,625,921	2,083,452,875
1945	1,661,793,763	659,055,927	49,073,828	2,369,923,518
1946	1,972,860,338	642,224,380	75,898,249	2,690,982,967
1st 9 months, 1946	1,436,492,766	479,985,544	54,955,527	1,971,433,837
1st 9 months, 1947	1,023,026,518	533,937,544	30,973,407	1,587,937,469

Federal tax receipts from alcoholic beverages in 1947 constituted a major source of government commodity tax revenue. In the first 9 months of 1947, government collections from alcoholic beverages totalled $1,587,937,469. Table I shows internal revenue receipts from distilled spirits, wine and beer during each of previous years, as well as for the first nine months of 1946–47.

Table II gives data for production, withdrawals and bottling of distilled spirits for the fiscal year ended June 30, 1947.

(A. J. Li.)



SCOTCH WHISKY, the largest shipment to arrive in the U.S. after the start of World War II, is shown being unloaded at a New York dock in May 1947

Liquor Control.—The year 1947 saw the return of government controls on the use of grain by distillers and brewers. In October, owing to pressing need for grain abroad, the distillers agreed to a voluntary 60 day holiday, ending on Christmas day. The brewers agreed to a 25% reduction in production during that period. These limitations were in response to a request by the Citizens Food committee appointed by President Truman. After the expiration of the holiday, the president, who in the meantime had been given the necessary powers by congress, limited the amount of grain to be allocated to the distillers in Jan. 1948 to 2,450,000 bu.

No limitation on grain for brewers had been announced at year's end.

The argument still raged during 1947 as to whether limitation should be on a historical basis, the amount produced during the period before World War II or on a capacity basis. Of the five big producers, four, National Distillers, Schenley, Distillers-Seagram and Hiram Walker have been big producers after repeal. The fifth, Publicker, formerly a manufacturer of alcohol only, became a big whisky maker after the end of World War II.

The government action came after the big distillers were unable to agree among themselves upon a voluntary method of restriction.

In legislation, little of importance was passed by the federal congress. A feature of 1947 was the adoption by nine states of a mandatory fair trade contract law. This requires the brand owners to name a minimum price at which items of alcoholic beverage may be sold to the consumer. These floor prices are

Table II.—*Distilled Spirits Statistics, Fiscal Year Ended June 30, 1947*

	Whisky	Gin	Rum (beverages only)	Brandy	Neutral spirits*	Cordials and Liqueurs	Misc.	Total
Production (tax gallons)	167,994,805	7,359,998	908,083	40,850,527	99,391,442			316,504,855
Withdrawals (tax gallons)	58,822,676	6,764,660	477,734	37,987,221†	99,391,442			203,443,733
Bottled output (wine gallons)	166,218,217	18,645,945	688,860	2,835,937		6,702,954	439,520	195,531,433

*Represents neutral spirits used in rectification, neither production nor withdrawal figures show volume of neutral spirits actually used for beverage purposes. Production and withdrawal equivalents are best determined by employing neutral spirits used in rectification (for whisky blending, and gin, cordial and liqueur processing).
†Includes brandy withdrawn for the fortification of wine.
Source: Prepared by Licensed Beverage Industries, Inc., from data of the alcohol tax unit, bureau of internal revenue, treasury department.

filed with the state authority, and heavy penalties, including suspension and revocation, are imposed upon retailers who make sales below the floor prices. The states which adopted this system were Arizona, California, Georgia, Illinois, Kentucky, New Jersey, New Mexico, New York and Oregon.

Some states also adopted compulsory price posting laws which require suppliers to post their prices to retailers, and forbid any discrimination. The mandatory trade law met with considerable opposition, but seemed to be working well. The principal argument against it was that it deprives the customer of the lowest price which might result from free competition. The proponents argue that it protects the small operator from the competition of the large department store or chain which could use particular items as a loss leader, and that the neighbourhood store price was the true one. The system provides opportunity for amendment of prices by the brand owner, in many cases the changed price going into effect 30 days after filing of the amendment with the control body.

The collection of taxes, federal and state, on alcoholic beverages fell off during 1947, as did the consumption of alcoholic liquor. The high cost of living left little money for liquor in the average family budget. The demand for beer, however, did not fall off and collection from this source remained about the same as in 1946.

In spite of strenuous efforts by industry representatives to secure passage of legislation lowering the tax of nine dollars a proof gallon on distilled spirits, congress took no action. The legislators were apparently unmoved by the argument that the existing tax represented the point of diminishing returns, and that over-all collections were being reduced. None of the states reduced the tax rate and seven of them increased it.

Arkansas raised the tax per gallon from $1.50 to $2.52, Massachusetts from $1.45 to $2.00, Minnesota from $2.00 to $2.50, Nebraska from $0.80 to $1.00, Nevada from $0.60 to $0.80, New Jersey from $1.00 to $1.50 and Tennessee from $1.00 to $2.00. Idaho, Iowa, Kansas, Massachusetts, Nebraska, North Carolina, Pennsylvania, South Carolina, Tennessee, West Virginia, Wisconsin raised the tax rates on beer, which averages about four cents a gallon. Six states raised the tax rates on wine.

Existing federal regulations on labels were found to need considerable revision. In the fall of 1946 open hearings on labels were held in Washington, D.C., before the alcohol tax unit. Decisions were expected in 1947, but did not materialize. These were expected to be made early in 1948. One of the principal matters in dispute was the labelling of liquor made in the U.S., claimed to have the attributes of Scotch. It now must be labelled "Scotch type." Those who claimed it to be the equal of the product made in Scotland wanted the right to label it American Scotch, or a similar name. The Scotch manufacturers and importers wished to forbid the use of the phrase "Scotch type."

Local option elections were held in many states. The national picture was little changed, but in New York, Pennsylvania, Ohio and Illinois, the drys made substantial gains, enlarging the area in which the sale at retail of alcoholic liquors is prohibited. (*See* also BREWING AND BEER; INTOXICATION, ALCOHOLIC; WINES.)

(M. LB.)

Literary Prizes.

The literary prizes for the year 1947 were as follows:

ABINGDON-COKESBURY AWARD.—$7,500 each to John Wick Bowman for *The Religion of Maturity* and to Georgia Harkness for *Prayer and the Common Life*, books chosen by the judges as those offering "the greatest good for the Christian faith."

ACADEMY OF AMERICAN POETS.—$5,000 fellowship to Ridgely Torrence.

AMERICAN ACADEMY AND NATIONAL INSTITUTE OF ARTS AND LETTERS.—$1,000 each, arts and letters grants, were made to 6 writers: Nelson Algren, Eleanor Clark, Lloyd Frankenberg, Robert Lowell, Elizabeth Parsons and James Still.

ANISFIELD-WOLF AWARD for the best book in the field of race relations, $1,000 each to Sholem Asch for *East River* and to Pauline R. Kibbe for *Latin Americans in Texas*.

BRAZILIAN LITERARY PRIZE (PANDIA CALOGERAS PRIZE).—$1,000 to Samuel Putnam for his translations of Brazilian classics, *Rebellion in the Backlands* and *The Masters and the Slaves*.

JOHN BURROUGHS MEDAL for the most outstanding piece of nature writing to Theodora Cope Stanwell-Fletcher for *Driftwood Valley*.

COMMONWEALTH CLUB OF CALIFORNIA.—Gold medal for general literature to Royce Brier for *Western World;* gold medal for scholarship and research to John A. Crow for *The Epic of Latin America;* silver medals to George Hedley for *Christian Heritage in America,* to Mary and Conrad Buff for *The Big Tree,* to George E. Mowry for *Theodore Roosevelt and the Progressive Movement,* to E. H. Staffelbach for *Towards Oregon* (juvenile), to Edward Weismiller for *The Faultless Shore* (poetry).

JOHN DAY COMPANY'S FOREIGN SERVICE BOOK CONTEST.—$1,000 to Charles F. Knox, Jr., for his manuscript, *Thirst,* a novel about ranch life in South America.

DODD, MEAD FACULTY BOOK FELLOWSHIP.—$2,000 award in nonfiction to a member of the faculty of a U.S. or Canadian college; to Leo Gurko of Hunter college for *The Angry Decade;* RED BADGE DETECTIVE STORY PRIZE to Helen Steers for *Death Will Find Me;* INTERCOLLEGIATE LITERARY FELLOWSHIP, $1,200 to Frederic Morton for *The Hound*.

FRIENDS OF AMERICAN WRITERS.—$750 to a midwestern author, to Walter Havighurst for *Land of Promise: The Story of the Northwest Territory*.

GOOD HOUSEKEEPING.—$10,000 contest to encourage the writing of magazine fiction by faculty members of colleges and universities; $5,000 to Allan Seager of the University of Michigan, $3,000 to Mary Ellen Chase of Smith college, $2,000 to I. J. Kapstein of Brown university.

GUGGENHEIM FELLOWSHIPS were 122 in number and amounted to $310,000. Of these 19 went to writers: Ralph Bates, Elizabeth Bishop, Gwendolyn Brooks, Richard V. Chase, Jr., Eleanor Clark, Shirley Graham, Joseph Kinsey Howard, John Richard Humphreys, Alfred Kazin, Roger Lemelin, Robert Lowell, Jeannette Mirsky, Isaac Rosenfeld, Henry M. Rosenthal, Katharine Lawrence Stapleton, Lionel Trilling, Arlin Turner, Robert Penn Warren, Edward Weismiller.

O. HENRY MEMORIAL AWARD PRIZE STORIES.—$300 first prize to John Bell Clayton for *The White Circle;* $200 to Eugene L. Burdick for *Rest Camp on Maui;* $100 to Elizabeth Parsons for *The Nightingales Sing;* $100 to Robert Lewis for *Little Victor*, a first published story.

HOUGHTON MIFFLIN-EYRE AND SPOTTISWOODE FELLOWSHIP.—A joint Anglo-American award; $2,400 U.S. fiction award to Eugene Burdick for a contemporary novel; $2,400 U.S. nonfiction award to Arthur Mizener for a projected biography of F. Scott Fitzgerald; £500 British fiction award to Anthony West, son of Rebecca West. No British nonfiction award was made.

LAETARE MEDAL.—Awarded annually by the University of Notre Dame to an outstanding U.S. Catholic layman, to William George Bruce, president of the Bruce Publishing company.

LEWIS AND CLARK NORTHWEST AWARD (DUTTON).—$3,000 for the best manuscript submitted by an author from Washington, Oregon, Idaho, Montana or Alaska, to Ralph Freedman of the University of Washington at Seattle for *Divided*, a first novel.

METRO-GOLDWYN-MAYER NOVEL AWARD.—A semiannual award of $150,000 with an additional $275,000 contingent upon sales, a bonus and January Book-of-the-Month club selection, to Ross Lockridge, Jr., for *Raintree County*. A special award to a second selection was made to Maritta M. Wolff for *About Lyddy Thomas;* the December award to Esther Forbes for *The Running of the Tide*.

MOODY PRESS DISTINGUISHED CHRISTIAN FICTION AWARD.—$1,000 for a religious novel, to Leonard Lovdahl for *Sun in the Street,* a first novel and a story of the French Revolution.

MYSTERY WRITERS OF AMERICA AWARD.—For the best first crime novel, to Helen Eustis for *The Horizontal Man*.

NEW YORK DRAMA CRITICS' CIRCLE AWARD.—For the best U.S. play of the season, to Arthur Miller for *All My Sons;* for the best foreign play of the year, to Jean-Paul Satre for *No Exit*.

NORTON MEDICAL AWARD.—$5,000 offered by W. W. Norton & Co. for a book about medicine and the medical profession for the layman, to Dr. Bertram M. Bernheim for *A Surgeon's Domain*.

PARENTS' MAGAZINE MEDAL.—For an outstanding book for parents, to Dr. Benjamin Spock for *The Commonsense Book of Baby and Child Care* reprinted by Pocket Books under the title *Pocket Book of Baby and Child Care*.

EUGENE P. SAXTON MEMORIAL TRUST.—Literary fellowships awarded to the following writers: Elaine C. Battis, Max Steele, Marjorie Stengel, John Watson, Sara de Ford, Sheila Alexander, Edmund S. Glenn.

SHELLEY MEMORIAL AWARD.—To a poet for outstanding achievement, won by Rolfe Humphries, author of *Forbid Thy Ravens*.

CONSTANCE LINDSAY SKINNER AWARD.—A bronze plaque presented by the Women's National Book association for outstanding accomplishment by a woman in the book world; to Emily P. Street, secretary and director of sales and advertising at William Morrow & Co.

UNITED SERVICES BOOK CONTEST.—Sponsored by Thomas Y. Crowell Co., Columbia Pictures and George G. Harrap Co. of London to discover literary talent in the armed services of the United Nations; $1,000 each to Rowland Barber for *John 29;* F. A. Nauheim for *Behold the Upright;* Raibeart Elder for *The Cruel Land;* David A. Evans for *Valley of Sound;* Everard Johnson for *The Squadron;* William Howard Jones for *Three Signs and a Hangover*.

WHITTLESEY HOUSE-SCIENCE ILLUSTRATED AWARD.—$10,000 for a book on a scientific subject written for the layman to Dr. Clyde Kluckhohn of Harvard for *Anthropology and the World Today: The Meaning and Use of the Whole Science of Man*.

Children's Books.—CALDECOTT MEDAL.—For the most distinguished picture book to Leonard Weisgard for his illustrations for *The Little Island* by Golden MacDonald.

CHILD STUDY ASSOCIATION.—An honorary award to a book which deals with contemporary problems in a realistic manner, to Howard Pease for *Heart of Danger*.

JULIA ELLSWORTH FORD FOUNDATION AWARD.—To Irwin Shapiro for *Joe Magarac and His U.S.A. Citizen Papers*, an original story of the legendary hero of the U.S. steel mills, Joe Magarac.

HERALD TRIBUNE SPRING BOOK FESTIVAL.—Three prizes of $200 each for the best book for younger children; to Marie Hall Ets, author and illustrator of *Oley: The Sea Monster;* middle age group to Claire Huchet Bishop for *Pancakes-Paris,* illustrated by Georges Schreiber; teen age group to William Pène du Bois, author and illustrator of *The 21 Balloons.*

JUNIOR BOOK AWARDS.—Six medals and 6 certificates presented by the Boys' Clubs of America to the books which were the favourites of boys in 47 boys' clubs all over the U.S. Medals to Jim Kjelgaard for *Big Red;* to Walter Farley for *The Black Stallion Returns;* to Charlie May Simon for *Joe Mason, Apprentice to Audubon;* to Enid Blyton for *Mystery Island;* to Joseph Leeming for *Fun with Puzzles;* and to Leon W. Dean for *Guns over Champlain.* Certificates to Paul Corey for *Five Acre Hill;* to Leland Silliman for *The Scrapper at Camp Blazing Rock;* to Margaret S. Johnson and Helen Lossing Johnson for *Vicki, A Guide Dog;* to Harold H. Strickland for *Juggernaut of the Rangers;* to Morris Markey for *Well Done!* and to William Marshall Rush for *Wheat Rancher.*

JOHN NEWBERY MEDAL.—To Carolyn Sherwin Bailey for *Miss Hickory.*

YOUNG READERS' CHOICE AWARD by the Pacific Northwest Library association, to Robert McCloskey for *Homer Price* (1943).

Canada.—GOVERNOR-GENERAL'S AWARDS, silver medals, to Winifred Bambrick for *Continental Revue* (fiction); to Robert Finch for *Poems* (poetry); to A. R. M. Lower for *Colony to Nation* (academic nonfiction); to Frederick Philip Grove for *In Search of Myself* (creative nonfiction). The LORNE PIERCE GOLD MEDAL FOR POETRY, issued by the Royal Society of Canada, to Dorothy Livesay. The first annual LEACOCK MEMORIAL MEDAL FOR HUMOUR to Harry L. Symons for his book *Ojibway Melody.* The first annual LITERARY AWARD OF THE IMPERIAL ORDER DAUGHTERS OF THE EMPIRE to A. R. M. Lower for *Colony to Nation.* The first annual CANADIAN LIBRARY ASSOCIATION MEDAL for the outstanding Canadian juvenile to Roderick L. Haig-Brown for *Starbuck Valley Winter.* The OTTAWA DRAMA LEAGUE WORKSHOP'S NATIONAL PLAYWRITING PRIZE to Robertson Davies for a one-act satire fantasy, *Eros at Breakfast.*

Great Britain.—The leading awards and prize winners in 1947 were as follows: ALEXANDER PRIZE, awarded to June Milne for an essay on *The Diplomacy of Dr. John Robinson, England's Accredited Representative to the Court of Charles XII of Sweden, 1697–1709;* ATLANTIC AWARDS FOR LITERATURE, £200–£300, third list of awards, June 1947, Robert Aldridge Caldwell, Maurice Carpenter, Sid Chaplin, Michael Early Ferrand Corley, David Emery Gascoyne, William Glynne-Jones, William Sidney Graham, James Findlay Hendry, Richard George Kitto, John Maurice Lindsay, Laurence Stanley Little, Thomas Joseph Douglas Macdonald, Bryan Morgan, John Clement Prichard, Derek Stanley Savage, Christopher Samuel Youd; fourth list of awards, Nov. 1947, John Frederick Burke, Michael St. John Packe, Peter Ratazzi; JAMES TAIT BLACK MEMORIAL PRIZES, one for fiction and the other for biography, approximately £250 each: biography, Richard Aldington for *Wellington;* fiction, George Oliver (Oliver Onions) for *Poor Man's Tapestry;* BLACKWELL ESSAY PRIZE, awarded to L. M. Stirling for an essay on *The Use and Value of Broadcasting as an Aid in Primary and Secondary Education;* ROSE MARY CRAWSHAY PRIZE, awarded to Marjorie Nicolson for *Newton's "Opticks" and the Eighteenth Century Poets;* WILLIAM HEINEMANN FOUNDATION FOR LITERATURE AWARD, awarded by the Royal Society of Literature, value up to £200, awarded in 1946 to Victoria Sackville-West for her poem *The Garden,* and to Bertrand Russell for *The History of Western Philosophy;* the HODDER AND STOUGHTON BURSARY SCHEME, full bursaries for three years were awarded in 1946 to Lawrence Alloway, George Barker, George Fraser, Walter Marsden, Henry Reed, William Robson and William Sansom, and the eighth bursary was awarded £100 a year each for 3 years to John Bayliss, Wolf Mankowitz and Geoffrey Parsons; KING'S GOLD MEDAL FOR POETRY, no award in 1947, the last award was made in 1940 to Michael Thwaites for *Milton Blind*—the presentation to Thwaites, a young Australian poet, was made by the poet laureate, John Masefield, at Oxford on Jan. 4, 1947; LIBRARY ASSOCIATION CARNEGIE MEDAL, awarded to the British writer of an outstanding book for boys and girls, last awarded in 1946 to Elizabeth Goudge for *The Little White Horse,* illustrated by C. Walter Hodges; JOHN LLEWELYN RHYS MEMORIAL PRIZE, awarded from the literary earnings of this author, who was killed in action in 1940, for a book by a citizen of the British empire less than 30, annual value approximately £25, awarded to Anne-Marie Walters for *Moondrop to Gascony;* SUNDAY TIMES BOOK PRIZE, first awarded in 1947 to Sir Osbert Sitwell for *The Scarlet Tree;* UNITED SERVICES BOOK CONTEST, in the 1945–46 contest 6 fellowship awards of £250 each were made to the following authors: Roland Barber, R. E. Elder, David Evans, T. E. Johnson, William Howard Jones and F. A. Neuheim. Details of the 1946–47 contest, which closed at the end of June 1947, had not been announced by the end of the year.

Other important prizes which were not awarded in 1947 included the HARMSWORTH AWARD, the HAWTHORNDEN PRIZE, the FELICIA HEMANS PRIZE and the STOCK PRIZE.

France.—CITY OF PARIS PRIZE to Leon-Paul Fargue for *Pedestrian in Paris* (*Le Piéton de Paris*). DENYSE CLAIROUIN PRIZE.—50,000 francs to Marie Canavaggia for her translation into French of Nathaniel Hawthorne's *Scarlet Letter.* FÉMINA PRIZE to Michel Robida for *Le Temps de la longue patience* (1946 award). To Gabrielle Roy for *The Tin Flute* (1947 award). FRANCO-SWISS PRIZE.—50,000 francs to Marcel Raymond for *Paul Valéry et la tentation de l'esprit.* GONCOURT PRIZE (1946) to Jean Jacques Gautier for *Histoire d'un fait divers;* the 1947 prize to Elsa Triolet for *A Fine of 200 Francs.* GRAND PRIX LITTÉRAIRE DE L'ALGÉRIE to J.-B. Canavaggia for *Nous, les élus* (*The Chosen Ones*). INTER-ALLIÉ PRIZE to Jacques Nels for *Poussière du temps.* THÉOPHRASTE RENAUDOT PRIZE to Jules Roy for *La Vallée heureuse.*

(B. GM.; X.)

Literature: *see* AMERICAN LITERATURE; BOOK PUBLISHING; CANADIAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; LITERARY PRIZES; NOBEL PRIZES; PULITZER PRIZES; RUSSIAN LITERATURE; SPANISH-AMERICAN LITERATURE; SPANISH LITERATURE.

Lithium Minerals.

The production of lithium minerals in the United States increased from 2,446 tons in 1945, containing 274 tons of LiO_2, to 3,065 tons in 1946, containing 323 tons of LiO_2. The demand for amblygonite, lepidolite and spodumene was declining, as more use was being made of the lithium salts recovered as by-products in potash operations. (G. A. Ro.)

Lithuania.

A Baltic country of northeastern Europe, north of Poland; in 1941 it became a part of Germany's "Ostland," and in 1944 was reconquered by the Red armies and re-established as a republic of the U.S.S.R. Area, 22,958 sq.mi. (1940); pop. (Jan. 1, 1940) 2,879,070. Chief cities: Vilnius (Vilna, cap. 1942, 182,000); Kaunas (1941 est. 120,000).

History.—Lithuania's independence, won after World War I, was short-lived. In 1940 the country was incorporated into the U.S.S.R. as one of the constituent republics. In 1941 it redeclared independence, but the invading Germans allowed the state to function for only seven weeks. In 1944–45 the Russians drove out the Germans and reintegrated Lithuania into the soviet system.

Throughout these kaleidoscopic changes many of the pre-1940 Lithuanian diplomats remained at their posts abroad and preserved the recognition of the western states for the old democratic regime. Up through 1947 the United States had not yet recognized the Russian claims to the Baltic countries. In May, however, the British recognized the *de facto* control established by the U.S.S.R. and this might be a first step to *de jure* recognition. The Lithuanians continued nevertheless to sabotage and oppose the Russians at home and to appeal for help abroad. Large numbers of Lithuanians lived in the United States and supported a vigorous and persistent propaganda campaign.

On one significant matter the Lithuanians, Latvians and Estonians acted together. For the thousands of "displaced" Baltic peoples in Germany a university was set up at Pinneberg, near Hamburg in Germany. This school without money or traditions, established in Jan. 1946, soon had about 200 professors and more than 1,000 students, organized laboratories and a library, and carried on a vigorous educational program under the name of Baltic university. But then it was forced to go under the name of a D.P. university study centre and to prepare students for entrance into German universities. Stung by this turn of events, the faculty appealed to the U.S. to be allowed to relocate across the Atlantic and carry on from there. Quoddy Village at Eastport, Me., was being sought from the War Assets administration.

The Lithuanians in the United States, during 12 months of 1946–47, sent clothing, food and other supplies to their compatriots in western Europe to a total value of $670,000, and planned to double the aid to $1,400,000 for 1948. More than half of this amount was earmarked for resettlement of 15,000 Lithuanian D.P.s.

Appeals were made to Pres. Harry S. Truman and to the United Nations to aid in the re-establishment of an independent Lithuania, urging particularly that steps be taken quickly to halt genocide—the extermination of a whole people. It appeared that thousands of Lithuanians were being moved into the interior of the U.S.S.R. while Russians were then moved into their homes and farms and workshops in Lithuania—all for the

purpose of establishing a trustworthy communist-Russian population on the western border of U.S.S.R. (F. D. S.)

Liver Disorders: *see* ALIMENTARY SYSTEM, DISORDERS OF.

Livestock. The total number of livestock on United States farms, excluding poultry, continued to decline from the peak of 1944, and on Jan. 1, 1947, was 3.7% below a year earlier and 12% below the record of Jan. 1, 1944. This decline continued through 1947 in the case of sheep and cattle. The causes of the decline, in the face of high prices, were different with each class of livestock. Sheep raisers complained of loss of herders to other employment and the competition with cattle raising for pastures. The number of stock sheep on Jan. 1, 1947, was the smallest since records began in 1867. The eastern states had fewer flocks, and numbers were down in the range states. High prices for lambs and wool failed to check the decline.

Livestock on U.S. Farms, Jan.1, 1947, 1946 and 10-Yr. Average, 1936–45
(In thousands of head)

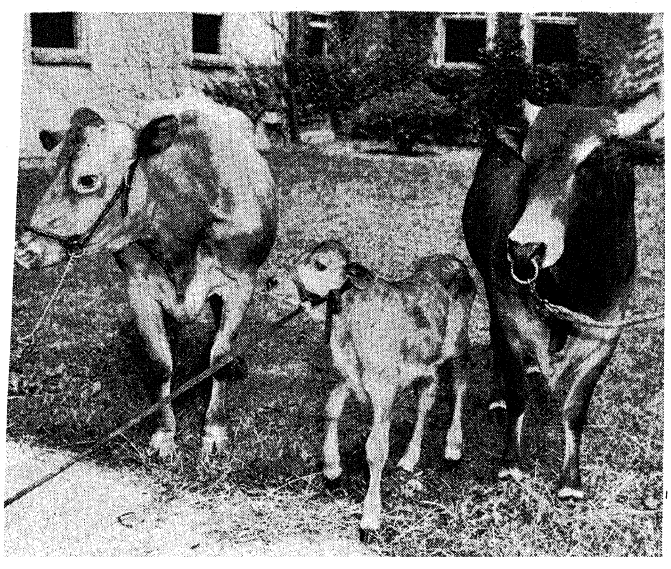
	1947	1946	10-Yr. Average
Horses	7,251	8,053	10,259
Mules	2,773	3,010	3,951
Cattle	81,050	82,434	73,342
Milk cows	26,100	26,695	25,823
Sheep	38,571	42,426	51,909
Hogs	56,901	61,301	57,367
Chickens	475,442	530,203	461,439
Turkeys	6,632	8,493	6,915

Prices of livestock began to advance in early 1947 reaching a temporary high point in March; they advanced again in August and despite the large slaughter, made new high records in September. Slaughter of cattle and calves was greater than that of 1946, while hog slaughter was about the same and sheep and lambs lower. Vigorous consumer demand for meat kept prices of all classes above those of the previous year and more than twice the average of 1936–45. The 1947 beef output was the greatest on record; total meat production was about the same as in 1946. The number of livestock fed in feed lots was about a third less than a year earlier.

The total estimated value of livestock was 25% larger on Jan. 1, 1947, than a year earlier, or about $12,000,000,000, compared with $6,600,000,000 average for 1936–45.

The world's livestock numbers were estimated to have risen during 1946. Increases in Asia, Europe and South America offset decreases in North America and Australia. Argentina reported little change. Imports of Mexican cattle were barred by the outbreak of foot-and-mouth disease. Most of these imports were feeder cattle amounting to about 400,000 head annually. (*See* also AGRICULTURE; CATTLE; HOGS; HORSES; MEAT; POULTRY; SHEEP.) (J. C. Ms.)

FIRST JERSEY-SINDHI crossbred calf born in the U.S., shown with his Jersey dam (left) and his sire, a Red Sindhi imported from India by the U.S. department of agriculture to improve dairy stocks in southern states. The calf was born in July 1947



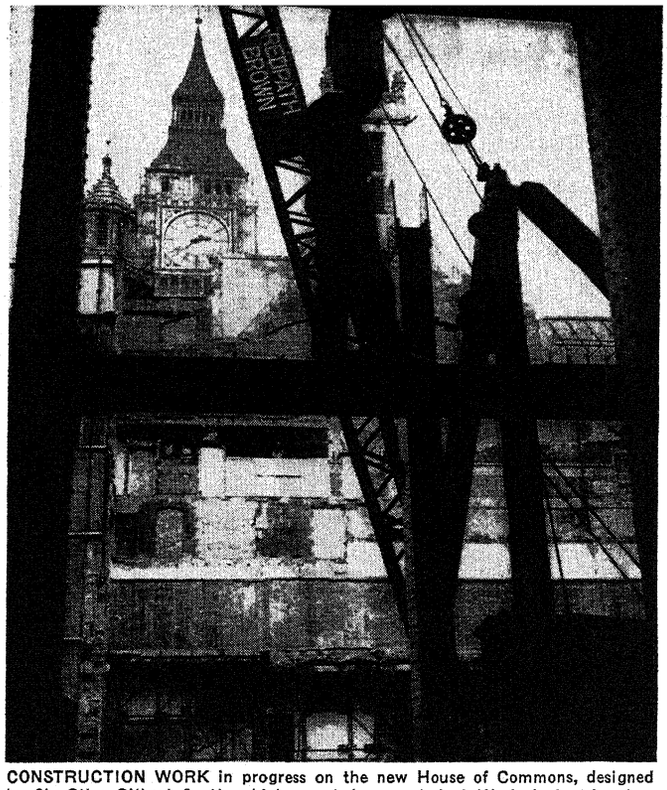
Livestock Shows: *see* SHOWS, ANIMAL.

Local Government: *see* MUNICIPAL GOVERNMENT.

London. The great occasion of the year 1947 in London was the marriage at Westminster abbey on Nov. 20 of Princess Elizabeth, heiress-presumptive to the British throne, and Prince Philip, duke of Edinburgh, son of Prince Andrew of Greece and Princess Alice, formerly Alice of Battenberg. Their engagement had been announced on July 9. Vast and enthusiastic crowds gathered to see the wedding procession, which was of a richness and pageantry that had not been seen since the coronation celebrations of 1937. The archbishop of Canterbury conducted the service, assisted by the archbishop of York and the dean of Westminster. Many of the royal families of Europe arrived in London to attend it.

London's social year was, largely because of restrictions on banqueting, undistinguished, but the Lord Mayor's show was held as usual in November and proceeded through the city. Sir Frederick Wells was chosen as the new lord mayor. In opera, music, ballet and theatre much effort was made to return to real peacetime activities. National opera was established at Covent Garden with a revival of Henry Purcell's *The Fairy Queen*. In the autumn there was the almost unprecedented presentation at Covent Garden within a few weeks of three operas by a modern English composer—Benjamin Britten's *Peter Grimes, Rape of Lucretia* and *Albert Herring*. In the autumn, too, the State Opera of Vienna, accompanied by the Vienna Philharmonic orchestra visited Covent Garden; symphony orchestras from Paris, Amsterdam and Turin also appeared in London. Sir Thomas Beecham formed his sixth orchestra, the Royal Philharmonic, which gave the historic society of that name its own orchestra after many years without one. Malcolm Sargent was knighted for his services to music. Ballet had a record popularity, especially the Sadler's Wells company installed at Covent Garden and the De Basil ballet from the U.S. The new ballet *Symphonic Variations* by Frederick Ashton, to music by César Franck, was outstandingly successful. The theatre also had a good year with both British and U.S. plays. The U.S. musical production *Oklahoma!* instantly conquered London.

Town planning continued to cause widespread municipal activity. Although London attracted 40,000 new residents a month, a committee representing 150 local authorities agreed on attempting to limit London regional population to 10,300,000. To spread out the population and industry, the government decided to build new towns of 60,000 people each at Stevenage, Hemel Hempstead, Harlow and Crawley, and, possibly, smaller towns at Meopham and Pitsea-Laindon; and to expand Newbury, Aylesbury, Bletchley, Chelmsford, Witham, Basingstoke and Ashford (Kent). A revised City of London plan, making "the square mile" a commercial neighbourhood with five routes through it for swift traffic was approved by the government, and the first 10-year part of a 30-year scheme estimated to cost £400,000,000 was passed for immediate action. The City corporation took steps to buy compulsorily 272 ac. of war-bombed sites—about a third of the whole city—for reconstruction. The London County council announced in March immediate development of the Thames south bank between Westminster and Charing Cross bridges: government offices for 10,000 civil servants, a national theatre and a cultural centre. A proposal to build a new electrical power station on the south bank opposite St. Paul's cathedral aroused angry controversy,



CONSTRUCTION WORK in progress on the new House of Commons, designed by Sir Giles Gilbert Scott, which was being erected at Westminster, London, in 1947

but the cabinet did not revise its decision. London County council announced an 18-year £187,000,000 plan to build and equip a network of comprehensive schools ranging from nursery schools to high schools, taking from 1,250 to 2,000 pupils each. Government economy instructions caused a slowing-down of house building in London. By the end of September, London had built 17,660 permanent and prefabricated dwellings, including rebuilt bomb-destroyed houses after 1945. There were then 13,079 dwellings in construction.

Traffic developments included the extension of tube railways to Stratford and Leytonstone in the east in May and to Greenford in the west in August. Extensions to Woodford and Newbury Park were scheduled for 1948. Road transport in central areas was speeded up by a "no waiting" rule for many main streets, and horse traffic was forbidden during busy hours. To keep street queues down, London transport augmented its fleet of buses by 350 hired motor coaches in October. (P. Bn.)

London University. In spite of shortages of all kinds the number of students continued to rise in 1947, reaching totals of 18,354 internal and 23,289 external; as in 1946, 90% of the available places were allotted to ex-servicemen. Little progress could be made in the provision of additional accommodation, but a start was made on the new buildings for Birkbeck college and the rebuilding of blocks at University college and Bedford college. More than 100 professorial and readers' appointments were made. The announcement by the treasury of the substantial increase both in recurrent and capital grants to the universities in the quinquennium 1947–52 was a further incentive to the active planning which went on throughout the year. A royal charter was granted to the British Postgraduate Medical federation which, with the Postgraduate Medical school and 11 other specialized institutes, would co-ordinate and develop postgraduate medical education in London; the establishment of an Institute of Advanced Legal Studies would, it was hoped, provide a focal point for British legal research.

Several distinguished European scholars visited the university to give special lectures in various faculties, and a holiday course in English for students from other countries was held for the first time after World War II. The university, at the request of the colonial office, assumed new responsibilities in relation to higher education in the colonies, whereby certain colonial institutions were to enter into close relationship with the university and prepare their students for London "external" degrees, until they should be granted full university status of their own. (K. M. E.)

Loran Navigation: *see* Electronics.

Los Angeles. Largest U.S. city in area (452.2 sq.mi.), Los Angeles in 1947 ranked as the fourth most populous in the country. Estimates of the County Planning commission placed the city population at 1,921,285 as of Oct. 1, 1947 (1940 census, 1,504,277), and the county at 3,849,390. The metropolitan area was estimated at 3,146,000, making it the third largest in the U.S. Fletcher Bowron was mayor in 1947.

Los Angeles' industrial growth continued during the year. By Nov. 1 industrial development had reached $112,817,500, compared with a 1946 total of $155,838,492. Business activity was high-lighted by establishment in Los Angeles of several large firms' headquarters, expansion of steel plants, addition of new garment factories and a wide variety of general manufacturing. Manufacturing employment was estimated at 237,600 as of Sept. 1, compared with 106,614 (U.S. census) in 1940. That was 46% of the total for all California. Los Angeles continued leadership in aircraft manufacture, with several firms producing not only the most modern commercial planes but also filling regular and experimental orders on military craft challenging supersonic speeds.

Inadequate housing to accommodate the huge population influx remained a serious problem during 1947, although new construction progressed at a fast pace. By Oct. 1947, 17,721 new family units had been started for the year in the city, with a value, when finished, of $113,790,722; by September, 42,060 were started in the entire county, carrying a value of $260,953,403.

In 1946 the value of Los Angeles county agricultural products exceeded $214,800,000, a new record.

The total tax rate for the 1947–48 fiscal year was set at $5.2226 per $100 of assessed valuation, with assessment based on approximately 50% of real estate market value. The $5.2226 figure included $1.4937 for the county, $1.5754 for the city, and other amounts for schools and special districts. Assessed valuations, higher because of greater value of property as well as many improvements, were $2,140,499,412 for the city and $3,938,544,245 for the county. The 1947–48 city budget was $210,486,617, including $74,272,169 general; $10,750,228 for pensions; $7,606,252 for library, parks and recreation; $30,853,294 for the harbour, water and power department and airport. (C. S. B.)

Louisiana. One of the west south central states of the United States, admitted to the union in 1812 as the 18th state, Louisiana is popularly known as the "Pelican state," "Creole state" or "Bayou state." Area 48,523 sq.mi., of which 45,177 sq.mi. are land. Pop. (1940) 2,363,880, of which 1,383,441 or 58.5% were rural and 980,439 or 41.5% urban; 64% native whites, 34.3% Negroes and 1.7% foreign-born. On July 1, 1945, the bureau of the census estimated the state's population at 2,456,057. Capital, Baton Rouge (34,719). Other important cities: New Orleans (494,537), Shreveport (98,167), Monroe (28,309), Alexandria (27,066), Lake Charles (21,207), Lafayette (19,210).

History.—The legislature did not meet in regular session in 1947, but in March a five-day extra session was convened to appropriate funds from the mounting treasury surplus to meet pressing needs during the remainder of the 1946–48 biennium. Most important of these appropriations were $10,000,000 for teachers' salaries, $6,500,000 for building construction at the state's colleges and universities and $500,000 for the department of welfare.

Aside from the extra legislative session, the chief political activity of the year centred about the gubernatorial campaign to be decided in the state Democratic primary election of Jan. 20, 1948. Gubernatorial candidates were former governors Sam H. Jones and Earl K. Long (brother of the former governor Huey P. Long), congressman James H. Morrison and Judge Robert F. Kennon of the state court of appeals. The campaign was reaching a climax at the close of the year.

Other important events of the year were: continued activity in residential and commercial building construction; enlarged state highway building and maintenance program, which had been retarded during the war years by shortages of labour and materials; a program of expansion and modernization of the state's charitable and correctional institutions; continuation of the controversy between the state and federal governments over the control of coastal waters in which valuable petroleum deposits were located; strikes of Southern Trailways bus drivers and maintenance men and of the dairy farmers producing milk for the New Orleans market; overcrowded conditions in most of the elementary, secondary and higher educational institutions; the tropical hurricane of Sept. 19, which caused damages of millions of dollars to buildings and crops, with wind velocity of 110 mi. per hour at New Orleans and 60 mi. per hour as far inland as the central part of the state; and the mounting state income from taxes of all kinds, which reached a new high because of prosperous conditions in agriculture and industry.

State officers in 1947 were: James Houston Davis, governor; J. Emile Verret, lieutenant governor; Wade O. Martin, Jr., secretary of state; A. P. Tugwell, treasurer; L. B. Baynard, auditor; Fred S. LeBlanc, attorney-general; John E. Coxe, superintendent of education; Lucile May Grace, register of land office; Harry D. Wilson, commissioner of agriculture and immigration.

Education.—In 1947 the 820 public schools for whites enrolled 213,003 elementary and 58,542 high school pupils and employed 10,227 teachers; the 1,566 public schools for Negroes enrolled 151,686 elementary and 14,613 high school pupils and employed 4,706 teachers. The 179 private schools for whites enrolled 47,258 elementary and 9,626 high school pupils and employed 1,798 teachers; the 83 private schools for Negroes enrolled 13,051 elementary and 2,738 high school pupils and employed 391 teachers. The state maintained 11 public trade schools, and several private trade schools were operated for the training of veterans of World War II.

State appropriations for the 1947–48 fiscal year were more than $36,000,000 (exclusive of local funds) for public elementary, secondary and trade schools and $12,000,000 for state-supported colleges and universities. All the colleges and universities were crowded to capacity by veterans seeking higher education under the federal assistance program.

Social Insurance and Assistance, Public Welfare and Related Programs.—Readjustment allowances paid to Louisiana veterans of World War II dropped from $9,253,762 in 1946 to $4,548,447 in 1947; civilian unemployment compensation dropped from $12,074,734 in 1946 to $6,287,593 in 1947. Total payments made by the Louisiana division of unemployment security, for all purposes, dropped from $46,034,235 in 1946 to $29,576,291 in 1947.

Louisiana expended $25,000,000 on public welfare work in 1947. The monthly average of persons on the welfare rolls was 113,000, including 56,595 aged persons, 43,542 dependent children, 1,929 needy blind, 582 foster children and 9,691 special cases. In spite of labour shortage and high wages in industry and agriculture, state expenditures for public welfare were higher in 1947 than in 1946.

The state maintained the following institutions in 1947: charity hospitals at New Orleans, Shreveport, Lafayette, Monroe, Pineville, Independence and Bogalusa; hospitals for the insane at Jackson and Pineville; tuberculosis sanitariums at Greenwell Springs and Ruston; state schools for blind and deaf at Baton Rouge (for whites) and at Scotlandville (for Negroes); a training school for the feeble-minded at Alexandria. A special training school for spastic children was under construction at Alexandria, and a new hospital for the insane and three additional tuberculosis sanitariums were projected in 1947.

The state maintained 2 prison farms for its 3,300 adult offenders and separate training institutes for about 350 white juvenile delinquents. A new training institute for delinquent Negro boys was completed near Baton Rouge in 1947.

State appropriations for charitable and correctional institutions were $20,000,000 for the 1947–48 fiscal year, about $5,000,000 of which was for expansion and modernization of the existing facilities.

Communications.—In 1947 Louisiana had 18,200 mi. of public highways, 14,800 mi. of which were state-maintained, 10,500 mi. being gravelled and 4,300 mi. paved. State expenditures for highway maintenance and new construction amounted to $25,000,000 in 1947. There were 4,400 mi. of railways and 4,800 mi. of navigable waterways. The intracoastal waterway which crosses the lower section of the state carried 12,500,000 tons of freight through the three locks connecting it with the Mississippi river in 1947. New Orleans, Baton Rouge and Lake Charles are ports for ocean-going commerce, with aggregate tonnages of nearly 45,000,000 in 1946, distributed as follows:

Table I.—*Commerce of Louisiana Ports in 1946*

Ports	Foreign	Coastwise and Internal	Total
New Orleans	6,572,177	20,000,000 (est.)	26,572,177
Baton Rouge	487,353	7,880,612	8,367,965
Lake Charles	1,375,208	8,676,783	10,051,991
Totals	8,434,738	36,557,395	44,992,133

There were 40 airports for land planes and 11 seaplane bases and anchorages in operation in 1947. Nearly 366,000 telephones were in service at the close of the year.

Banking and Finance.—Louisiana had 33 national banks in 1947, with total deposits of $1,085,000,000 and resources of $1,132,000,000; and 125 state banks, with total deposits of $440,000,000 and resources of $468,000,000. There were 61 savings and loan associations, with total resources of about $125,000,000. State budget for the 1946–47 fiscal year: receipts $125,000,000; expenditures $115,000,000. The state bonded debt was about $150,000,000.

Agriculture.—A cold, wet spring retarded seeding operations, and a summer drought and the September hurricane reduced the yield of some of the principal crops in 1947. However, higher prices for most crops and for livestock and poultry and their products boosted the total agricultural income above that for 1946.

Total value of agricultural and truck crops in 1947 was $250,000,000, compared with $230,000,000 in 1946; total acreage harvested was 3,500,000, about the same as in 1946. Total cash income from crops and livestock and poultry and their products was nearly $400,000,000 in 1947, compared with $350,000,000 in 1946; from government payments $6,000,000, compared with $9,500,000 in 1946.

Table II.—*Leading Agricultural Products of Louisiana, 1947 and 1946*

Crop	1947	1946
Cotton (bales)	505,000	250,000
Corn (bu.)	13,440,000	15,000,000
Rice (bu.)	21,630,000	22,775,000
Sugar cane (tons)	4,000,000	4,916,000
Sweet potatoes (bu.)	7,100,000	10,621,500
Irish potatoes (bu.)	1,500,000	2,500,000
Oats (bu.)	3,500,000	3,960,000
Hay (tons)	400,000	430,500
Pecans (lb)	4,400,000	8,928,600
Peanuts (lb.)	1,500,000	1,780,000
Peaches (bu.)	270,000	293,000
Pears (bu.)	207,000	235,000
Citrus fruits (boxes)	260,000	410,000
Truck crops (value)	$20,000,000	$21,000,000

Manufacturing.—The demand for manufactured products kept most Louisiana industries working at wartime level during 1947. Nearly 2,000 industrial establishments, employing 150,000 workers and paying $200,000,000 in wages, produced finished products worth $1,100,000,000 in 1947, as compared with about $1,000,000,000 in 1946. Louisiana industries were not seriously affected by strikes and labour difficulties during the year. Several new industrial plants were located in Louisiana, and many large expansions were made to existing plants, under the state law exempting capital investments in industry from taxation for a period of ten years.

Mineral Production.—Increased demand pushed production of most Louisiana minerals beyond previous levels in 1947, although a few dropped below the 1946 figures.

Table III.—*Principal Mineral Products of Louisiana, 1947 and 1946*

Mineral	1947	1946
Petroleum (bbl.)	155,000,000	140,000,000
Natural gas (M. cu. ft.)	530,000,000	600,000,000
Natural gasoline (bbl.)	3,700,000	2,600,000
Sulphur (tons)	770,000	925,000
Salt (tons)	775,000	900,000
Shell (tons)	2,300,000	1,440,000
Sand (tons)	1,775,000	1,340,000
Gravel (tons)	3,800,000	2,520,000
Stone (tons)	632,000	720,000

Total value of mineral production in 1947 was estimated at more than $300,000,000, compared with $280,000,000 in 1946. Some new petroleum and natural gas fields were discovered during the year.

Forest Products, Furs, Fisheries.—Louisiana forests produced 1,100,000,000 bd.ft. of lumber and 700,000 cords of pulpwood in 1947, compared with 1,000,000,000 bd.ft. and 675,000 cords in 1946. The 1946–47 trapping

season in Louisiana yielded 8,475,563 pelts valued at $9,214,783, compared with 8,869,609 pelts valued at $15,553,185 for the 1945–46 season. Louisiana fisheries produced catches valued at $9,603,210 in 1944, $3,561,022 representing fresh-water and $6,042,188 salt-water varieties. Catches of all varieties in succeeding years declined numerically, but the greatly increased prices of all fishery products brought the total value in 1947 about as high as that for any previous year. (W. PR.)

Lovett, Robert Abercrombie (1895–), U.S. government official, banker and lawyer, was born on Sept. 14 in Huntsville, Tex., the son of "Judge" Robert Scott Lovett, who ran the Union Pacific railroad for the Harrimans. He was graduated from Yale university in 1918 and took postgraduate courses in law and business administration at Harvard university until 1921. During World War I, he was in the naval air service.

Starting as a bank clerk, he later became a partner in the banking firm of Brown Brothers and Harriman. In Dec. 1940, he accepted an appointment as special assistant to the secretary of war, and in April 1941 was made assistant secretary of war for air.

Lovett resigned from the war department in Nov. 1945 to return to his private business, but on May 12, 1947, was appointed undersecretary of state. As Secretary of State George C. Marshall was frequently out of the country on important diplomatic assignments, much of the burden of running the state department fell on Lovett. He took up the administration cudgel for prompt relief aid to western Europe. Alarmed by the Russian establishment of the Cominform, successor to the Comintern, Lovett contended, on Oct. 8, 1947, that the new communist agency was intended to prevent, if possible, the economic recovery of Europe. He insisted, however, that the U.S. would not be thus "deflected" from its goal to aid stricken nations.

Lumber. During the first six months of 1947, production of lumber in the U.S. was progressively increased. Labour was more readily available and there was increased efficiency in getting out sawlogs for lumber on the 40,000 logging operations throughout the country. The year was also marked by much more efficient operation and consequently greater production at the sawmills. Lumber production in 1947 was about 35,500,000,000 bd.ft., which was considerably above the volume produced during the past few years.

Elements that prevented greater lumber production were freight car shortages, particularly on the west coast, and the failure of the intercoastal water movement of lumber from the west coast to materialize, both to California points of destination as well as to the Atlantic seaboard. Prior to World War II, this movement of lumber reached a yearly volume of 1,000,000,000 to 2,000,000,000 bd.ft. The excessive cost of ship operation in 1947 was the principal cause of the relatively low movement of water-borne lumber. Costs of moving lumber from the west coast to the east coast of the U.S. were about $22 to $25 per 1,000 bd.ft. in 1947 as contrasted with prewar costs of about $10 to $14 per 1,000 bd.ft. Rail rates were also increased by the Interstate Commerce commission.

The principal species produced in 1947 by the lumber industry, in order of production, were: southern pine, Douglas fir, ponderosa pine, oak, white pine, hemlock, red gum, yellow poplar, maple and white fir. Of the total volume produced, the first three named constituted more than 70%. Other important species were redwood, tupelo gum, beech, cypress, sugar pine, cottonwood, western larch, hickory, elm and birch. Some species formerly neglected or produced in small volume, notably white fir and western larch, moved into greater production during 1947.

The leading lumber-producing states were Oregon, Washington and California on the west coast, followed by North Carolina, Virginia, Arkansas, Alabama, Georgia, Texas, Mississippi, South Carolina and Louisiana. All of the last nine named states produced southern pine and some hardwoods. Maine and New York also continued to be important lumber-producing states, in spite of repeated cutting, fires and other deterring influences.

About 50% of the total lumber production in the U.S. was produced from a relatively few large mills and the balance from a very large number of small mills. There were about 35,000 sawmill units of all sizes in the U.S. during 1947, most of them located in the south.

Prices for lumber fell sharply in the late spring and early summer. For example, No. 2 common southern pine boards used for sheathing, sub-flooring, concrete forms and many other purposes fell from about $90 per 1,000 bd.ft. delivered on a wholesale price basis in New York city to about $50 to $60 per 1,000 bd.ft., depending upon points of origin in the south. By the middle of summer, these prices had returned to around $95 to $100 per 1,000 bd.ft. A strong demand continued for the upper grades, notably for flooring, as well as for B and better grades in the softwoods and firsts and seconds among the hardwoods. Toward the end of the year, prices continued on a confused basis with a decided tendency to strengthen in anticipation of an active spring building program.

Stumpage prices for commercial timber continued to remain at a high level, in some cases even higher than in 1946. Many purchases of southern pine stumpage were sold at $25 per 1,000 bd.ft. Many of the higher valued hardwoods, such as oak, were sold for from $30 to $50 per 1,000 bd.ft., depending upon grade outturn. Northern white pine in New England and the Great Lakes states was sold for from $15 to $30 per 1,000 bd.ft., depending upon quality.

Many lumber companies, including some of the largest and oldest, made progress in putting their forests under a permanent system of sustained yield management. Almost twice as much lumber was cut from national forest timber in 1947 as was cut before the war. Access roads had made much timber in the national forests available for cutting. (N. C. B.)

Europe.—Thirty-four countries sent representatives to the International Timber conference, organized by the Food and Agriculture organization at Marianské Lázne, Czech., from April 28 to May 10, when a thorough examination was made of the timber needs of both Europe and the United Kingdom. It was estimated that during 1947 the export supplies of softwoods available for Europe from all sources would be 2,509,000 standards, whereas the normal import requirements from the same area were declared to be 4,044,000 standards. It was therefore recommended that all the constituent nations should take steps either to increase their production by 10% or to reduce their estimated consumption by an equivalent amount. At a meeting of the Emergency Economic Committee for Europe held earlier in the year, the following import quotas had been accepted by the countries concerned as their absolute minimum requirements:

	Standards
Great Britain	1,122,000
France	200,000
Netherlands	210,000
Belgium and Luxembourg	147,000
Denmark	103,000
Italy	117,500
Switzerland	47,500
Total	1,947,000

Great Britain and the Commonwealth.—It was estimated that during the first six months of 1947 the United Kingdom received in softwoods and hardwoods, including both imported goods and home production, 817,000 standards, as compared

with 569,000 standards during the same period in 1946; during the same period in both years plywood supplies remained constant at about 175,000 cu.m., including both imported and home production.

It was considered that in 1947 Canada would make a softwood contribution to Europe of about 550,000 standards, of which total about 500,000 standards would be received by the United Kingdom. Production in Canada of both softwoods and plywood was at record figures during the year. In September the Canadian Timber control relinquished its hold over prices, both internal and external. Domestic prices had before been controlled at about two-thirds of the level ruling in the export market. The effect of decontrol was to produce a rise in domestic prices equal to about half of this difference. Well-informed circles, however, were of the opinion that Canadian lumber prices had probably seen their peak.

Generally speaking, global prices paid for both softwoods and hardwoods during 1947 showed some increase over those of 1946. This position, however, was likely to be reversed when bulk contracts should be discussed for 1948 shipment, because of the increase in production and the currency difficulties of international payments, particularly with regard to dollars. The question of means of payment had indeed replaced production as the problem mainly concerning the United Kingdom and the commonwealth.

The fifth British Empire Forestry conference was held in London during June and July, and was attended by representatives of all the dominions and colonies under the chairmanship of Lord Robinson. A resolution was passed in favour of maintaining the principle of sustained yield, with the proviso that during periods of timber scarcity it might be permissible to overcut for a limited period. The closing act of the conference was to pass a resolution recommending that the sixth British Empire Forestry conference should meet in 1952 in either India or Canada. (*See* also FORESTS.) (B. L.)

Lutherans. No other Protestant church suffered as much dislocation of its people, destruction and confiscation of its property in World War II as did the Lutheran. In 1947 Lutherans gathered their total strength to bring spiritual and material aid to their church in Europe and to their threatened foreign missions in Asia and Africa.

Focus of this effort was the meeting in Lund, Sweden, June 29 to July 6 of delegates, representing the major divisions of the church in the Americas, Europe and Asia, to form the Lutheran World federation. Confronted by its own martyrs (many of the delegates had been imprisoned and been caused to suffer in other ways because of their heroic services in the resistance movements before and during the war), the assembly was solemnized to face with equal courage the dismaying demands of its world service. Recognizing its responsible place in the whole family of Christian churches, the federation encouraged its constituent bodies to unite with the emergent World Council of Churches. Anders Nygren, world-renowned Swedish theologian, was chosen first president, and Sylvester C. Michelfelder, U.S., first executive secretary. World headquarters were established in Geneva, Switz. Affiliated bodies included more than 60,000,000 Lutherans, speaking more than 100 languages and dialects.

North American Lutherans associated in the National Lutheran council were able to celebrate by year's end their overpaying by $500,000 their $10,000,000 Lutheran World Action goal for 1946–47. This brought to more than $27,000,000 the relief gifts in money and goods gathered by American Lutherans after 1940.

Contributing greatly to this church's new sense of world unity and understanding were the increasingly numerous postwar visits of its leaders to sister churches in other lands. Among these journeys two unique ones were taken in 1947. The year which saw two deaconesses fly from the U.S. to establish the Lutheran diaconate in India also saw a modern re-enactment of the Mayflower drama when 23 Estonian Lutherans, fleeing persecution, disembarked at Savannah, Ga., after a 75-day crossing of the Atlantic in a 35-ft. open boat. (*See* also CHURCH MEMBERSHIP.) (F. E. Rz.)

Luxembourg. A grand duchy situated between France, Germany and Belgium. Area, 999 sq.mi.; pop. (est. 1945) 281,572; chief city, Luxembourg (cap. 59,000); language, Luxembourgian (idiomatic) and (officially) French and German; religion 98% Roman Catholic. Ruler from 1919: Grand Duchess Charlotte.

History.—The cabinet resigned on Feb. 13 as a result of conflict between Socialists and Christian Socialists, and on March 1 a new cabinet, containing neither Socialist nor Communist members, was formed by Pierre Dupong (Christian Socialist). In March the minister of economic affairs introduced a new price-lowering policy to maintain equilibrium between prices and wages. In October the Commission for the Restitution of Monetary Gold allocated 1,929 kg. (68,042.77 oz.) of fine gold to Luxembourg as one of the countries despoiled of gold by Germany. Ratifications of the customs union between the Netherlands and the Belgo-Luxembourg economic union took place on Oct. 29. (J. RA.)

Finance.—Revenue (est. 1947) Fr.2,054,133,737; expenditure Fr.2,630,751,000. Consolidated debt (Nov. 1946) Fr.1,392,588,605. The exchange rate is 1 Fr.=2.27 U.S. cents (domestic rate, Oct. 1947).

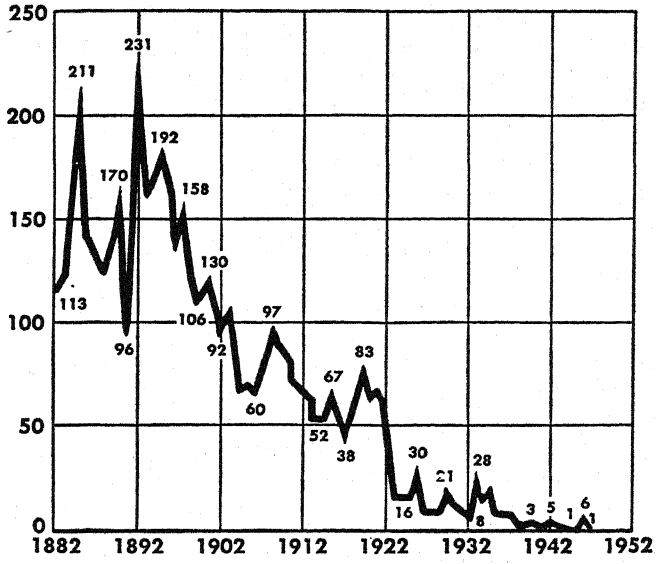
Industrial Production.—(July 1946–June 1947 in short tons): pig iron and ferroalloys 1,740,000; steel ingots and castings 1,636,000.

Foreign Trade.—In customs union with Belgium. British board of trade figures (1947, first eight months): Luxembourg to United Kingdom £156,837; United Kingdom to Luxembourg £157,671.

Lynching. The U.S. lynching record again approached the vanishing point in 1947 with only one reported victim. Although in the previous year 3 mobs had taken the lives of 6 persons, the average for the decade 1938–47 was less than 4 victims per year, contrasted with an annual average of 83 for the previous 56-year period during which accurate records were kept. That the mob spirit was not yet dead, however, was evidenced by the fact that 31 lynchings were threatened in 1947, and were prevented only by timely action, chiefly on the part of police officers.

The one lynching of the year was that of Willie Earle, 24-year-old Negro who was taken from the jail in Pickens, S.C., on Feb. 17 and beaten and shot to death on the roadside a few miles away. Earle was accused of the robbery and fatal stabbing 24 hr. earlier of T. W. Brown, 50-year-old taxicab driver of near-by Greenville. Gov. J. S. Thurmond immediately issued a statement promising that every effort would be made "to apprehend the persons responsible for the atrocity." Assisted by state and federal agencies, Sheriff R. H. Bearden of Greenville county, promptly launched an investigation which led to the arrest of 27 men within 3 days, and 4 others later. Twenty-eight of the 31 were taxi drivers, and 26 of these signed unsworn confessions of participation in the mob. All were shortly indicted by the grand jury on charges of murder and conspiracy to murder.

When the case came to trial in Greenville, the prosecution evidently did everything possible to secure convictions, but to no avail. Three of the accused were freed by the judge on a directed verdict and the others were acquitted by the jury. None of the defendants took the witness stand, and defense attorneys argued that their unsworn confessions had been made under



LYNCHING in the U.S. from 1882 to 1947, based on figures of the department of records and research, Tuskegee institute

duress. The verdict elicited many expressions of surprise and regret throughout the south as well as in other sections. "The whole nation must hang its head in shame," said the *Richmond Times Dispatch* (Va.) in comment on the verdict.[1] The *Atlanta Journal* (Ga.) called it "a ghastly farce . . . a verdict for anarchy."[2] It was "a scathing reproach to South Carolina justice," said the *Roanoke Times* (Va.),[3] and according to the *Montgomery Advertiser* (Ala.) the verdict "brought shame upon South Carolina, the South and the nation."[4]

A parallel case during the year was the failure of North Carolina courts to convict members of a mob which took from jail Godwin Bush, a Negro accused of criminal assault, presumptively with the purpose of lynching him. Bush was fortunate enough to escape from the mob, however, gave himself again into custody and later was set free for lack of evidence. Meantime, several alleged members of the mob were arrested, indicted and vigorously prosecuted, but without success.

A notable aspect of both these cases was the fact that honest efforts were made to secure convictions. With more than 4,700 lynchings recorded, comparatively few lynchers had ever been brought into court, and in nearly 50 years only 82 had been convicted. (R. B. E.)

Macao: *see* PORTUGUESE COLONIAL EMPIRE.

MacArthur, Douglas (1880–), U.S. army officer, was born Jan. 26 in Little Rock barracks, Ark. (See *Encyclopædia Britannica.*)

After Pearl Harbor, he led U.S. and Filipino forces in the defense of the Philippines until March 17, 1942, when President F. D. Roosevelt ordered him to Australia to assume command of the United Nations armies in the Southwest Pacific. Starting from New Guinea, MacArthur took the offensive, never relinquishing it until Japan's surrender. MacArthur, who had been made a general of the army in 1944, was appointed supreme Allied commander for Japan after Hirohito's capitulation broadcast, Aug. 14, 1945, and he headed the Allied delegation that accepted the Japanese surrender in Tokyo bay on Sept. 2 of that year.

MacArthur's early reports on the results of the occupation were marked with concern over the growth of communism in Japan, although those issued subsequently were more optimistic. By 1947, it was conceded even by critics that his occupation had indeed been impressive. He had given the Japanese, in little more than a year, a bill of rights, a democratic constitution and emancipation from feudal shackles for nearly all classes of Japanese society. Some, however, contended that giving the Japanese democracy on paper was not establishing it in fact, and there were a few complaints that MacArthur was the advance agent of U.S. "imperialism" and that his control of Japan was virtually absolute.

In his statements on the occupation, the general said, March 17, 1947, that he favoured immediate initiation of negotiations for a peace treaty and preparations to evacuate Allied occupation armies. Expanding on this theme, June 27, he said that the occupation task was virtually completed. Later, he praised Japan's progress, asserting that there need be no fears of an economic collapse. MacArthur's name was frequently mentioned among the Republican party's presidential prospects toward the close of 1947. His strength resided largely in midwest "noninterventionist" strongholds.

McCloy, John Jay (1895–), U.S. government official, world bank executive and lawyer, was born on March 31 in Philadelphia, Pa. A student at Harvard law school when the U.S. entered World War I, McCloy served in the army as an artillery officer in France. After the armistice, he returned to Harvard, graduating in 1921, and between 1921 and 1940 practised law with prominent firms on Wall Street. McCloy's handling of the celebrated Black Tom case, in which he won $20,000,000 for the claimants, brought him to the attention of Henry L. Stimson, then secretary of war, who appointed him as expert consultant to the secretary of war in Oct. 1940. The following April, McCloy was made assistant secretary of war.

Two months after the end of World War II, McCloy resigned (Nov. 1945), to return to his law practice. Hardly more than a year later he was asked to take the presidency of the International Bank for Reconstruction and Development. At first McCloy was reluctant to run for the post, but reconsidering, he accepted and was elected Feb. 28, 1947. In the ensuing months, McCloy made several important policy statements. On one occasion, he stated that the bank had to take "calculated risks" if it intended to perform its functions properly. On another, he said (Sept. 10) that Britain was entitled to apply to the bank for a loan to modernize its productive machinery, but that it could not ask the bank for funds for the purchase of food.

McGill University. This university at Montreal, Canada, was established in 1821 by royal charter to provide higher education for the English-speaking minority population of the province of Quebec. Of the 7,808 students enrolled in regular university courses for the session beginning in Oct. 1947, 5,187 were from Quebec province and 1,834 from the other Canadian provinces, 285 from other parts of the British empire, 327 from the United States, 72 from Mexico, Central and South America and 103 from other parts of the world, including Iceland, Greenland, Alaska, Europe, Africa, the middle east and Asia. Of these undergraduates, 459 received scholarships and bursaries totalling $93,953. Of 544 students enrolled for postgraduate degrees, 134 received fellowships and scholarships amounting to $125,680.

As an expression of its determination to provide the best possible opportunities for veterans, the university spent $5,624,925 during the year, of which $4,103,252 was for academic facilities and $1,521,673 to provide board and residence for

[1] *Richmond Times Dispatch*, D. T. Bryan, Richmond, Va., May 23, 1947.
[2] *Atlanta Journal*, The Atlanta Journal Company, Atlanta, Ga., Feb. 1947.
[3] *Roanoke Times*, Times—World Corporation, Roanoke, Va., Feb. 1947.
[4] *Montgomery Advertiser*, Montgomery, Ala., Feb. 1947.

3,215 of the student population. The income was $4,676,139, and the deficit therefore amounted to $948,786, of which only a part was refundable by the government under the Demobilization Orders-in-Council.

Total gifts, grants and bequests during the year were $1,560,140 in money, and additions to the physical fabric included the residence of George Herrick Duggan and the donation of McIntyre park, a large wooded tract of ten acres situated in the heart of the city adjacent to the university grounds, as well as the erection of the Donner Laboratories for Medical Research. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* also UNIVERSITIES AND COLLEGES.)

(F. C. J.)

McGrath, James Howard (1903–), U.S. senator and lawyer, was born on Nov. 28 in Woonsocket, R.I. He was graduated from Providence college and received his law degree from Boston university in 1929.

Starting his political career as a Democratic precinct doorbell ringer, McGrath worked his way up the ladder, and by 1940 he was the party's candidate for governor of the state. He was elected and twice re-elected, but left the gubernatorial office in 1945 to become U.S. solicitor general. He resigned this post in turn to make his successful campaign in Nov. 1946 for the U.S. senate, one of the few Democratic candidates that survived the Republican tide that swept the country that year.

His appointment as chairman of the Democratic national committee (to succeed Robert E. Hannegan) was disclosed on Sept. 27, 1947; it came as a distinct surprise to many Washington observers since McGrath's voting record and speeches placed him in the camp of the "old-line" party liberals of the pre-Truman era.

In one of his first important actions as party chairman, McGrath, on Oct. 29, 1947, persuaded the Democratic national committee not to deliver a scheduled attack on the record of the G.O.P.-dominated 80th congress on the ground that it would serve neither the president's nonpartisan program nor the national interest.

Machinery, Farm: *see* AGRICULTURE.

Machinery and Machine Tools. More new types and models of machine tools were developed during 1947 than in any other year of the preceding decade. It was the first year since the end of World War II during which design changes were adopted by the entire machine tool industry; such designs had been frozen at the war's beginning to expedite production.

A principal reason for the industry's exceptional performance was the first Machine Tool show in 12 years, held at the Dodge-Chicago plant in Chicago from Sept. 16 to 26; companies hastened completion of postwar models for display at this show, which was attended by more than 175,000.

The new developments fell into two main classifications: standard, general-purpose machines, which, in many cases, had been redesigned from the base up; and special-purpose machines. The latter group provided the more spectacular examples of new machining processes adaptable to the needs of large-scale, mass-production companies.

Users had shown a predilection for so-called "processing" (sometimes known as "transfer-type") machines—a combination of units tied together by conveyors and operated as an integrated whole. An unmachined part, such as an automobile cylinder block, is carried through a succession of operations from which the block emerges as a completely machined product. Prime example of these "transfer-type" machines was one producing 150 automobile rear-axle housings per hour with only one operator. These machines obviously could be applied only to high-production operations such as those of the automotive industry. Typical of the trend toward "specials," apart from the so-called "transfer-type" machines, was a ten-spindle rotary gear shaper—actually a group of ten-gear shapers designed into one compact unit. Each of the ten stations could perform a different operation on a gear, or a combination of stations could do the same operation simultaneously.

All the new general-purpose machine tools showed marked improvements—more power, greater flexibility, less change-over time, higher output, easier operation, more automatic cycling. A substantial amount of the new design resulted from the desire of machine tool builders to keep abreast of developments in cemented carbide tooling. Carbide tools had revolutionized machining and had stepped up amazingly the speeds and feeds with which machining could be done, thus increasing sharply production per machine-hour. Carbide tools in turn necessitated redesign of machines for greater rigidity and greater power.

Standard machine tools had made the task of the operator simple, with all operations automatic after the initial button-pressing. In a fraction of a minute, an engine lathe could be transformed from an automatic, high-speed unit into a hand-operated unit for a small-lot job. Automatic cycling had become commonplace. Automatic feed and rapid-traverse cycles, with rise-and-fall tables to clear the cutter on return, were provided on milling machines, for example, in almost any combination of interrupted cuts with uniform or variable speeds.

Cylindrical grinders were equipped with automatic sizing, in one case with electrical gauge heads which measured directly and stopped the grinding cycle within tolerances of a tenth of a thousandth of an inch. To speed production grinding, automatic control with rapid approach and withdrawal was developed. Automatic loading was used, including hopper feeds on centreless units.

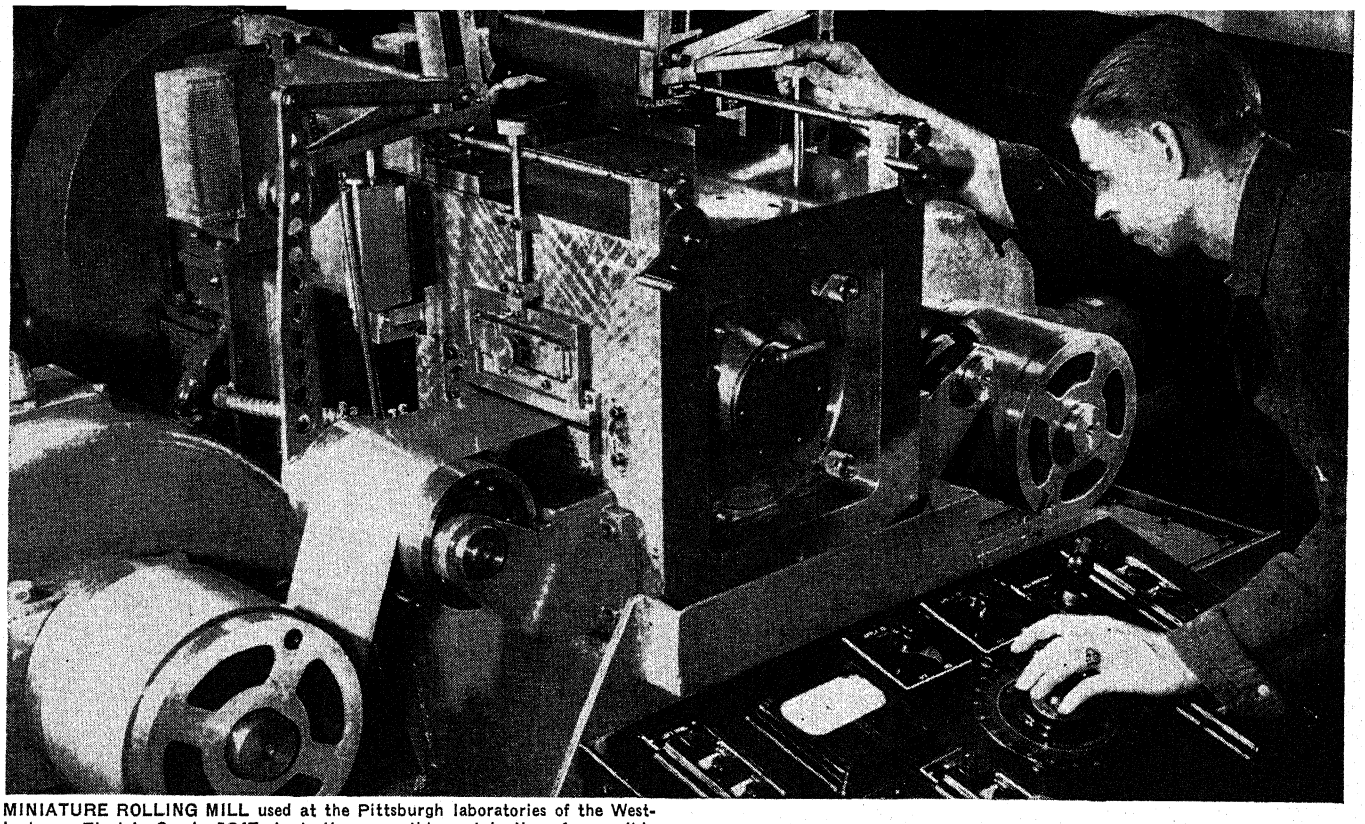
The greater flexibility of new machines was demonstrated by a new toolroom lathe with a speed adjuster controlling more than 300 speeds from 6 to 1,500 r.p.m. More than 100 speeds could be obtained in each of three ranges provided by the combination gear-belt drive headstock without stopping the spindle rotation. Closer tolerances featured many new machine tools; improved grinding wheels and careful machine adjustment, for instance, made possible surface grinding to limits of 0.0003 in. and a finish of one or two microinches.

Electronic control had come into considerable favour. One new honing machine had automatic electronic control of operations after the bore was honed to size. The cycle included run-out, tool collapse and withdrawal. At least one lathe was equipped with electronic-controlled feeds.

Electrification of machine tools progressed notably; some of the highly complex machines had as many as 17 motors. The control panels alone were often so large as to require separate housing. It was not unusual for the electrical equipment to cost 25% to 30% of the total price of the machine.

Postwar-designed machine tools were at least one-third more productive than previous types and models, and the increase in some cases rose to several times the maximum rate of the replaced model.

Total shipments of the U.S. machine tool industry amounted to about $300,000,000 in 1947, slightly under the figure for the previous year. After allowance for increased prices, however, unit production was estimated at only 80% to 85% of that for 1946. Nevertheless, the physical volume of output was comfortably above the best prewar year, 1929,



MINIATURE ROLLING MILL used at the Pittsburgh laboratories of the Westinghouse Electric Co. in 1947, in testing very thin metal alloys for possible use in reducing the size and weight of aircraft motors and generators

when dollar shipments were $185,000,000. Builders ended 1947 with a backlog of more than $100,000,000, and production at about $25,000,000 a month.

Business during the year was not uniformly good among all builders. Some still suffered from the competition of government-owned, war-surplus machines, although the most critical phase of the surplus problem had passed. A certain shrinkage in number of companies was an inevitable consequence of the war, when the industry grew quickly far beyond normal bounds to supply war-production requirements.

Foreign sales always had been a sizeable portion of the machine tool industry's business. Before World War II the average export volume amounted to 20% of the total. In the immediate postwar period, the proportion was 25% to 30%. Exports were to all parts of the world, but particularly to European nations and to Latin America. U.S. builders supplied a liberal share of the world market formerly served by the German machine tool industry. (B. Fy.)

Great Britain.—Machinery played a big part in the drive to increase British exports during 1947, especially since it was decided that heavy capital goods were to form one of the most important items. The success of the drive was shown by the fact that exports of machinery from Great Britain for the third quarter of 1947 were 60% higher than for the corresponding period of 1938. Total exports of machinery for the first nine months of 1947 were £129,422,452 as against £75,193,071 for the corresponding period of 1946. New developments in British machine tool manufacturing recognized the need for special-purpose tools as a means of economizing in manpower and increasing production, and designers were quick to exploit stepless speed variation by electronic control. Various new types of lathes figured prominently, and more importance was attached to the appearance of machine tools.

Interest was taken in the question of gas turbines; in view of the fuel shortage these had possibilities for the generating of industrial power. Examples of this type of engine were the one built and installed at Heaton, Newcastle-upon-Tyne, and an experimental generator set weighing only 19 lb. per h.p., developed for industrial use. The railways also considered the possibilities of gas turbine locomotives, the Great Western railway having ordered one capable of 90 m.p.h. from Switzerland and another in England. The Southern railway had four similar locomotives under construction at its Brighton works; these were expected to haul the Atlantic expresses at 100 m.p.h. with 2,000 tons less coal per annum than steam locomotives. Research on marine gas turbines was carried out under the auspices of the Turbine Research association.

Many new ships were fitted with steam reciprocating machinery for propulsion, permitting considerable fuel economy on long voyages. An interesting new example of British mining machinery was a 102 h.p. diesel underground locomotive capable of hauling 375 tons at 4 m.p.h. In the field of motor manufacturing, a new 1,500 ton triple action press could complete a whole side for a car body in one process. (*See* also Automobile Industry.) (J. Ln.)

Mackenzie King, William Lyon: *see* King, William Lyon Mackenzie.

McNeil, Hector (1910–), British statesman, was born in Scotland on March 10, and was educated at Woodside school, Glasgow, and Glasgow university. He contested Kelvingrove parliamentary division, Glasgow, Nov. 1935, and Ross and Cromarty, Feb. 1936; he was returned unopposed as Labour member for Greenock in July 1941 and again in the 1945 general election. In the Labour government in Aug. 1945, he was appointed parliamentary under secretary of state for foreign affairs, and in Oct. 1946 succeeded Philip Noel-Baker (*q.v.*) as minister of state; at the same time he was sworn a member of the privy council. McNeil represented Great Britain at the United Nations general assemblies in London and New York, 1946 and 1947, where in the absence of Ernest Bevin, he acted as a vice-president of the assembly. He also attended the five sessions of the Economic and Social council, held in 1946 and 1947. In the general debate at the second general assembly of the United Nations, which commenced in Sept. 1947, McNeil spoke of the proceedings of the United Nations being frustrated by "Russia's unwillingness to

co-operate" and stated that the United Nations was the main instrument of Britain's foreign policy, and that the British government was prepared to try any method within the scope of the charter to facilitate the working of the United Nations.

Madagascar: *see* FRENCH OVERSEAS TERRITORIES.

Magazines and Periodicals: *see* NEWSPAPERS AND MAGAZINES.

Magnesium.

The postwar demand that was expected to develop more or less spontaneously for magnesium failed to develop to any great degree, and it was discovered that a metal cannot step into a comfortable spot on the basis of its war record, but must make its place by competition and demonstration of its worth on a practical dollar and cent basis. In spite of the discouraging appearance of the production statistics shown in the table above, the metal was making a good start toward achieving its place in postwar industry.

Data of Magnesium Industry in the U.S., 1940–46

(In thousands of short tons)

	1940	1941	1942	1943	1944	1945	1946
Primary output	6.3	16.3	49.0	183.6	157.1	32.8	5.3
Secondary recovery	?	?	6.3	11.4	14.2	9.2	5.1
Sales, primary	6.4	15.5	47.4	170.3	146.6	43.5	8.9
Exports	0.8	1.5	4.0	35.6	21.0	0.5	0.2
World output (est.)	41.6	65.9	115.8	263.0	232.7	54.5	13.2

While these figures were low as compared with some of the over-optimistic predictions of a year or two previously, they showed a healthy advance over the prewar years.

(G. A. Ro.)

Magnesium Compounds.

During World War II there was a radical change in the production pattern for magnesium compounds in the United States. Magnesia may now be produced from any one of half a dozen sources, and not primarily from magnesite.

Production of Magnesium Compounds in the U.S., 1939–46

(Short tons)

	Crude Magnesite	Caustic Calcined	Refractory	Total Magnesia	Other Compounds	Dead-burned Dolomite
1939	198,980	10,157	86,077	96,234	85,754	671,561
1940	333,166	16,261	140,668	156,929	108,266	867,909
1941	374,799	30,225	201,481	231,706	137,357	1,069,887
1942	497,368	41,889	273,661	315,550	296,885	1,229,357
1943	754,832	191,792	301,382	493,174	737,062	1,276,725
1944	561,450	139,243	278,490	417,733	608,151	1,290,790
1945	336,458	43,270	254,994	298,264	201,501	1,187,334
1946	324,640	45,178	244,824	290,002	?	1,077,983

While output during 1947 was well below the war peak, it was more than three times the prewar level, with most of the decline in "other compounds," the heading under which was classified most of the basic raw materials used in developing the war output of magnesium metal. (G. A. Ro.)

Maine.

The extreme northeastern state of the United States, admitted as the 23rd state in 1820, and popularly known as the "Pine Tree state." Land area 31,040 sq.mi.; water area 2,175 sq.mi.; pop. (1940) 847,226; rural 504,169, urban 343,057. Capital, Augusta (19,360); other cities: Portland (73,643); Lewiston (38,598); Bangor (29,822). The U.S. bureau of the census officially estimated the population of the state as 793,600 on July 1, 1944.

History.—Gov. Horace A. Hildreth announced that in June 1948 he would be a candidate for the U.S. senate nomination. The Republican-controlled Maine legislature met in regular biennial session in Jan. 1947. Proposals for sweeping changes in the tax structure were defeated, with income tax and general sales tax measures among those rejected. The gasoline tax was raised two cents per gallon in 1947, and a new tobacco products tax passed, along with an increase in the existing cigarette tax. The legislature raised minimum pay scales for public school teachers from the $1,000 existing rate to a $1,500–$1,800 range.

Drought conditions in summer and fall months caused Maine lakes and streams to drop to a low ebb, damaging water supplies and bringing about a serious shortage of hydroelectric power. More disastrous were numerous widely scattered forest fires, which levelled hundreds of homes and summer cottages and estates, virtually wiping out several small communities, and seriously damaging others, such as Bar Harbor.

Education.—The net enrolment in the public schools for 1945–46 was 154,073 compared with 153,318 for 1945 and 152,788 for 1944. There were 5,966 teaching positions for 1945–46 compared with 5,836 and 5,703 for 1945 and 1944. The state maintained 1,796 urban and rural schools in 1945–46, of which 815 were 1-room buildings. The following figures are for the school year 1945–46: total resources available for general support of schools $16,032,280; total expenditures per pupil $109.45. Harland A. Ladd became commissioner of education in 1947.

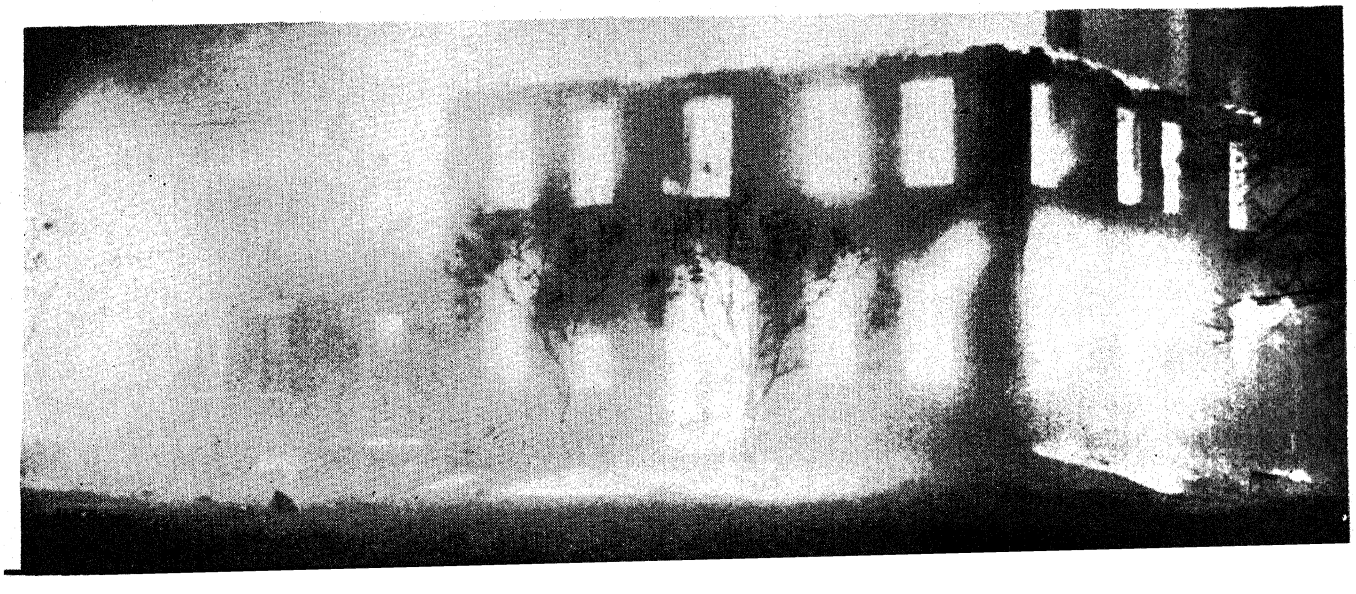
Social Insurance and Assistance, Public Welfare and Related Programs.—As of June 30, 1947, there was a balance in the Maine unemployment compensation fund of $38,872,408, compared with $36,681,291 a year earlier. The balance as of Nov. 30, 1947, was $41,127,509. For the first 11 months of 1947 the state compensated for 317,830 weeks of unemployment, expending in that time $4,200,860.

Public assistance funds expended during the two fiscal years ending June 30, 1946, were as follows: old-age assistance (1946) $5,438,756, (1945) $5,134,189; aid to dependent children (1946) $1,210,530, (1945) $952,799; aid to blind (1946) $299,969, (1945) $293,772. November case loads in the above categories were: old-age assistance (Nov. 1946) 15,228, (Nov. 1945) 14,891; aid to dependent children (Nov. 1946) 4,854, (Nov. 1945) 3,921; aid to blind (Nov. 1946) 772, (Nov. 1945) 806.

Thirteen state institutions (correctional, insane hospitals, sanatoria) as of Nov. 30, 1946, had a total inmate population of 5,092; the total appropriation was $3,107,902.

Communications.—Highways of the state as of Dec. 31, 1946, were: state highways 3,044 mi.; state-aid highways 6,855 mi.; third-class highways 1,279 mi.; town ways 10,646 mi.; miscellaneous 125 mi.; total mileage 21,949 mi. In the year ending June 30, 1947, the state expended for highway purposes $14,798,749. Steam railway mileage (1946) was 2,778 mi. As of Sept. 22, 1947, the Maine aeronautics commission listed 78 airports and airfields in Maine. The New England Telephone and Telegraph company reported 186,000 telephones in service in Maine as of Nov. 30, 1947.

BLAZING HOME at Bar Harbor, Me., one of the small towns virtually destroyed in a series of forest fires which swept the state late in Oct. 1947, causing damage estimated at $40,000,000



Banking and Finance.—During 1947 the Maine banking department (Homer E. Robinson, commissioner) supervised 32 savings banks and 30 trust companies, 31 building and loan associations. Assets of savings banks, as of Oct. 6, 1947, were $260,600,813; of trust companies $263,122,503; building and loan associations $31,249,960. Total deposits same date were: savings banks $231,273,650; trust companies $241,760,955. Assets and deposits reached a new high mark in 1947.

State receipts, expenditures and bonded debt for the fiscal year ending June 30, 1947, were, respectively: $45,731,816, $45,413,275 and $13,729,500. For the year ending June 30, 1946, they were, respectively: $37,757,518, $35,700,261 and $16,413,500.

Agriculture.—Production of the leading crops during 1947 and 1946 is given in Table I.

Table I.—*Leading Agricultural Products of Maine, 1947 and 1946*

Crop	1947 (est.)	1946	Average, 1936–45
Corn, bu.	400,000	407,000	537,000
Wheat, bu.		21,000	48,000
Oats, bu.	2,625,000	2,840,000	3,576,000
Barley, bu.	112,000	128,000	111,000
Buckwheat, bu.	136,000	120,000	117,000
Hay, short tons	950,000	844,000	840,000
Potatoes, bu.	62,790,000	78,402,000	47,572,000
Apples, bu.	930,000	767,000	643,000
Beans (dry), tons, uncleaned	3,300	2,450	4,050

Manufacturing.—The total value of manufactures (1939 census) was $345,368,595. Total employment was 81,995 and wages paid $82,026,503.

Fisheries and Forests.—The commissioner of sea and shore fisheries estimated that shellfish to the value of $9,621,357 were taken in 1945, and that they weighed 60,815,459 lb., with lobsters accounting for $7,938,542 of the value. In 1945 the herring catch weighed 79,140,230 lb., worth $1,111,694.

Maine led the nation in the production of white pine lumber in 1944, with nearly one-fourth of the national cut for that year.

Mineral Production.—The leading mineral products of Maine included slate, granite, clay (chiefly for bricks), sand, stone and gravel (the last three chiefly for highway construction), cement, lime, feldspar, mica and peat. Maine ranked 43rd among the states in mineral production in 1945. The total value of its products dropped from $4,692,448 in 1941 to $2,483,000 in 1945. (E. F. D.)

Table II.—*Value of Principal Mineral Products of Maine, 1945, 1944*

	1945	1944
Beryllium ore	$ ...	$ 257
Clay products	5,756	...
Feldspar (crude)	62,287	47,892
Mica—sheet	...	40,803
Mica—scrap	768	1,602
Peat	37,662	80,732
Sand and gravel	771,724	710,047
Silica	10	203
Stone	382,414	332,736
Miscellaneous	1,228,227	932,131
Total (eliminating duplication)	$2,483,000	$2,146,000

Maize: *see* CORN.

Makin, Norman John Oswald (1889–), Australian statesman and diplomat, was born on March 31 at Petersham, New South Wales. He left school at the age of 13 and worked as delivery boy, bookseller and patternmaker. He joined the Labour party, was elected to the Australian house of representatives in 1919, speaker of the house 1929 to 1932, and president of the Labour party in 1936. Makin, who was a member of the advisory war council in 1940, was appointed minister of the navy and munitions in Oct. 1941. He was given the additional portfolio of aircraft production in 1945, and in 1946 was appointed the first Australian ambassador extraordinary and plenipotentiary to the United States. He led the Australian delegation to the United Nations general assembly in London, Jan.–Feb. 1946, when he was the first chairman of the Security council, and was subsequently the Australian representative on the Trusteeship council. He was an Australian delegate at both sessions of the general assembly in New York, 1946 and 1947.

Malaya, British: *see* MALAYAN UNION AND SINGAPORE.

Malayan Union and Singapore. The political organization of British Malaya (including the Straits Settlements and the Federated and Unfederated Malay states) was reconstituted after the liberation of the territory from Japanese occupation at the end of World War II. Two new political divisions were set up, viz: (1) the Malayan union and (2) the colony of Singapore. The former includes all the former Federated and Unfederated Malay states and three of the former Straits Settlements; the latter comprises the city and island of Singapore (as well as the Cocos-Keeling Islands and Christmas Island). A common Malayan citizenship was introduced for the Malayan union. Area, Malayan union and Singapore: 50,962 sq.mi.; pop. (1941 est.): 5,500,000, of which Malays and Chinese in approximately equal numbers together furnish about 82%; there is also a large Indian community. Capital of the Malayan union, Kuala Lumpur (pop. in 1931, 140,000); capital of the colony of Singapore, Singapore (pop. in 1931, 544,000); other chief towns: Ipoh (67,000), Taiping (39,000), Johore Bahru (27,000). Languages: Malay, Chinese, Indian languages and English. Religions: Moslem, Hindu, Buddhist and Christian. Executive authority in each of the two newly constituted units is vested in a governor appointed by the British crown.

There is also a governor-general of Malaya (appointed by the crown) who exercises a co-ordinating authority over both areas as well as over the British territories in North Borneo (*q.v.*).

Governor-general: Malcolm MacDonald; governor of the Malayan union: Sir Edward Gent; governor of Singapore: Sir Franklin Gimson (all appointed in 1946).

History.—The new arrangements introduced in 1946 did not escape criticism. In particular the proposal to adopt a common citizenship for the Malayan union met with much opposition. It was urged that the plan was unfair to the Malay community in that it placed Malays and Chinese (the latter of whom were often associated with Malaya only temporarily) on too level a footing. A promise was given that the new citizenship should not actually come into force pending full local discussion of its terms and conditions. Conferences with the Malay rulers and leaders of Malay opinion led to acceptance of the essential elements in the new constitution, subject to certain modifications including the conversion of the union into a form of federation (to be called the Federation of Malaya) under a strong central government. The revised proposals emerging from the discussions with the Malay leaders were conditionally approved by the British government in Dec. 1946, and were referred to the other (non-Malay) elements in the population for their consideration. For this purpose a consultative committee was set up consisting (apart from the chairman) of outstanding nonofficials from all communities other than Malay. The committee, after carefully weighing opinions from every quarter, reported in March 1947. It felt able (while suggesting some modifications) to recommend that the main structure of the revised proposals, as agreed with the Malays, should be preserved intact. Further discussions with the Malays followed during April. The scheme which emerged from all these discussions, and which went some (but not all) of the way to meet the views of the consultative committee, was finally accepted by the British government in July 1947. The general result was, in the secretary of state's words, to achieve the British government's "main policy of establishing in Malaya a strong central government and securing the basis of common citizenship among all the peoples who make Malaya their homeland and the centre of their loyalties." The question whether Singapore (where a legislative council with an unofficial majority, including nine elected members, was to be established early in 1948) should be eventually incorporated in the Federation of Malaya was left over for future discussion.

Schemes approved during the year under the Colonial Development and Welfare act included grants amounting to £19,-

000 for scrub typhus research, and a supplementary grant of £3,740 for general medical research in the Malayan union. Another grant of £4,000 was approved in connection with the appointment of a principal designate to the newly formed Malayan University college.

Finance and Commerce.—The standard currency of Malaya is the Straits dollar (value 2*s.* 4*d.*), which is linked to sterling. Revenue (1946) £16,410,000; expenditure £31,198,000. Imports (1941) £96,863,000; exports £131,620,000. Malaya is rich both in mineral and agricultural resources. Its two outstanding products are tin and rubber. In both these commodities there was an immense export trade before World War II, Malaya being, in respect of both of them, the largest producing country in the world. Other exports included copra, pineapples, iron ore and palm oil. There was a large production of rubber after the liberation of Malaya, but the rehabilitation of the tin industry proceeded more slowly.

(J. E. SH.)

Malta. The British colony of Malta covers a group of Mediterranean islands about 58 mi. from the nearest point of Sicily. Only two of these islands, Malta and Gozo, are of importance. The others are small islets. Total area: 122 sq.mi.; pop. (1946 est.): 285,130. Capital and seat of government, Valletta (pop. *c.* 52,000); other towns: Senglea, Cospicua, Vittoriosa and Città Vecchia (Notabile). Religion: almost entirely Roman Catholic. Language: Maltese (believed to be of Semitic origin); English and Italian are also widely spoken. Executive authority in matters concerning defense and external relations is vested in a governor (appointed by the British crown) assisted by a nominated council; in domestic matters it is vested in the governor acting on the advice of an executive council of Maltese ministers. Governor: Sir Francis Douglas (appointed 1946).

History.—The constitutional question bulked largely in Malta throughout the year. The terms of a new constitution, as finally approved in 1947, were based on the model of the 1921 constitution and their effect was to confer upon the colony full responsible government in respect of its own internal affairs. The first Malta legislature elected under the new conditions was opened by the duke of Gloucester, on behalf of the British government, on Nov. 10. Apart from the constitutional issue, Malta was still preoccupied throughout the year with measures designed to repair the material and economic damage inflicted by enemy action during the prolonged siege of 1941–42. The Malta (Reconstruction) act, passed by the British parliament in Feb. 1947, not only sanctioned a grant of £20,000,000 from the consolidated fund for making good war damage in Malta but provided that Malta should continue, notwithstanding its acquisition of self-government, to be eligible for benefits under the Colonial Development and Welfare act.

Finance and Trade.—Both British currency and local sterling currency are legal tender in Malta. Revenue (1946) £4,306,000; expenditure £4,486,000. Imports (1946) £12,953,000; exports £707,000. The natural resources of Malta are comparatively small in extent. All land suitable for farming is closely cultivated, but the crops produced are designed primarily for local consumption and not for export. Vegetables (mainly potatoes) are the chief exported commodity.

(J. E. SH.)

Manchuria. Manchuria is a large area comprising nine northeastern provinces of China, bounded by soviet Siberia, Outer Mongolia, China and Korea. Area 503,143 sq.mi.; population (1940) 43,233,954, excluding area of 1,338 sq.mi. and population of 1,225,570 in the Kwantung Leased territory, now a part of Manchuria. Population (1939) 39,454,026, including 37,581,000 Manchurians, 1,162,000 Koreans, 642,300 Japanese and 67,700 of other nationalities.

Largest cities (1940) were Shen-yang (Mukden) (1,135,801), Pin-chiang (Harbin) (661,984), Ch'ang-ch'un (554,202), Antung (315,242), and Fu-shun (269,919). The principal religions of Manchuria at the end of 1938, in the order of number of believers, were Buddhism, Taoism, Lamaism, Mohammedanism and Christianity.

History and Government.—During 1947, the U.S. twice requested the Soviet Union to open the port of Ta-lien (Dairen) to international commerce as agreed upon in the Sino-Soviet treaty of Aug. 1945. The Soviet Union replied on Aug. 27, 1947, that the treaty provided for soviet control of Ta-lien as long as a state of war existed with Japan and since there was no peace treaty with Japan as yet, the soviet regime would continue. At the end of 1947 the southern tip of the Kwantung peninsula remained soviet-controlled.

At about the time of the withdrawal of soviet troops from the rest of Manchuria, early in 1946, hostilities began between Chinese Nationalist and Chinese Communist troops for control of the area. For many months the Chinese National government controlled the entire southern coast line, except Ryojun (Port Arthur) and Ta-lien, and a salient extending inland to a point between Ch'ang-ch'un and Pin-chiang, which included most of Manchuria's important industrial cities. Chinese Communist forces held most of the rest of Manchuria. A Chinese Communist offensive in the latter part of 1947 succeeded in capturing part of the southern coast, reducing the Nationalist salient, and cutting railway communications between Nationalist strongholds.

Education.—In 1939 there were 15,877 primary schools with 1,589,169 pupils and 37,639 teachers; 238 middle schools with 54,768 students and 2,768 teachers; 40 normal schools with 8,014 students and 520 teachers; and 13 institutions of higher education with 3,820 students.

Finance.—Monetary inflation continued to be severe in 1947. In addition to the Manchoukuan yuan (Japanese puppet currency) and soviet occupation roubles which were still circulating in some parts of Manchuria, there were also Chinese Communist notes for Manchuria, Chinese National currency for Manchuria (the so-called Tungpei currency) and regular Chinese National notes.

Trade and Communications.—Manchuria had virtually no external trade in 1947. In 1939 Manchuria had total exports in Manchoukuan yuan of 835,000,000 and imports of 1,800,000,000. (In 1939 the Manchoukuan yuan equalled 23.65 U.S. cents.) There were about 6,710 mi. of railways in 1940 and about 30,000 mi. of highways, of which 13,000 mi. were suitable for traffic.

Agriculture.—Manchuria is a food surplus area in normal times. The chief crops are millet, kaoliang, maize and soybeans. Crops in 1946 were above average because of favourable weather conditions, but increased hostilities between Communists and Nationalists reduced crops in 1947. In 1940, the country produced 16,100,000 tons of cereals, 4,200,000 of soybeans, 2,100,000 of potatoes and 75,000 bales of raw cotton. There were 1,683,000 cattle, 2,000,000 sheep, 1,250,000 goats and 2,000,000 horses in 1937.

Industry.—Between 1931 and 1945 Manchuria was developed into a strong industrial area to supplement Japan's war industry. The result of removal of industrial equipment by soviet forces and of destruction of industrial facilities during the two years of Communist-Nationalist fighting, was to reduce the Manchurian economy by the end of 1947 to a state of chaos.

At the end of 1946 U.S. Ambassador Edwin W. Pauley estimated that losses to Manchurian industry because of soviet removals and damage could be valued at $895,000,000. Resulting reduction in Manchuria's industrial capacity was 71% in the electric power industry, 50% to 100% in various phases of the iron and steel industry, 80% in the metal-working industry, 75% in nonferrous mining, 65% in liquid fuels and lubricants, 50% in the cement industry, 50% in the chemicals industry, 75% in the textile industry, and 30% in the paper and pulp industry. Even more serious were the losses resulting from the Communist-Nationalist civil war. These were estimated at $1,000,000,000 to $1,500,000,000. In 1947 one-half of Manchuria's coal mines were being operated within Nationalist territory and 1947 coal production was estimated at less than 4,000,000 tons. Only 200,000 kw. of electric power capacity remained for the use of industry in Nationalist territory out of a total prewar capacity of more than 2,000,000 kw. Destruction and looting of cotton mills had reduced cotton capacity to about 200,000 spindles. The civil war also prevented Manchuria's valuable mineral deposits from being mined in anything but a fraction of prewar output. Minerals and manufactured goods which were produced could not be distributed even within Manchuria because of damage to the railroads which were already burdened by troop movements.

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(S. NR.)

Mandated Pacific Islands: *see* PACIFIC ISLANDS UNDER TRUSTEESHIP.

Mandates: *see* TRUSTEE TERRITORIES.

Manganese. So far as data were available at the end of 1947, Table I shows the production of manganese ores in the important countries, and estimates of the

Table I.—*World Production of Manganese Ore, 1940–46*

(In thousands of short tons)

	1940	1941	1942	1943	1944	1945	1946
Brazil	345.5	482.2	337.5	303.8	162.0	269.7	164.4
Chile	12.8	39.5	78.6	125.8	48.5	8.2	17.3
Cuba	132.2	277.1	274.8	343.0	284.3	218.5	143.4
Gold Coast	488.3	549.9	761.7	589.0	528.6	675?	795.2
India	973.2	880.3	848.1	666.8	414.7	235.5	?
South Africa	454.2	491.5	434.8	241.5	117.8	126.2	227.4
U.S.S.R.	3,086	2,638	2,010	?	508	2,480	?
United States	44.9	87.8	190.7	205.2	247.6	182.3	143.6
Total	6,250	6,040	5,620	4,390	3,040	4,250	?

world total. These countries normally produce about 90% of the world total, with the remainder scattered among about 35 minor countries.

Cuban reserves had become exhausted, and operations were suspended late in 1946.

United States.—While domestic production had declined from the war peak, operations were being maintained on a relatively much higher level than after World War I. The salient features of the industry in the United States are shown in Table II.

Table II.—*Data of Manganese Industry in the U.S., 1940–46*

(In thousands of short tons)

	1940	1941	1942	1943	1944	1945	1946
Mine shipments	44.9	87.8	190.7	205.2	247.6	182.3	143.6
Metallurgical ore	30.4	73.9	178.0	195.1	241.2	174.3	134.4
Battery ore	10.4	11.4	12.4	10.0	6.2	8.0	8.3
Imports	1,435.9	1,714.6	1,583.0	1,511.6	1,315.7	1,311.3	1,514.5
Brazil	188.4	353.9	326.5	373.4	197.4	242.3	86.0
Chile	8.7	18.3	4.5	16.3	6.0	91.3	143.5
Cuba	146.3	272.6	156.3	211.8	467.1	293.6	158.7
Gold Coast	276.6	222.8	189.2	216.8	160.0	208.7	279.7
India	212.2	433.3	600.8	462.9	346.8	210.5	321.3
South Africa	199.1	306.6	234.2	127.7	41.4	62.0	243.7
U.S.S.R.	349.2	32.7	17.8	4.6	—	151.3	241.9
Consumption	?	1,310.5	1,481.7	1,588.3	1,593.1	1,485.9	1,136.7

During the first three quarters of 1947 production was 102,400 short tons, and shipments 107,900 tons. Imports had dropped back from the high level of 1946, with 360,633 tons in the first quarter, 338,415 tons in the second quarter and 331,455 tons in the third quarter, a total of 1,030,503 tons, about the same rate as in 1945. (G. A. Ro.)

Manitoba. Central province of Canada, and geographic centre of North America; established July 15, 1870; area, 246,512 sq.mi. (26,789 sq.mi. water); pop. (1946 census, rev.), 726,923, of which 389,592 are rural. Capital, Winnipeg, incorporated in 1873 (229,045). Other cities are: St. Boniface (21,613), western centre of culture for Canadians of French origin; Brandon (17,551), Portage la Prairie (7,620), centres of Manitoba agriculture; and Flin Flon (municipal district) (7,595), centre in the north for mining.

History.—No change in political leadership took place during the year 1947. R. F. McWilliams continued beyond the term of five years as lieutenant-governor, an office symbolic of the crown; while the coalition government under the premiership of Stewart Sinclair Garson, in office from Jan. 1943, remained unchanged with a cabinet of 11, 10 with portfolios.

The government coalition party comprised representatives of the Liberal-Progressive, Progressive Conservative and Social Credit groups.

Education.—Enrolment in public schools in 1946 totalled 121,272, of which number 20,904 were in the secondary grades. Correspondence students, unable to attend classes because of distance from schools or physical disability, numbered 2,486 in the school year. Teachers employed were 4,475. School districts expended $11,292,756.01 during the period. Plans were completed for construction of a technical-vocational high school for the metropolitan area of Winnipeg with dominion, provincial and municipal financial support. The experiences of the larger school administrative unit of Dauphin, established in 1946, were being studied in other areas, particularly in Brandon.

Health and Welfare.—The progress of the provincial-wide health plan inaugurated in 1945 was advancing slowly as a result of the general shortages in personnel in both medicine and nursing. Generalized public welfare service was given by local field staffs at Winnipeg, Flin Flon and Dauphin under the jurisdiction of the department of health and public welfare. During the year an epidemic of a comparatively mild form of poliomyelitis visited the region. A family court was established in Winnipeg in 1947 under the direction of Judges E. J. Heaney and M. S. Watson.

Communications.—Manitoba is served by main and branch lines of the Canadian National and Canadian Pacific railways. Hudson's Bay railway from The Pas to Churchill provides transportation to Manitoba's ocean port. Stevenson airport is the centre for Trans-Canada Air Lines and aviation centre for the region. A $3,000,000 expansion program was underway in 1947. All-weather provincial highways totalled 8,826 mi. in 1947, with the construction program emphasizing transition from gravel to hard-surface; shortages in material were retarding other programs. The Manitoba government telephone system increased to 111,899 substations with a total wire mileage of 336,368. In 1948 the two government radio stations were to be disposed of with the Canadian broadcasting system establishing a 50,000 watt station. There were four private stations operating—two in Winnipeg, one in St. Boniface (a French-speaking station) and one serving the northern areas from Flin Flon.

Finance.—The estimated ordinary revenue for the fiscal year ending April 30, 1947, was $24,040,000, and expenditure was $19,555,000. The provincial government paid over half of its additional revenue from the dominion-provincial agreement to the municipalities, designating $1,900,000 of the $2,750,000 share to be devoted to education. One-half of the relief debt cancelled by the dominion was also credited to local government administrations. A 24-year program for wiping out the dead-weight debt was established in 1947, and a sinking fund was created for providing for future debt retirement.

Agriculture.—Wheat production decreased from 63,000,000 bu. in 1946 to 43,000,000 bu. in 1947, and in value from $74,970,000 to $58,480,000. The census of 1946 showed 54,448 farms. The weather was also detrimental for sugar beets with a reduction to 9,000 ac. seeded and 72,000 tons produced in 1947. In general, higher returns equalized lower production, so that the total gross value did not vary greatly.

Manufacturing, Minerals, Fisheries, Furs.—In 1947 manufacturing continued at a high level, supporting the 1946 (est.) gross of $320,000,000; mineral production in 1946 totalled $11,403,577 for metallics and $5,272,699 for nonmetallics; fisheries, with 7,293 fishermen, produced 28,696,600 lb. with value to fishermen of $3,303,711 and market value of $4,853,738; furs (1946–47), wild catch from 8,078 trappers was $2,582,006, farms $1,500,000, a total of $4,082,006. Mining areas opened were: a lithium deposit northeast of Lac du Bonnet, Lynn Lake with nickel and Snow Lake with base metals, both north of The Pas. Dr. T. H. Hogg, a royal commissioner, was making a survey of existing and future requirements in water power, and the report "Industrial Survey of the Resources of the Province of Manitoba," by Donald, Ross and Co. of Montreal, was completed in 1947. (J. L. J.)

Manufacturers, National Association of: *see* SOCIETIES AND ASSOCIATIONS.

Maple Products. The U.S. maple sap season of 1947 was better than in the two preceding years but was retarded by cold weather. Syrup production was 2,039,000 gal. compared with 1,328,000 gal. in 1946 and a 10-year (1936–45) average of 2,381,000 gal. Sugar production was only 305,000 lb. which was less than any other year of record except 1945, when only 237,000 lb. were made. High syrup prices favoured the sale of the syrup as against sugar. The number of trees tapped increased, however, to 8,568,000 compared with 8,000,000 in 1946 and a 10-year average of 9,942,000. Continued shortage of labour held down operations in sugar orchards. Most of the crop of syrup was of good quality, and prices were higher than in 1946. (J. C. Ms.)

Maple Trees Tapped, Sugar and Syrup Production by States, 1947 and 1946

(In Thousands)

State	Trees tapped 1947	Trees tapped 1946	Sugar made (lb.) 1947	Sugar made (lb.) 1946	Syrup Made (gal.) 1947	Syrup Made (gal.) 1946
Vermont	3,463	3,298	191	256	777	607
New York	2,874	2,688	52	67	684	411
Ohio	543	532	0	0	160	80
Michigan	577	502	14	2	141	63
Pennsylvania	335	291	16	11	90	45
Wisconsin	252	210	1	0	66	28
New Hampshire	226	207	10	12	51	36
Massachusetts	169	154	11	12	43	38
Maine	95	87	6	7	17	10
Maryland	34	33	4	5	10	10

Maps: *see* CARTOGRAPHY; GEOGRAPHY.

Marble: *see* STONE.

Margarine (OLEOMARGARINE). The high price of butter stimulated demand for margarine in the United States and resulted in a new production record of 650,000,000

lb. in 1947. A year earlier margarine production had begun to decline from the top wartime output of 500,000,000 lb. in 1943, but the high price of butter caused many consumers to shift to the cheaper product. Average civilian consumption was estimated at 3.7 lb. in 1947 compared with 3.1 lb. in 1946.

The price of margarine followed the price of butter only in general through 1947. In January margarine averaged 39.3 cents per pound while butter averaged 67.1 cents at New York markets. A year earlier when butter averaged 81 cents, margarine stood at 41 cents per pound. By March 1947 margarine reached 42 cents per pound and then levelled off at 36 cents for the rest of the year. Efforts continued to secure the repeal or modification of taxes on coloured margarine and also the reduction of retailers' fees for selling the product, but the dairy interests opposed all such efforts vigorously. (J. C. Ms.)

Marianas Islands: *see* TRUSTEE TERRITORIES.

Marine Biology.

In spite of world-wide political and economic unrest, some productive marine researches were accomplished and some explorations were made during 1947. Probably of greatest interest to scientists and laymen alike were the reports of the actual effects of the Bikini atomic bombs on marine animals and plants. While data gathered was still being examined by the scientists, some authentic accounts appeared which indicated the widespread damage caused by Operation "Crossroads."

Effects of the Bikini Bombs.—Of the two bombs released—one above and another beneath the surface of the lagoon—it was the second that demonstrated the widespread dangers of atomic contaminations to marine life. The contaminations were immediately taken up by the marine algae and other plants of the lagoon, and since many marine organisms, especially the bottom-feeding fishes, consumed the plants as food, these soon also became radioactive. Many of the fishes were so affected that they died within three weeks; their decayed bodies then apparently passed the radioactive contaminations back to the plants, and thus was initiated a vicious circle which, it was postulated, might last for many years. Some fishes as well as algae subsequently collected in the lagoon were so radioactive that when placed upon a sensitive photographic film, they took their own pictures. Another result reported was that the fouling organisms of the task-force ships became so radioactive that the action was detected through the steel hulls.

Expeditions.—The U.S. navy's expedition into the antarctic, under Rear Adm. Richard E. Byrd, returned with accounts of many new observations on weather and climate as well as some notes on biology. Among new discoveries was the finding of open warm-water lakes scattered here and there among cold and barren wastes. Also returned from Antarctica was the U.S. navy task force coded as Operation "Highjump." As a follow-up, two ice-breakers, the "Burton" and the "Edisto," left for the antarctic late in November to continue scientific surveys of Little America.

The steel ketch "Atlantis" of the Woods Hole Oceanographic institute continued studies over the "mid-Atlantic ridge," a strip of ocean floor presumably extending from Iceland to Antarctica. Mountain peaks and other topographical features of a limited area east of Bermuda were mapped by the use of advanced technical equipment in echo- and sonic-soundings, and mud samples were taken by the "core tube sampling device." In conjunction with the wartime experiments of "Sofar" (code name of U.S. government-sponsored research project on locating survivors at sea), some of the Woods Hole scientists perfected an underwater sound detector so delicate that distress bombs released at a distance of 3,000 mi. were received and their origin "fixed" with accuracy, to within a single square mile of ocean water.

New Devices.—Two undersea cameras of somewhat new design were described and their usefulness tested by a Columbia university scientist and his assistants. The cameras were of two types—one used while "free floating" and the other "suspended." The former was used to obtain a series of "shots" to a maximum depth of 2,700 fathoms (16,200 ft.), but was lost on the third lowering. It was found that large "photo flash" bulbs withstood 60 fathoms' pressure, while small bulbs could be used up to depths of 650 fathoms. For greater depths, the bulbs were encased in strong optical pyrex bells of special design, equipped with 12-volt motor circuit.

A short time later the U.S. navy announced that underwater television experiments had been successfully carried out after the Bikini bomb tests. By means of a remote-controlled television camera, fish were observed swimming around a submarine 160 ft. below the surface. Such a demonstration opened a new field of study in deep-water biology.

The privately endowed Swedish oceanographic floating laboratory, "Albatross," which sailed from Gothenburg in July 1946 spent most of the summer of 1947 in the Caribbean sea exploring the ooze of the sea floor. By means of a revolutionary device, the perfected "piston core sampler," the bottom muds were sampled to a depth of 66 ft. Heretofore, samples of less than one-half that thickness were obtained. Bottom muds give scientists a clue to the age of the oceans, and with them a history of adjacent lands. Oceanographers heretofore had gone back only to the last glacial period, about 200,000 years ago. The new tube gave promise of extending this research as far back as 5,000,000 years or even more. Some other data accumulated by the expedition indicated that the bottom muds from the western North Atlantic floor were comparatively thicker over the bed-rock as compared with the Caribbean deposits. It was determined, by the use of a new sonic device, that muds in certain Atlantic areas were as much as 8,000 ft. thick, while in the Caribbean areas they were from 1,000 to 3,000 ft. thick.

Whaling, Ocean Swell.—The Low Temperature Research station, Cambridge, England, and the department of scientific and industrial research sponsored jointly an antarctic whaling expedition in an effort to determine the potential supply of whale meat for human consumption. The factory ship, "Bataena," equipped with a laboratory for biochemical and physiological study, left England early in Jan. 1947, to investigate factors which influence the quality of whale meat and to determine what differences techniques of slaughtering, cutting and freezing may have on the edibility of the flesh.

A study of ocean swell in relation to storm centres was continued by the admiralty research laboratory at Teddington, England. Scientists obtained data along the Cornish coast which indicated that the longest period exhibited by swell, caused by a distant storm, is proportional to the maximum wind velocity of that storm. Data on swell were recorded from a tropical storm off the coast of Florida 2,800 mi. from Cornwall, and from another storm near Cape Horn—almost 8,000 mi. distant.

Study of Fish Noises.—In conjunction with the studies of natural water noises caused by tides, waves, winds, etc., biological sources of underwater noises were quantitatively analyzed by the application of perfected technical equipment designed and used by the U.S. naval ordnance laboratory at Washington, D.C. Wide fluctuations in noise intensities—seasonal as well as diurnal and nocturnal—were recorded on disks. Experiments on segregated fishes known to make noises included a prolonged series involving the croaker (*Micropogon undulatus*); toadfish (*Opsanus tau*); hogfish (*Orthopristis chrysopterus*); spot (*Leiostomus xanthurus*); sea robin (*Prionotus carolinus*) and sea

catfish (*Felichthys felis*).

Other Studies.—A comprehensive series of biological studies off the Murman coast and Barents sea concerning the herring, cod, plaice and haddock was conducted by the Polar Research Board on Sea-fish and Oceanography. An exhaustive report on 20 species of marine algae digesting bacteria was published by the Duke University Marine station; the study included an appendix of all literature related to these organisms and a useful key.

The sixth report of the Committee on Marine Ecology as related to palaeontology was released by the Division of Geology and Geography, National Research council (U.S.). One of the first reports from the biological studies at East bay, Antarctica, described the preparation of the Weddell's seal (*Leptonychotes weddellii*) for embryological studies, the courtship of the Adelie penguin (*Pygoscelis adeliae*), methods of capturing and feeding antarctic birds and the taking of marine specimens.

Specimens of a common estuarian barnacle (*Eliminus modestus Darwin*) of Australia were taken from the test panels at Chichester harbour, West Sussex, England. Apparently it made the journey on ship hulls and found the north temperate waters suitable for growth and development.

A scientist working at the Marine station at Cronulla, New South Wales, concluded that the age of a fish as well as many anatomical and functional characteristics may be analyzed by a study of the scales.

The history of scientific studies at the Plymouth Marine laboratory, England, and its associated station at Lowestoft was recounted by the director of the laboratories. The results of tagging salmon in Scottish, Norwegian, Baltic and Canadian waters were released by a scientist at the University of Liverpool under the Buckland foundation. According to this study, European and Canadian salmon have a common feeding ground in the North Atlantic, probably near Iceland, and it was recommended that a new marking station be established there to facilitate further studies.

It was concluded that "mealiness" of the dory (*Zeus cupensis*) and the "milky spots" of the stockfish (*Merlucius apensio*) in the South Atlantic waters about Capetown are caused by protozoan parasites. Studies using fluorescent techniques gave quick estimates of the distribution of parasitism in infected tissues, the intensity of infection, and the relative number of fish infected. Among fishes collected in eastern Mediterranean waters by scientists at the Hebrew university, representatives of ten species found east of Suez were found. It was postulated that these had migrated through the canal and had found the Mediterranean waters a suitable habitat.

That the copper content in marine diatoms is of no considerable importance as an antifouling mechanism was concluded by workers at the Millport station. Reasoning that the results of experiments with antifouling cupric oxide containing as much as 105μ copper per gram was of only temporary effectiveness, it was speculated that the antifouling effectiveness of diatom slime which assayed only 164μ copper per gram was of little or no value.

Progress in the cyclic changes in salinities of the North sea was reported upon by the International Council for the Study of the Sea. It was concluded that differentials in the cycles were correlated with changes in the relative direction of the surface currents; the salinities in the northern areas were due to currents from the north, while those in the southern end were associated with the Gulf stream changes. (*See* also OCEANOGRAPHY; ZOOLOGY.)

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(F. M. B.)

Marine Corps. From Nov. 10, 1775, the marine corps has been an integral part of the navy with a wider field of endeavour than corresponding forces of other navies. In 1947 the National Security act of Aug. 2, while reorganizing the armed forces, confirmed in law the basic missions of the marine corps which had been effectively fulfilled in World War II. These missions were: to provide balanced landing forces of air and ground units for the seizure of advanced bases, or for other land actions incident to a naval campaign, and to develop the tactics, techniques and equipment for the landing force phases of amphibious operations. The law also provided that the marine corps might be assigned special missions by the president and that it would furnish security detachments for naval installations and capital ships of the fleet.

To accomplish these missions the marine corps in 1947 took two major steps. The first was streamlining of tactical units. By November, divisional organizations had been revised with mobile reinforced battalions as basic combatant units. Elimination of infantry regimental headquarters and other administrative troops increased flexibility, providing 10% more forward



U.S. MARINES leaving Peiping, China, in 1947, following a U.S. decision to cease aid to both factions in the Chinese civil war. "Ding hao!" scrawled across the train is the Chinese equivalent of "That's great!"

echelon troops without increase in over-all strength and allowing rapid movement of effective, self-contained units.

The second major step in 1947 was building a balanced, well-trained reserve force. Organized ground units were increased from 17 to 60, and organized air units were increased from 25 to 32. A nation-wide enrolment campaign began in November to bring the reserve to its full planned strength of 100,000.

The 1st marine division and the 1st marine air wing had been withdrawn from their emergency task of assisting the attempted mediation of unsettled conditions in China by June 20, and were based on the west coast by Oct. 31.

Emphasis during the year was largely on training and research. Marine training units supervised manoeuvres of army, navy, air force and marine forces. An experimental helicopter squadron was established in December and a marine pilot set a new world's air speed record of 650.6 m.p.h. on Aug. 25. Fleet marine force units on the east and west coasts and on Guam held manoeuvres from September to December and remained ready for action with the fleets.

Gen. A. A. Vandegrift completed his term as commandant and was relieved Dec. 31 by Gen. Clifton B. Cates. The strength of the regular service on that date was approximately 7,000 officers and 77,000 enlisted men. (A. A. V.)

Marine Insurance: *see* INSURANCE.
Market Gardening: *see* VEGETABLES.
Marketing: *see* BUSINESS REVIEW.

Marriage and Divorce.

Postwar marriage rates, which in many countries had approached record heights in 1946, began to level off or decline markedly in 1947. While new records had been set the previous year in New Zealand, the Netherlands and the United States, with rates in Australia, Belgium, Canada and France not far behind, the marriages in those countries declined 10%–20% in 1947. Little change was noted in the British Isles and in South America, where a slight drop had occurred in 1946.

The world-wide rise in birth rates continued, reflecting the large number of marriages in 1946. New records were anticipated in the British commonwealth of nations, in most of Europe and in the United States. Although reliable data were not available, it was believed that high birth rates prevailed in Germany, Japan, Russia and those countries under Russian influence. Insignificant declines in the birth rate seemed discernible in Chile, Mexico, Portugal and Sweden. A downward trend in the birth rate was expected to result within three years.

With many of the hasty war marriages already dissolved, there was some evidence to suggest that the unparallelled rates of divorce in 1945 and 1946 might be subsiding.

During the first half of 1947, the number of divorces generally was less than for the corresponding period of 1946.

United States.—In the United States about 2,000,000 marriages were recorded, representing a 13% decrease from the 2,300,000 in 1946, the largest number ever recorded (*see* Table). Although nearly 3,500,000 babies were born in 1946, an all-time record, considerably more than 3,000,000 births were forecast for 1947. Because of a drop in the divorce rate for the early months of 1947, it was hoped that the record number of 613,000 divorces in 1946 would show little, if any, increase. Little confidence was expressed, however, that any significant reduction was likely in the near future.

Marriages and Divorces in the United States, 1937–46

Calendar year	Number of marriages	Increase (+) or decrease (−) from preceding year per cent	Marriages per 1,000 of population	Number of divorces	Divorces per 100 marriages
1937	1,451,296	6.0	11.1	249,000	17.2
1938	1,330,780	— 8.3	9.6	244,000	18.3
1939	1,403,633	5.5	10.9	251,000	17.9
1940	1,595,879	13.7	12.1	264,000	16.5
1941	1,695,999	6.3	12.7	293,000	17.3
1942	1,772,132	4.5	13.2	321,000	18.1
1943	1,577,050	—11.0	11.6	359,000	22.8
1944	1,452,394	— 7.9	10.5	400,000	27.5
1945	1,603,139	10.4	11.5	494,000	30.8
1946	2,285,539	42.6	16.2	613,000	26.8

Adapted from *Marriage and Divorce Statistics United States, 1946*, vol. 27, no. 10. Figures for 1946 are provisional; figures for 1945 are revised.

Workshops and institutes on marriage and the family were held in many institutions. In 1920 the first college course in preparation for marriage was offered by Teachers college of Columbia university; in 1947 according to the National Council (formerly Conference) on Family Relations, about 1,968 teachers were conducting 657 courses in marriage and family life in 550 colleges and universities.

Pres. Harry S. Truman authorized a national conference on family life to convene at the White House, May 6–8, 1948. The conference was to study the factors that promote stable family life. Under sponsorship of the Catholic Youth organization, marriage clinics were opened in several cities. In many other cities counselling services were set up by different civic organizations.

Research was not lacking. Dr. Lewis M. Terman, in a further study of his original group of persons gifted in intelligence, found that the genius is more apt to marry and to have a better chance for happiness in marriage than is the individual of average intelligence. Dr. Alfred C. Kinsey of Indiana university, Bloomington, released some of his findings in respect to sexual behaviour of 5,300 white males. Dr. Alan F. Guttmacher of Johns Hopkins university reported that three-fourths of physicians received no medical instruction in contraceptive procedures. Metropolitan Life Insurance company studies showed that chances of marrying at an early age are much greater in the United States than in any other country of the western world, and that the mortality rate for 1947 would probably set an all-time low. Dr. Judson T. Landis of Michigan State college, East Lansing, studied 409 successful marriages of the parents of college students. The area requiring the most time to achieve satisfactory adjustment was sex relations, followed in order by spending the family income, social activities and recreation, in-laws, religious activities and mutual friends. Lack of adjustment in three or more areas seemed to prevent a happier than average marriage.

Other Countries.—Efforts to stabilize marriage and the family were continued. In Australia marriage guidance councils were being established and progress was made toward a federal divorce law to replace the conflicting divorce laws of its seven states. A *Conseil Supérieur de la Famille* to exercise all governmental family functions was proposed in Belgium and the ministry of public health and family initiated plans for a comprehensive program of family life education, counselling centres and family allowances. In Canada while one Gallup poll showed that less than one-third of the population was satisfied with modern family life, another poll indicated that a majority of the population believed that civil marriage should be prohibited. With one divorce for every six marriages in British Columbia, some agitation to prohibit divorce was evident, especially in Quebec. The Canadian Youth commission reported a negative correlation between the divorce rate and occupational status. The International Congress on Family and Population was convened in Paris, France, June 22–29. Attended by delegates from many countries, its major topics included housing, women's work, standards of family living, parent-child relationships and functions of family associations. It seemed likely that France's record birth rate of 1946 would be repeated in 1947.

In England it was reported that the number of marriages dissolved rose from 30,000 in 1946 to 50,000 in 1947, but that

most cases arising out of World War II had found their way to the courts by the end of the year. The National Council of Women urged the ministry of education to establish an adequate educational policy for marriage and family education. Parliament received the final report of the Committee on Procedure in Matrimonial Causes which had been appointed in 1946 by the lord high chancellor. Among its recommendations, the committee proposed a system of education for marriage, parenthood and family living; specific marriage preparation of engaged couples; a marriage welfare service, whose function would be the counselling of couples before or after marriage; the appointment of court welfare officers to give counsel to distressed couples and to endeavour to effect a reconciliation even after the start of divorce proceedings; the retention of the decree nisi; and the clarification of the law as to collusion so that lawyers would point out that the law favours reconciliation and that discussions to that end will not prejudice any divorce proceedings. There was also established a family relations group to co-ordinate the interests of organizations concerned with various phases of marriage and family living. Included in the membership were the British Social Hygiene council, the Central Council for Health Education, the Eugenics society, the Family Planning association, the Family Welfare association, the Marriage Guidance council, the National Council for Maternity and Child Welfare and the Pioneer Health centre. Under the editorship of Dr. David Mace, a monthly bulletin on marriage and the family was issued by the National Marriage Guidance council. The archbishop of York urged that three steps be taken to reduce the divorce rate: raise the dignity and solemnity of the register office marriage; give financial aid to marriage guidance and discourage collusive divorce. The office of the registrar-general reported that nearly 30% of all first babies were conceived before marriage. The British foreign office adopted a rule that any diplomat involved in a divorce action would be liable to expulsion. Bristol university instituted a course in marriage for its undergraduates.

Finland set up a system of loans to help young married couples begin marriage. In Germany marriage, birth and divorce rates continued to be high. The University of Göttingen established an institute for heredity and eugenics. With the resumption of bimonthly publication of *Marriage Hygiene* in Bombay, under the editorship of Dr. A. P. Pillay, it seemed likely that reliable reports on family life in India would soon be available. In Japan the ministry of welfare established a marriage bureau to help young people find suitable mates, an objective likewise encouraged by the increase in coeducation. Several birth-control clinics opened and a number of parent-teacher associations were formed. News from Russia was still difficult to obtain, but meagre reports indicated that marriage at young ages and large families were being encouraged. Additional restrictions on divorce were reported, and the cost of a divorce was estimated to be 100–700 times the cost of marriage.

Interest in preserving and enhancing family life was renewed in South America. Argentina, Bolivia, Brazil, Chile and Uruguay took the first steps toward establishing a system of family allowances or family wages. Caracas, Venezuela, was selected as the meeting place for the ninth Pan-American Child congress. In Uruguay, a bill of rights for women was adopted which gave them legal equality with men, permitted divorce by mutual consent without any reasons having to be advanced and required both spouses to contribute to the expenses of the home in proportion to their means.

Within three years the National Housing authority of Spain provided 30,000 low-cost housing units and made plans for an additional 60,000. Sweden's marriage and birth rates showed little change from 1946.

(*See* also BIRTH STATISTICS; CENSUS DATA, 1947.)

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Marshall, George Catlett (1880–), U.S. army officer and statesman, was born at Uniontown, Pa., on Dec. 31. Commissioned second lieutenant in 1901 after completing his studies at the Virginia Military institute, he was graduated from the Army Staff college in 1908 and advanced through the grades to general of the army in 1944. He was made chief of staff on Sept. 1, 1939, the day Adolf Hitler started World War II by invading Poland. An able administrator, Marshall built up the army from its Pearl Harbor strength of 1,500,000 men to 8,300,000 by the close of the war in Europe, May 1945.

He resigned as chief of staff Nov. 20, 1945; a week later, he was sent to China as U.S. ambassador with the task of finding a solution to the civil war there. But his 13 months of negotiations proved fruitless and on his return to Washington he blamed extremists of both sides for balking his peace efforts. On Jan. 7, 1947, President Harry S. Truman announced Marshall's appointment as successor to James Byrnes as secretary of state.

Marshall's first appearance in his new role as a statesman was at the Moscow session of the council of foreign ministers in the early spring of 1947. However, little was accomplished and after the parley's adjournment Marshall was cautiously optimistic on chances of a final settlement, although he did criticize the Russian attitude on Germany.

In a speech at Harvard university on June 5 he proposed that European countries take the initiative in outlining their reconstruction program, promising U.S. aid once this had been done. This proposal was subsequently translated into the Marshall plan, or the European Recovery program. In its first phases the Marshall plan engendered considerable enthusiasm; later it met unequivocal soviet opposition as well as increasing hostility in congress.

In the summer of 1947, Marshall attended the Inter-American defense parley in Rio de Janeiro and came back with a hemispheric defense treaty that won overwhelming congressional endorsement. Then on Sept. 17, he made his celebrated "Little Assembly" speech before the United Nations, proposing establishment of a special permanent committee within the general assembly to circumvent Russian "frustration of the collective will." However, he found more "frustration" in the London meeting of the council of foreign ministers and on Dec. 15, Marshall blamed Russia for collapse of these talks.

Marshall Islands: *see* TRUSTEE TERRITORIES.
Marshall Plan: *see* EUROPEAN RECOVERY PROGRAM.

Martin, Joseph William, Jr. (1884–), U.S. politician, was born on Nov. 3 in North Attleboro, Mass. After graduating from high school, he worked as a reporter on the *Attleboro Sun*, and when he was 24 he bought *The Evening Chronicle* of North Attleboro.

In 1911, running as a Republican, he was elected to the Massachusetts legislature. He was elected to the federal house of representatives 13 years later (1924) and was re-elected with clockwork regularity even through the lean New Deal days. In 1939, he became minority speaker of the house, a post he held until the opening session of the 80th congress (Jan. 1947), when he became speaker of the house. An astute legislator, Martin was respected for his ability to weld the house Repub-

licans into a solid voting bloc on crucial issues.

On July 10, 1947, Martin virtually became vice-president by house passage of a bill which placed the speaker of the house immediately after the vice-president in the line of presidential succession. In the first session of the 80th congress, he pledged the G.O.P. majority to a program of reductions in taxes and government spending. On foreign policy, in common with most of his Republican colleagues, he denounced the "communist menace," but was only lukewarm in his support of the Marshall plan and similar administration programs.

Martinique: *see* FRENCH OVERSEAS TERRITORIES.

Maryland. Long known as the "Old Line state," also as the "Free state" of the U.S.A., Maryland lies on the Atlantic seaboard between Pennsylvania on the north and Virginia on the south. The total area is 10,577 sq.mi., of which 690 are water. Population (1940) 1,821,244; urban, 1,080,351; rural, 740,893; white, 1,518,481 (foreign born, 81,715); nonwhite, 302,763. On July 1, 1947, the bureau of the census estimated the civilian population of the state at 2,215,000. Capital, Annapolis (pop. 1940, 13,069); other cities: Baltimore (859,100), Cumberland (39,483), Hagerstown (32,491), Frederick (15,802) and Salisbury (13,313).

History.—William Preston Lane, Jr., Democrat, was elected governor in 1946 for a four-year term, which began on Jan. 8, 1947. The regular session of the general assembly, held in March 1947, enacted a 2% retail sales tax, exempting foods and medicines; authorized an improvement in the school system and an increase in teachers' salaries; approved a program for building arterial highways and bridging the Chesapeake bay; authorized a project for improving the facilities of mental hospitals; made provision for sharing state revenues with Baltimore city and other political subdivisions.

Education.—In 1946–47 there were in the state (including Baltimore whose schools are separately administered) 892 public elementary and occupational schools, with a total enrolment of 201,184 and a teaching staff of 5,459. There were 223 secondary and vocational schools, with an enrolment of 99,370 and a teaching staff of 4,115. In the elementary schools about one student in four was a Negro; in the higher schools about one student in six was a Negro. The Catholic school enrolment for the entire state was 48,677 white and 2,268 Negro, with a total of 50,945. The enrolment in non-Catholic private schools was 10,651 white and 134 Negro, with a total of 10,785. The state superintendent of schools in 1947 was Dr. Thomas G. Pullen, Jr.

Social Insurance and Assistance, Public Welfare and Related Programs.—During June 1947, old-age assistance was extended to 11,819 persons (cost, fiscal year ended June 30, 1947, $4,290,231); 467 needy blind persons were assisted (cost, $187,464); 4,839 families received assistance for the care of dependent children (cost, $2,418,339). Unemployment compensation benefits paid during the benefit year ended March 31, 1947, were $18,187,041 compared with $17,619,690 in the preceding year.

Correctional institutions and the number of inmates on Oct. 16, 1947, were as follows: Maryland penitentiary, 1,193; Maryland house of correction, 1,398; Maryland reformatory for males, 739; Maryland reformatory for women, 195 (85 white, 110 Negro). Four institutions were maintained for juvenile delinquents, white and Negro; total number of inmates, Sept. 30, 1947, 647.

Communications.—During the fiscal year ended June 30, 1947, the state roads commission expended $20,828,377. The total mileage of roads in the state highway system was 4,490.64; in the county systems, 12,826.32; total, 17,316.96. At the close of the year the total mileage of line-haul steam railroads was 1,316; of switching and terminal companies, 138; of electric railways (interurban), 65.24. The state aviation commission reported 36 commercial airports licensed on Nov. 30, 1947; 7 military airports; 1,886 registered pilots; 877 recorded personal planes. As of Nov. 30, 1947, there were 354,000 telephone subscribers, total number of instruments, 516,000.

Banking and Finance.—As of June 30, 1947, the state bank commissioner reported 106 state banks and trust companies with total deposits of $845,674,692 and total resources of $916,050,310 and 9 mutual savings institutions with deposits of $391,873,195 and resources of $436,173,536. On the same date there were 63 national banks in the state with deposits of $668,370,000 and resources of $718,929,000. The resources of all state and national banks in Maryland on June 30, 1947, totalled $2,071,152,846. As of Dec. 31, 1946, the assets of 394 savings, building and loan associations in Maryland were computed at $255,603,959.

State appropriations for the year ended June 30, 1947, were $67,260,816; expenditures, $79,906,483; gross debt, $16,895,000; net debt, $14,015,904; general fund surplus, $13,785,171.

Agriculture.—During the first 8 months of 1947 Maryland farmers received $66,350,000 from the principal crops compared with $51,968,000 in the like period of 1946. Livestock and livestock products brought a total of $100,681,000 as compared with $85,036,000. The aggregate from all such sources was $167,031,000 against $137,004,000 in the 1946 period.

Table I.—*Leading Agricultural Products of Maryland, 1947 and 1946*

	1947	1946
Barley, bu.	2,409,000	2,174,000
Corn, bu.	16,092,000	17,328,000
Oats, bu.	1,184,000	1,254,000
Wheat, bu.	11,955,000	7,320,000
Hay, tons	620,000	631,000
Tobacco, lb.	34,560,000	40,500,000
Potatoes, bu.	2,074,000	2,244,000
Tomatoes, market, bu.	1,105,000	975,000
Tomatoes, processing, tons	239,000	139,200

Manufacturing.—As of June 30, 1947, the Maryland employment security board estimated the number of manufacturing establishments in the state at 3,086, employing 229,928 persons; the number of nonmanufacturing establishments (covered by unemployment compensation) at 31,918 employing 307,371 persons; total, 34,004 establishments employing 537,299 persons. The average weekly pay roll, 3 months ended June 30, 1947, was: manufacturing, $155,548,951; nonmanufacturing, $163,801,624; total $319,350,575. The Maryland commissioner of labour and statistics, as of Oct., 1947, estimated the average weekly wage in manufacturing at $50.60; average hourly wage, $1.21; average hours worked per week, 41.

Mineral Production.—The latest detailed figures on mineral production available from the bureau of mines in 1947 are shown in Table II.

Table II.—*Leading Mineral Products of Maryland, 1945*

	Short tons	Value
Coal	1,765,000	$6,107,000
Lime	66,675	502,376
Sand and gravel	2,898,808	2,694,876
Stone (other than stone used in cement manufacture and crushed unclassified stone)	1,242,930	1,851,828
Talc and ground soapstone	14,707	149,170

Oysters.—The commercial catch of oysters in Maryland waters during the season 1946–47 totalled 2,157,838 bu., compared with 2,399,111 bu. during the 1945–46 season. (J. S. A.)

Masonic Fraternity: *see* SOCIETIES AND ASSOCIATIONS.

Massachusetts. A north Atlantic state of the U.S.A., Massachusetts was admitted to the union on Feb. 6, 1788. It is popularly known as the "Bay state." Area: 8,257 sq.mi., including 350 sq.mi. of water; population (census 1940): 4,316,721; (1946 est.) 4,567,621, of which approximately 88% was urban, 12% rural. The capital is Boston (pop. 770,816). Other cities of 100,000 or more inhabitants are: Worcester (198,741); Springfield (159,896); Fall River (115,062); Cambridge (111,124); New Bedford (110,341); Somerville (102,177); Lowell (101,229) and Lynn (105,153).

History.—Robert F. Bradford (Rep.) was elected governor in 1946 for a two-year term. Other constitutional officers serving in 1947–48 were: lieutenant governor, Arthur W. Coolidge (Rep.); secretary of state, Frederick W. Cook (Rep.); attorney general, Clarence A. Barnes (Rep.); state treasurer, Laurence M. Curtis (Rep.); auditor, Thomas J. Buckley (Dem.).

During the legislative session several notable measures were adopted, including the enactment of a law (Slichter act) providing procedures in labour disputes endangering the public health and safety; a measure to stimulate construction of veterans' housing by cities and towns with state guarantees against losses; the establishment of a board of education having supervision and control over the department of education; the authorization of a $12,000,000 bond issue for further development of the Logan International airport at East Boston; approval of public ownership of the Boston Elevated railway, replacing private ownership with the establishment of the Metropolitan Transit authority. The state budget of $198,000,000 for 1947–48 was balanced for the first time after 1851 without assessing a state tax upon cities and towns—a method formerly employed to obtain sufficient funds.

Education.—In 1947 there were 1,771 public elementary schools with 364,248 pupils and 13,297 teachers; 177 junior high schools with 80,738 pupils and 3,748 teachers; 276 senior high schools with 145,226 pupils and 6,567 teachers. There were 9 teachers' colleges operated by the state, with a total enrolment of 3,175 students and 301 instructors. Total cost of public school education in Massachusetts was $91,496,496.20 of which the commonwealth contributed approximately 9%.

Social Insurance and Assistance, Public Welfare and Related Programs.—For 1947, the estimated total of public welfare expenditures for cities and towns (with federal and state aid) was $69,812,457. Of this amount, $51,817,376 was spent for old-age assistance; contributions to this total were: federal 45.1%, state 38.8%, local 16.1%. There was $10,540,689 spent as aid to dependent children; contributions: federal 27.5%, state 33.3%, local 39.2%. There was $7,454,392 spent on general relief; contributions: state 22%, local 78%. The average monthly case load was: old-age assistance 84,648 persons, aid to dependent children 9,068 families, general relief 15,202 cases.

For the fiscal year 1948 the commonwealth appropriated $4,133,393 to maintain correctional institutions, including the state prison (611 inmates), prison colony (706), reformatory for men (806), reformatory for women (402), state farm (2,024).

Banking and Finance.—Revenue receipts of the commonwealth for the fiscal year ending June 30, 1947, were $285,569,504.30. Of this figure, $80,000,000 was realized from a bond issue to meet veterans' bonus requirements. Other bond and note issues contributed $17,550,000 to the total revenue receipts. Governmental costs totalled $275,601,267.22 including $99,054,575 for the veterans' bonus. The direct debt was $122,782,800, less a sinking fund of $4,138,941.37 for a net of $118,643,858.63.

Assessed valuations in the state totalled $6,342,903,249 and the average local tax rate on real estate was $39.11 per $1,000.

Table I.—*Financial Report Covering the Year 1947*

Savings banks	190
Trust companies	60
Co-operative banks	175
Banking companies	12
Savings and loan associations (state law)	4
Credit unions	459
National banks	121
Federal savings and loan institutions	26
Total number of all banks in the state	1,047
Total assets of all banks in the state	$9,931,743,608.18
Total assets, federal savings and loan institutions	223,891,453.50
Total number of depositors in all banking institutions in the state	4,276,521 *

*Does not include depositors in national banks or shareholders in federal savings and loan associations.

Agriculture.—The total value of 1947 crops and livestock products was $176,784,000. The total acreage harvested during 1947 was 457,900 ac.

Table II.—*Principal Agricultural Products of Massachusetts, 1947 and 1946*

Crops	Production 1947	Production 1946
Corn, bu.	1,620,000	1,634,000
Cranberries, bbl.	470,000	550,000
Apples, bu.	2,864,000	1,784,000
Hay, tons	629,000	650,000
Potatoes, bu.	3,458,000	3,498,000
Tobacco, lb.	11,507,000	10,789,000
Onions, bags	468,000	624,000
Oats, bu.	231,000	259,000
Asparagus, crates	132,000	136,000

Manufacturing.—In 1947 there were 1,808 local unions in the commonwealth with a total membership of 522,104 (388,736 males and 133,368 females).

Table III.—*Value of Principal Products Manufactured in Massachusetts in 1947*

Products	Estimated Value
Woollen and worsted goods	$ 590,000,000
Electrical machinery, apparatus and supplies	499,000,000
Cotton goods	311,000,000
Boots and shoes, other than rubber	301,000,000
Clothing, men's and women's, including work clothing	248,000,000
Foundry and machine-shop products	217,000,000
Rubber goods, including rubber tires and inner tubes	202,000,000
Printing and publishing, book and job and newspapers	177,000,000
Bread and other bakery products	168,000,000
Leather, tanned, curried and finished	163,000,000
Paper and wood pulp	162,000,000
Boot and shoe, cut stock and findings	111,000,000
All other industries	2,675,000,000
Total value	$5,824,000,000

(R. F. B.)

Massachusetts Institute of Technology.

The year 1947 marked the peak demand for higher education in the immediate postwar period. The institute's enrolment in Sept. 1947 showed a 10% increase over 1946 and 87% over the normal prewar student body of 3,000. Although the percentage of veterans among the students remained approximately 60% for the institute, the percentage of veterans in the freshman class was only 25%. Of the total student body, 1,500 were graduate students.

The physical plant of the institute increased markedly during the year; four projects being completed and four begun. The construction of the Gas Turbine laboratory was completed; an army-built structure and 46 acres of land in Lexington, Mass., were acquired as a field station for the Laboratory of Nuclear Science and Engineering; two veterans' housing projects were occupied by a total of 270 families; and a new dining room was opened in the graduate house.

In addition, the institute acquired a large surplus navy drill shed which was to be moved to Cambridge and converted into an athletic cage.

Construction was begun on a new 360-man senior house and on a navy-financed, M.I.T.-operated supersonic wind tunnel valued at $2,600,000. Plans were completed for the Charles Hayden Memorial library.

Government and industry continued to sponsor research at M.I.T. on an extensive scale. Of its over-all budget of $17,000,000, the institute's research budget for 1947 was of the order

of $10,000,000.

(For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (K. T. C.)

Mathematics. By the end of 1947 most of the mathematical literature for the years of World War II had become generally available, but international communications were still so slow that much of the mathematics which attracted attention in 1947 had been published in 1946 or even earlier. The most striking example was the work of L. Cesari (Italy) on the area of a curved surface, published from 1942 onward but unknown outside Italy until 1947. Not only did Cesari's work overlap much work done in the U.S.A. at about the same time, but it also included the first solution of one of the most significant problems in the field. In Europe, publication was slow, in most countries slow even as compared with the war years. One effect of this delay in publication was that several results of importance were announced with only indications of proofs, so that it was not possible for other mathematicians to verify them. Thus, G. Fano (Italy) announced a proof that the general cubic variety in three-space is irrational, thus settling a long-outstanding problem in classical algebraic geometry. W. Brödel (Germany) claimed to have proved the famous four-colour theorem, which states that any map on a sphere, containing no disconnected countries, can be coloured with four colours so that no two adjacent countries have the same colour. An unexpected result in the theory of the distribution of the values of a meromorphic function was announced by D. Dugué (France).

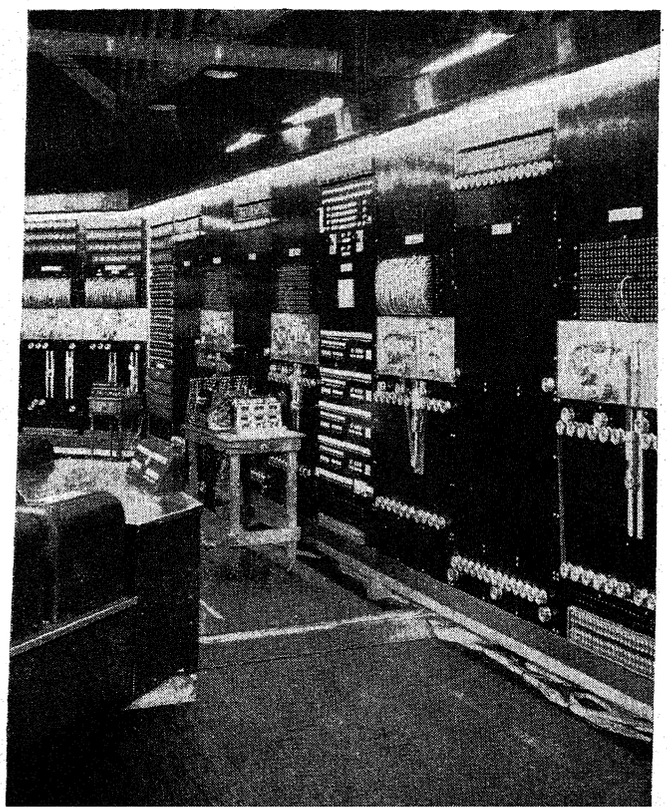
A particularly significant contribution to algebra was made by R. Brauer (Canada) in proving a conjecture of Emil Artin in group theory, which has important consequences in number theory and the theory of representations of groups. The unitary representations of the Lorentz group were studied by V. Bargmann (U.S.A.) and by I. Gelfand and M. Neumark (U.S.S.R.). The modern "abstract" theory of algebraic geometry received contributions from O. Zariski (U.S.A.), who also delivered the annual colloquium lectures of the American Mathematical society on this subject, and from A. Weil (Brazil), whose book *The Foundations of Algebraic Geometry* was one of the few important books of the year.

Many advances were made in number theory. In the U.S.S.R., U. Linnik and N. Tchudakoff gave new proofs of Vinogradov's theorem that all large odd numbers can be represented as the sum of three prime numbers; in Great Britain several investigators, notably L. J. Mordell, K. Mahler and H. Davenport, studied problems of the geometry of numbers and Diophantine approximation; in Norway A. Selberg continued to make progress in the problem of the distribution of the zeros of the Riemann zeta function; in Hungary P. Turán gave a new and promising formulation of the same problem. Much attention was attracted by work of L. Schwartz (France) on generalized concepts of function and derivative, which placed certain operational methods on a satisfactory foundation and promised to lead to progress in several fields, notably in the study of harmonic functions. M. L. Cartwright and J. E. Littlewood (Great Britain) published striking results in the theory of nonlinear differential equations. Advances in the theory of trigonometric integrals were made by A. Zygmund (U.S.A.) and F. Wolf (U.S.A.). An unexpected simplification in the theory of Banach spaces was found by W. F. Eberlein (U.S.A.).

Interest in applied mathematics continued high. The book *Theory and Applications of Mathieu Functions* by N. W. McLachlan (Great Britain) was the first full-scale treatment of the subject. Numerous tables of special functions appeared, testifying in part to the power of the modern high-speed calculating machines. Several new machines of various types were under construction in the U.S.A., Great Britain and Germany; when completed, they would be both faster and more versatile than their prototypes.

BIBLIOGRAPHY.—For a complete bibliography of papers in pure and applied mathematics, *see* the abstracting journal *Mathematical Reviews*, vols. 8 and 9 (1947 and 1948). (R. P. Bo.)

THE MARK II, largest mathematical calculator in the world at the time of its construction in 1947, was built for use by the U.S. navy in solving problems arising in its ballistics and guided-missiles research program.



Maurice and Laura Falk Foundation, The: *see* SOCIETIES AND ASSOCIATIONS.

Mauritania: *see* FRENCH OVERSEAS TERRITORIES.

Mauritius. An island in the Indian ocean lying about 500 mi. E. from Madagascar; a British colony. Area: 720 sq.mi.; pop. (1946 est.) 428,273, including 144,801 persons of European, African or mixed descent, 271,636 Indians and 11,836 Chinese. Mauritius and dependencies had an area of 807 sq.mi. with a pop. (1944 census) of 432,648. Capital: Port Louis. Governor: Sir Donald Mackenzie-Kennedy.

History.—Proposals for the revision of the constitution were promulgated in Oct. 1947. They provided for an extension of the franchise (including the granting of votes to women), and for a revised legislature consisting of the governor (as president), 3 ex officio members, 12 nominated unofficial members and 19 elected members. The executive council was to include 4 members selected by the legislature.

Finance.—The monetary unit in the colony is the Indian rupee. Budget (actual 1944–45) revenue Rs. 34,713,517; expenditure Rs. 31,832,797; public debt (June 30, 1945) Rs. 2,563,119 (not including foreign debenture debt, of the municipal corporation of Port Louis).

Foreign Trade.—(1944) exports Rs. 46,292,873; imports Rs. 65,787,788. Chief exportable products are: sugar, rum, aloe fibre and copra.

Meat. U.S. production of all meats increased slightly in 1947 to an amount not much below the record of 1944, largely because of the increased output of beef. The total for 1947 was estimated at 23,200,000,000 lb. compared with 22,961,000,000 lb. in 1946 and a five-year (1937–41) average of 17,676,000,000 lb. Outstanding feature of the year was the large number of cattle and calves sold for slaughter. The total meat supply in 1947 amounted to 156 lb. per capita compared with

U. S. Meat Production 1947, 1946 and Average 1935-39

(In millions of pounds, dressed weight)

	1947*	1946	Average 1935-39
Beef	10,500	9,378	6,936
Veal	1,600	1,440	1,038
Lamb and mutton	800	970	871
Pork	10,300	11,173	7,337
Total	23,200	22,961	16,182

*Preliminary estimate.

152.8 lb. in 1946 and the prewar average of 125 lb. during 1935–39. The general decline in meat animals was expected to reduce this supply sharply in 1948.

The meat supply was made up of a record proportion of beef and veal, less lamb and mutton and somewhat less pork. The increase in beef and veal was caused by the increase in marketing of cattle and calves which reached a record total of about 36,000,000 head—a larger number than the previous record of 1945. In prewar years the number slaughtered ranged from 24,000,000 to 26,000,000 head. The number of all cattle on farms Jan. 1, 1947, was less than a year earlier, and the large marketings in 1947 would result in smaller beef production during 1948. The per capita domestic consumption of beef was estimated at 70 lb.—near the record of 73 lb. consumed in 1945.

Pork production in 1947 was about 8% lower than in 1946 and provided an average of 70 lb. per capita compared with 78 lb. in 1946 and the record of 99 lb. in 1943. The pig crop was smaller because of the poor prospects for corn early in the year. Lamb and mutton production continued to decline, to 800,000,000 lb., the smallest amount since 1929. Per capita consumption was only 6 lb. compared with the total meat consumption of 156 lb.

U.S. exports of meat were estimated at 519,000,000 lb. in 1946–47, compared with 1,300,000,000 lb. exported in 1946. The end of U.N.R.R.A. operations reduced military needs, and smaller commercial shipments accounted for the shrinkage.

Prices of meat animals in 1947 ranged about 50% higher than in the previous year. The rise in livestock prices broke in September, then resumed its advance to new records. In Jan. 1947, prices for hogs averaged $21.80 per cwt., rose to $24.30 in April, then after a decline to around $23 for three months, again advanced to a new high of $27.60 per cwt. in October, but declined to $24.90 in December. Retail prices of pork products followed this trend in general. Prices of beef steers started the year at an average of $17.30 per cwt., advanced steadily to $20.20 in September, then declined slightly to the end of the year. Veal calves held more steady, starting the year at $18 per cwt. and fluctuating between this level and $22.30 per cwt. in December. Veal was one of the less expensive meats at retail and the supply was large, increasing as the year advanced. Lamb and mutton held the advances made in late 1946 to around $19 per cwt., and rose to $21.60 in September. The slaughter of lambs and sheep was below that of 1946 as well as below the average for 1936–45. Retail supplies were scarce in many markets and sold at a premium.

World meat supplies were estimated as slightly larger at the beginning of 1947 than a year earlier, the decreases in North America being offset by increases in South America, Europe and Africa. Canada continued to impose its wartime embargo on exports of cattle to the United States, to meet commitments to Great Britain. No stocker and feeder cattle was received from Canada.

No imports of cattle or other livestock was allowed from Mexico because of the outbreak of the foot-and-mouth disease. Ordinarily the U.S. had received about 400,000 head of stocker cattle to be finished on U.S. corn. In Argentina cattle production continued at about the average of previous years, but consumers were taking most of the higher grades of beef. Exporters found it difficult to fill their orders from Great Britain. Exports of frozen and chilled beef were about double that of a year earlier, about 90% of which went to Great Britain. Hog production was slowly recovering in Europe. (*See* also BACON; CATTLE; HOGS; LIVESTOCK; POULTRY; PRICE ADMINISTRATION, OFFICE OF; SHEEP.) (J. C. Ms.)

Medals: *see* DECORATIONS, MEDALS AND BADGES—MILITARY, NAVAL AND CIVIL.

Mediation Board, National: *see* NATIONAL MEDIATION BOARD.

Medical Association, American: *see* AMERICAN MEDICAL ASSOCIATION.

Medical Rehabilitation of Disabled Veterans.

The most important advance of medical rehabilitation in 1947 was its extension into the field of chronic disabilities of long duration. Its greatest application, up to this time, had been in acute illnesses and injuries, largely of the wartime variety. The experience gained in World War II proved most useful in the acute disabilities of peace; and medical rehabilitation continued to play a large role in the treatment of industrial and other accident cases, and in cases of illnesses requiring protracted hospitalization, such as tuberculosis.

In entering the field of the chronic disability, medical rehabilitation continued to encounter new problems. There was the problem of the greater average age of the patient, which has an important bearing upon his physical resiliency, his powers of adaptation, his aptitudes and his motivation. The rehabilitation of the war injury started with the great advantage of the youth of the patient.

Of the disabled in older age groups, the largest was that of the chronic neurological cases. Of these, paralysis resulting from a brain haemorrhage furnished the greatest proportion. Some of these recovered spontaneously to the point of self-care and some degree of ambulation; but few recovered spontaneously to the point of further employability. A surprisingly large proportion were doomed to a life of total, or almost total, helplessness and were dependent upon constant nursing or attendant care.

This placed a burden upon the family which only a small percentage of families were able to shoulder; and this type of case soon found its way into a hospital or a home for incurables. These cases continued to represent a large and increasing proportion of the admissions to veterans' hospitals and domiciliary homes, and little attempt was made to improve their basic condition. The great majority remained in these institutions so long as they lived. The magnitude of this problem had been shown in a survey by the United States public health service, in 1936, which revealed that 11.4 per 1,000 of the people of the United States were chronic invalids, and that, at ages 65 to 74, this proportion had risen to 53.5 per 1,000. With the gradual increase of the older age groups in all populations, the increase in the numbers of chronic invalids would exceed the proportionate increase with age.

Late in 1946, a pilot program of rehabilitation of chronic neurological cases was instituted in the Minneapolis Veterans' Administration hospital under the direction of Doctors A. B. Baker and Joe R. Brown. During the first year of this program, 105 chronic invalids, largely chronic neurological cases, were treated. Most of the patients were above the age of 50 yrs., and about half had been in hospitals for long periods, some bedridden for several years.

Of these 105 cases, 49 were discharged from the hospital,

capable at least of full self-care. Of those discharged, 23 were considered employable and 11 as partially employable; and 4 others were capable of partial self-care. Of the 52 remaining cases in which rehabilitation was begun, 40 were still under treatment in Oct. 1947, of whom 19 gave promise of early discharge; 2 had died, and only 10 had become discouraged and refused further efforts at rehabilitation.

The experience in this program indicated that the earlier rehabilitative treatment is instituted, the more rapid and the better the results. The importance of starting rehabilitation as soon as the immediate danger of a cerebral accident has passed is apparent in the results obtained. The reasons for this are not only physical, such as the prevention of muscular atrophy, but also psychological, because motivation for recovery generally is lessened as the patient becomes accustomed to inactivity and tends to accept his disability.

The social worker continued to be a most important member of the therapeutic team in the rehabilitation of the chronically disabled. Arrangements had to be made for the reception of the patient into his home and for such employment of which he was capable. One interesting fact uncovered in the social service part of this program was that families usually were happy to have the patient home again if only he were capable of self-care. It was the economic burden imposed by their helplessness that forced most of these cases into institutions.

Since the cost of hospitalizing the chronically disabled was almost as heavy as that of acute cases, the savings to be made by medical rehabilitation were enormous. The United States Veterans' administration estimated conservatively that the average duration of treatment in a hospital of one of these severely disabled chronic neurological cases was five years, and that, at 1947 costs, the annual charge for each case was approximately $4,375. At these figures, the rehabilitation of the 53 cases already discharged from the Minneapolis Veterans' Administration hospital represented a saving of more than $1,000,000.

Manual arts therapy was early made a part of medical rehabilitation in U.S. veterans' hospitals. This program was designed to start the vocational re-education of the patient before his release from hospital. Initially, each such patient was started on a program pointed toward a specific vocation, with the expectation that he would complete his training in a special school after leaving the hospital. The experience of two years, however, cast doubt upon the wisdom of restricting the early retraining of such patients to a single vocation; and it was now planned to direct this phase of retraining toward special broad skills rather than toward specified vocations. Thus, instead of training in watchmaking, or radio repair, the patient would be given basic training in the use of small precision tools, which skill could later be applied to a number of different vocations. This new course was known as Precision Mechanics. The principal reason for the change was that industrial firms much preferred a prospective employee to possess a special broad skill rather than a training completed elsewhere. (P. R. Hy.)

Medicine. Many new products of great importance were added to the medical armamentarium during 1947, and new facts were discovered about the sulfonamides, the antibiotics and the radioactive isotopes which were the centre of interest during 1946.

Most conspicuous was the official report on streptomycin in tuberculosis made as a result of an intensive study carried out under the auspices of the Veterans' administration. As the year ended, however, attention was attracted to the development of a new antibiotic called chloromycetin, and to evidence that a combination of a sulfonamide and an antibiotic might be efficient in certain types of infection in which either alone was not curative. This is known scientifically as synergism.

Antibiotics.—Streptomycin was apparently the most efficient drug yet discovered for the treatment of pulmonary tuberculosis in its earliest stages. Evidently it can cure miliary tuberculosis, a rapidly spreading form, which was previously invariably fatal. This is the first drug to interfere definitely with the multiplication of tubercle germs in man. It was found, however, that lower doses than those formerly used are efficient; large doses have side effects such as dizziness and, in some instances, severe skin eruptions and deafness. Excellent results were obtained with this antibiotic in tuberculous infections in the throat and the bronchial tubes and in tuberculous abscesses. Finally, it is also lifesaving in many cases of tuberculous meningitis which formerly were almost always fatal.

Among the new drugs introduced during 1947, most interest attached to the new antibiotic called chloromycetin, reported to be effective against such organisms as the *Rickettsia,* which are responsible for various forms of typhus. The drug was tested also against psittacosis or parrot fever, an infectious disease caused by viruses. Chloromycetin, derived from a mould related to the species that produces streptomycin, was found effective also against the tubercle bacillus, the organism that causes contagious abortion in cattle or undulant fever in man, and against certain infections of the gall bladder, the urinary bladder and the intestinal tract. The product is less toxic than streptomycin and can be taken by mouth.

New methods of administering the antibiotics included a variety of devices for aerosols or inhalation of penicillin mists and new substances which are injectable. The latter included penicillin mixed with vasoconstricting drugs like epinephrine, which permits slower absorption of penicillin. The suggestion was also made for the application of cold, utilizing an ice bag over the area in which the penicillin is injected as a means of delaying the absorption. This permitted the maintenance of a high level of penicillin in the blood for a longer time.

California physicians reported the treatment of acute infections of the throat with penicillin ice cream, which provided 25,000 units of penicillin every three hours. This method was used in acute tonsillitis, pharyngitis, scarlet fever throats and Vincent's infection of the throat, commonly called trench mouth.

Synergism.—Reports were available of the combined use of the sulfonamide drugs and streptomycin or penicillin in cases of undulant fever. Attempts were made to use a similar approach to leprosy, using a combination of diasone or promin with streptomycin. Also interesting was a combination of para-amino salicylic acid, known as PAS, with streptomycin. Apparently one remedy may damage the germ to such an extent that it becomes more easily susceptible to the bacteriostatic effect of the antibiotic.

New Drugs.—New drugs were produced for use against malaria, including chloroquine, pentoquine and a numbered product, SN13,274, which is also a quinoline. Its technical name is 6-methoxy-9-(4-isopropylamino-1-methylbutylamino)-quinoline.

Attention continued to be given to tridione, introduced as a remedy in epilepsy, and to several other anticonvulsive drugs, including hydantoin.

Investigators found a drug called DFP or di-isopropyl-fluorophosphate which affects the sympathetic nervous system. It was found useful in treating glaucoma, which is due to excessive tension within the eye. Reports indicated also that it was useful in overcoming myasthenia gravis, a condition marked by severe continuing weakness of the muscles, and in the treatment of paralysis of the movements of the intestinal walls. It causes excessive motility and makes the tissues more sensitive to the action of two other drugs—neostigmine and pitressin.

Special attention centred on the antihistamine drugs, which now included particularly pyribenzamine, benadryl and antergan. Histamine is responsible for dilating the small blood vessels. It is related to the attack of migraine headaches, asthma, hay fever, urticaria, food eruptions and similar conditions. The antihistamine drugs are strongly effective in lessening the seriousness of such symptoms. However, desensitization and elimination of specific allergens (substances that cause allergic attacks) was still considered a more positive and scientific method of treatment.

A drug called tetraethyl ammonium chloride was found to have the ability to block the sympathetic nervous system. Its use has been in conditions of spasm of the veins or blood vessels such as in Buerger's disease, intermittent claudication, and arteriosclerotic gangrene. The method was used also in Raynaud's disease in which there is pain and blanching of the fingers and toes.

Urethane or ethyl carbamate was also found effective in reducing the total number of white blood cells in cases of leucaemia. Studies indicated that action of urethane is the equivalent to exposure to X-ray. Ths drug is, however, toxic.

Proteins are the most essential substances in nutrition, since they are involved in the growth and repair of cells. Patients were now prepared for operation by injection into the blood of purified amino acids in the form known as protein hydrolosates. These may also be used in cases of severe starvation or inanition. The method is also applied in cases of hardening of the liver. Research continued on attempts to secure in pure form the amino acids, of which at least eight had been found to be just as essential to health and growth as the vitamins.

Antispasmodics.—A new antispasmodic was discovered called myanesin which may be substituted for curare, the South American arrow poison. The latter was now available as d-tubocurarine. All of these preparations were being tested as antispasmodics in anaesthesia and also for the treatment of spastic paralysis and infantile paralysis and in the treatment of persons who have had wounds of the spinal cord.

Radioactive Isotopes.—Some tumours take up radioactive phosphorus in greater amounts than do the other tissues of the body. The Geiger counter is used to measure the amount of radioactivity. The method may be used to determine whether or not tumours are malignant.

A case was reported in which radioactive iodine taken by mouth was effective in causing the disappearance of a secondary growth that developed in the bones and other tissues after primary cancer in the thyroid. Studies with the X-ray and the Geiger counter showed that radioactive isotopes localized in various parts of the body and that the radioactivity caused a lessening of the size of the tumours.

When people are given radioactive iron by mouth, the red blood cells become radioactive. A specimen of blood can then be taken from the person and injected directly into the blood of another person. Later a specimen of blood taken from the second person can be studied and the percentage of the radioactive cells to the other cells can be determined. This permits an exact estimation of the total amount of blood in the body. It indicates also how the radioactive isotopes are used in diagnosis.

Radioactive sodium can be injected into a vein and the time of its appearance at a remote portion of the body determined by use of the Geiger counter. This permits determination of the rate of the circulation and the extent to which inflammation of blood vessels may interfere with circulation.

Radioactive phosphorus was found useful in treating excessive numbers of white blood cells in the blood, particularly in patients who are intolerant to treatment by X-ray. The method is beneficial in leucaemias and in Hodgkin's disease but not curative.

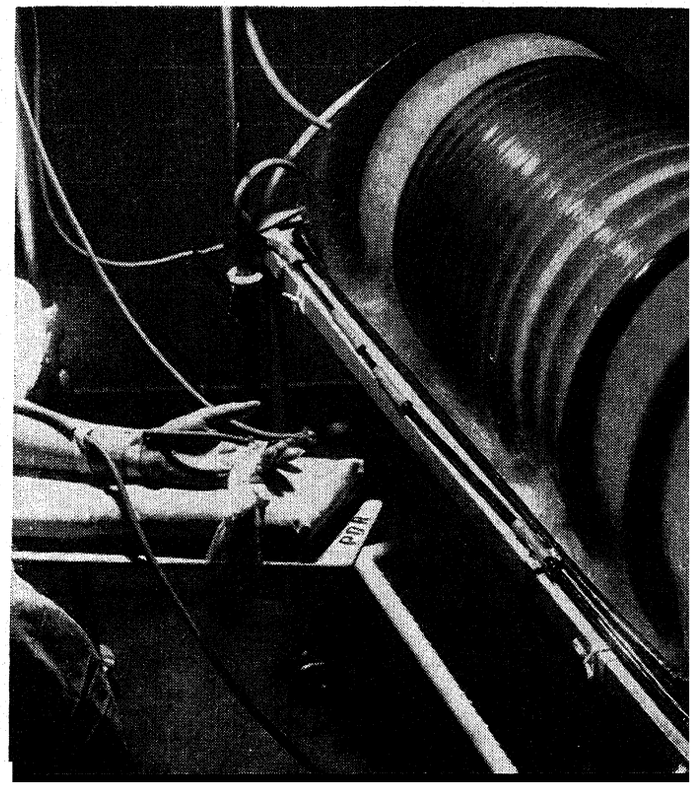
Cancer.—The attack on cancer, cause of some 180,000 deaths each year in the United States, was intensified during 1947. Special attention was given to the use of hormones, particularly for cancer of the prostate gland in men (treated with the female sex hormone) and cancer of the breast in women, treated with the male sex hormone. These were the first medical methods proved to be definitely beneficial in the control of certain forms of cancer. Studies were made also of splenic extracts such as were proposed by Alexander A. Bogolomets in his anticytotoxic serum. The results indicated an action which was not yet, however, definitely understood. Other studies related to the use of an extract obtained from an organism known as *trypanosoma Cruzi*. In animals with tumours infected with this trypanosome, a decrease in the size of the tumour was reported. However, research workers in the Institute for Cancer Research in Philadelphia, Pa., were unable to confirm any value for this method of treatment, which was developed by two Russian investigators, Gregory Roskin and Nina Klyueva (Mrs. Gregory Roskin). Studies made on mice with artificial cancer by the Philadelphia investigators were so unsatisfactory that they did not think it desirable to test the method on human beings.

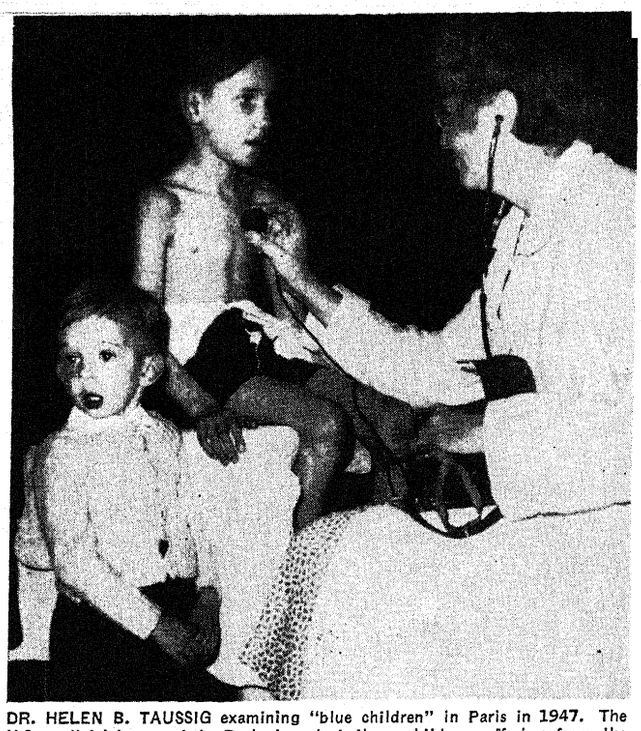
Public interest in cancer was reflected by increased collections made by the American Cancer society to the extent of $12,000,000 annually and governmental appropriation for cancer research amounting to $14,000,000, and the establishment of a new cancer centre at the University of Chicago to include a cyclotron, a special building devoted to radioactive isotopes and a hospital exclusively for cancer patients.

Narcotics.—The search continued for a nontoxic narcotic drug. While such preparations had not yet been found, there were new narcotics called metopon, amidone and methadon for which various claims were made both as to their lesser ability to produce addiction and their increased ability in the narcotic effect. Methadon was urged particularly for use in persons dying from cancer for its powerful effects on that condition.

Alcoholism and Cirrhosis of Liver.—Physicians were con-

ARTIFICIAL KIDNEY used in critical kidney conditions at Mount Sinai hospital, New York city, during 1947. Patient's blood is shown being removed from the wrist artery, filtered of urea and pumped back into a vein, thus permitting his kidney to rest or recover





DR. HELEN B. TAUSSIG examining "blue children" in Paris in 1947. The U.S. pediatrician went to Paris to select those children suffering from the cardio-vascular disease who might benefit by a method of surgical treatment pioneered by her and Dr. Alfred Blalock

cerned in 1947 with the apparent increase in chronic alcoholism, especially among women. The tendency of women to share public bars with men and to drink in cafes and at cocktail parties was of concern to sociologists. While alcoholism was now believed to be only an incidental factor in cirrhosis of the liver, that condition caused more and more apprehension. Treatment with a high protein, low fat diet plus liver extract and vitamins seemed to be the most efficient form of treatment yet developed.

Early Ambulation.—Much research continued concerning the value of getting patients up early after surgical operations and after childbirth. Women were allowed to stand for one minute the first day after the birth, to sit in a chair five minutes the second day, to take abdominal exercises in bed and to sit up for two five-minute periods on the third day, to do the knee-chest exercises and to sit up in a chair for 30 min. on the fourth day and to walk about on the fifth or sixth day, to take a shower on the seventh day and to leave the hospital on the eighth day. The incidence of complications was lessened and a return of the body to normal was apparently hastened by this practice. Similarly, patients who had undergone surgery were now permitted to get up much earlier although by the same gradual process just described. Chemical tests of the blood and of the secretions of the body indicated that these remain more nearly normal under such a procedure.

BCG Vaccination.—Extended studies with vaccination against tuberculosis, using BCG (Bacillus-Calmette Guérin), indicated possibilities of its use as a general preventive. A centre for the preparation of BCG vaccine is being established in the new tuberculosis research hospital to be developed at the University of Illinois, Chicago, Ill., and controlled studies were made in large communities to determine the effectiveness of the technique. The evidence available justified trials of BCG among isolated groups like the North American Indians, Eskimos and employees of mental hospitals and some racial and professional groups such as nurses and interns in institutions for the tuberculous, among whom the morbidity and mortality from tuberculosis were known to be high.

Heart Disease.—New techniques developed in heart disease included the use of large doses of penicillin in endocarditis by which at least one half of the patients who formerly would have died now recovered.

The surgical approach to heart disease was broadened so that "blue babies" were operated on by one of two techniques, both apparently successful, involving the taking of an increased amount of blood into the lung. Reports were also made on a technique by which a catheter is inserted into a large vein in the arm and passed directly into the heart. Samples of the blood can be taken from the interior of the heart of the living patient and studies made with electrical devices which give a better insight into the mechanism of the heart.

Vagotomy for Peptic Ulcer.—Surgical interest centred around the operation by which the vagus nerves are cut—a method useful in the treatment of ulcers of the duodenum and stomach. When the nerves are cut the acid secretions of the stomach are lessened and thus the symptoms controlled. However, much more study was needed to define the exact place of this unusual technique. Some surgeons were very strongly in favour of this technique, whereas others were just as strongly opposed to it. Most physicians inclined to the view that the patient should be treated by some of the newer medical methods developed for the treatment of ulcer, including the use of antiacid substances, resins, mucin preparations and similar techniques, before being submitted to the surgical method.

Influenza Vaccine.—During 1946 vaccines had been developed against influenza viruses A and B. Hundreds of thousands of persons were vaccinated. Later studies indicated that the method was not protective since the viruses change their form and it becomes necessary to develop a variable influenza vaccine which can attack a variety of viruses. The methods indicate, however, possible controls against such devastating epidemics of influenza as occurred in 1918. The combination of vaccination against influenza virus with sulfonamide and antibiotic drugs to control the germs might be able to arrest such epidemics.

Epidemics.—No serious epidemics disturbed the United States during 1947. The total number of infantile paralysis cases was under 12,000, or less than half the number that occurred in 1946. A severe outbreak of bulbar poliomyelitis in the vicinity of Minneapolis led to the development of a new technique of treatment for this special form. It involved early opening of the trachea (or windpipe) and direct inhalation of oxygen through this opening. This method was unquestionably lifesaving in many cases. Serious epidemics of poliomyelitis occurred in England and in Germany.

A severe outbreak of cholera affected Egypt and the far east.

England had 15 separate introductions of Asiatic smallpox during 1946, each of which was controlled by widespread vaccination. In England 33 cases occurred in an outbreak in Feb. 1947.

Special attention was given throughout the United States to outbreaks of infectious hepatitis with jaundice, resulting in some instances from introduction of the virus through blood transfusion, in other instances simply as an epidemic sustained from contaminated water or food. New tests were developed for testing the function of the liver.

New Devices.—One of the discoveries of World War II was a pocket-sized kit by use of which it is possible to tell the amount of carbon monoxide in the air. Carbon monoxide is the dangerous exhaust gas from automobiles and the substance in illuminating gas that produces sudden unconsciousness and death. The detector is a specially prepared mass of yellow silica in jelly form which turns green whenever it is exposed to as little as one part of carbon monoxide in 500,000,000 parts of air.

Another new device was an electric instrument which can be

attached to the ear and which shows exactly how much oxygen is present in the circulating blood. This is especially important for use on people undergoing anaesthesia.

Research methods were developed for using a special ultraviolet apparatus to destroy viruses in blood used for transfusion and to kill the virus of influenza in material used for vaccination against that disease.

The ballistocardiogram, an instrument which records the stroke volume of the heart, was used as a means of calculating the output of the heart. The electrokymograph was used to observe changes in the border of the heart as a means of determining special strain on the organ and a tendency to dilate and enlarge.

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Great Britain.—The National Health Service act, which entitled everyone to comprehensive medical care, was part of a program of social security aimed at "the prevention of individual poverty resulting from those hazards of personal fortune over which individuals have little or no control." The program had many critics; and the medical profession, while favourable to its aim, showed reluctance to enter the organized service it entailed—a service which many believed must involve regimentation and bureaucratic mediocrity. Throughout 1947 British doctors negotiated about possible conditions of work, remuneration, and disciplinary machinery; and their decision on whether to join the service had to be reached early in 1948 if the act was to come into operation on the appointed day in July 1948. The British Medical association objected particularly to abolition of the sale and purchase of practices, to exclusion of doctors from "medically overcrowded" areas, to payment of a basic salary to practitioners, and to the powers vested in the minister of health. Meanwhile the enthusiasm of those who regarded the national health service as a great opportunity for medical progress was damped by the economic situation, with its prospective restriction of expenditure on hospitals and health centres. Another serious obstacle was the continuing deficiency of trained nurses—a phenomenon common to most countries.

Opponents of the government argued that no act of parliament could in itself improve medical care: legislation did not create the doctors and nurses needed to look after the thousands of new hospital beds admittedly required. The reply to this argument was that the greater the shortages, the greater the need for organization. Certainly this was true of hospital beds; and, even if the general-practitioner service had to be postponed, the minister was certain to take over the hospitals. During 1947 he appointed the 14 regional boards to plan the hospital services.

Comparable schemes for public organization of medical services were on trial or under discussion in Scandinavia, the Netherlands, Northern Ireland, Eire, South Africa, Australia, New Zealand, and elsewhere. The South African model, introduced by slow stages, closely approached the straightforward "state medical service," with salaried officers centrally controlled. The New Zealand service, in which control was minimal, might need modification because too much money was spent on the family doctor and too little on the specialist and hospital. In the United Kingdom, on the other hand, some feared that excessive encouragement of the specialist would destroy the good general practitioner. To put the specialties in their proper place was a basic problem everywhere.

All this preoccupation with organization was closely related to the movement towards "social medicine." Doctors appreciated that advances in treatment were of little value unless they were made accessible to those who could profit by them. Also they now recognized that medicine should concern itself less with disease, isolated in hospital beds, and more with the "positive health" of people in their natural environment—the home, the office, the field, the factory.

A more social outlook on the medical needs of the community revealed that certain "uninteresting" disorders had too little attention—*e.g.*, neurotic illness, the infirmities of age, and rheumatism. It was also seen that vast benefits to the public were obtainable from undramatic innovations such as the better keeping of records, careful reablement or rehabilitation after illness, and practice by doctors in groups, and from fuller use of ancillaries such as the secretary, the health visitor and the social worker, who could save the doctor's time and extend his influence.

(*See* also ALIMENTARY SYSTEM, DISORDERS OF; ALLERGY; ANAESTHESIOLOGY; ATOMIC ENERGY; BACTERIOLOGY; BIOCHEMISTRY; BIRTH CONTROL; CHEMISTRY; CHEMOTHERAPY; DERMATOLOGY; EAR, NOSE AND THROAT, DISEASES OF; ENDOCRINOLOGY; EPIDEMICS; EYE, DISEASES OF; GYNAECOLOGY AND OBSTETRICS; HOSPITALS; INDUSTRIAL HEALTH; MEDICAL REHABILITATION OF DISABLED VETERANS; NARCOTICS AND NARCOTIC TRAFFIC; NERVOUS SYSTEM; PHYSIOLOGY; PLAGUE, BUBONIC AND PNEUMONIC; PSYCHIATRY; PSYCHOSOMATIC MEDICINE; PUBLIC HEALTH ENGINEERING; PUBLIC HEALTH SERVICES; SURGERY; TUBERCULOSIS; VENEREAL DISEASES; VETERINARY MEDICINE; VITAMINS; X-RAY AND RADIOLOGY. Also *see* articles on specific diseases.) (T. F. F.)

Mediterranean, British Possessions in the: *see* CYPRUS; GIBRALTAR; MALTA.

Merchant Marine: *see* SHIPPING, MERCHANT MARINE.

Mercury. Production in the more important countries is shown in Table I, so far as data were available in 1947.

Table I.—*World Production of Mercury, 1940–46*
(Short tons)

	1940	1941	1942	1943	1944	1945	1946
Canada	77	268	518	845	368	—	—
Chile	4	50	86	97	45	33	18
China	129	248	180	130	114	69	65
Italy	3,467	3,578	2,884	2,280	1,330	1,520	1,874
Japan	129	157	223	255	259	81	54
Mexico	443	879	1,233	1,076	989	625	443
Spain	1,984	3,286	2,747	1,815	1,305	1,546	1,558
South Africa	8	8	22	45	45	32	34
United States	1,436	1,707	1,932	1,973	1,432	1,169	963
Total	8,170	10,450	10,070	8,930	6,270	5,400	5,280

Table II.—*Data on the Mercury Industry in the U.S., 1942–46*
(In thousands of pounds)

	1942	1943	1944	1945	1946
Production	3,864.2	3,946.6	2,864.3	2,338.0	1,926.4
Imports	2,959.5	3,633.2	1,486.0	5,214.9	1,056.0
Exports	26.3	29.2	57.0	78.9	68.9
Re-exports	567.1	1,128.7	9.6	128.7	179.1
Supply	6,230.3	6,421.9	4,283.7	7,345.3	2,734.4
Consumption	3,777.2	4,142.0	3,260.4	4,744.6	2,371.2

United States.—The drop of more than one-half in domestic production of mercury had been largely offset by reduced consumption, and imports were needed for less than 20% of the demand. The salient data of the industry are shown in Table II.

In the first three quarters of 1947 production was 1,341,400 lb., imports 482,400 lb., exports 58,520 lb., and consumption 1,831,600 lb. (G. A. Ro.)

Merit System: *see* CIVIL SERVICE.
Mesotrons (Mesons): *see* PHYSICS.

Metallurgy. The majority of the more striking metallurgical developments were in the field of process metallurgy, rather than in the metallurgy of the individual metals.

Atomic Research.—The wartime development of atomic fission was paying dividends in peacetime applications. Science had been enriched not only with four new metals—neptunium (No. 93), plutonium (No. 94), americium (No. 95) and curium (No. 96), but also with a host of new isotopes, and in addition, more plentiful supplies of many formerly known isotopes than had before been available. Altogether about 80 isotopes had been identified in the products from the operation of cyclotrons and fission piles, many of which had been isolated in sufficient amounts to distribute for scientific research, either by sale or on loan. Striking new discoveries were expected from the use of these isotopes in the fields of biological, medical, chemical and metallurgical research. (*See* also ATOMIC ENERGY.)

Blast Furnace Operation.—Research on the action of oxygen-enriched blast in the iron blast furnace indicated a possible increase of 20% in capacity and a saving of 10% in fuel.

Flame Hardening.—New techniques in the use of flame hardening made use of electronic methods of temperature control.

Grinding.—Feeding coolant through the spindle of a grinding wheel, where centrifugal force drives it out through the pores of the wheel to the grinding surface, results in greatly lowered grinding temperatures.

Metal Finishing.—Sapphire tips of gauge points, burnishers, and tools for machining soft metals were found to give up to 7,000 times the life of steel, and 1,000 times that of carbide tips.

Moulding Dies.—Beryllium-copper alloy moulds used in moulding plastics were more easily made than steel moulds, had lower cost, and better heat conductivity to dissipate the heat.

Pickling.—A mechanical device was being developed for the removal of scale from rolled steel. Operations in the experimental stage were soon expected to go into a pilot plant.

Pumping Liquid Metals.—Electromagnetic action had been used for a number of years to circulate liquid metal in certain types of electric furnace. The same principle was adapted to pump liquid metals, even those of high melting point.

Refining.—Vacuum melting and casting of beryllium may be used to remove some of the more volatile impurities in the metal, but showed little effect on iron, aluminum, copper or silicon.

Soldering.—A new silver solder, containing 20% silver, had high capillary action and tensile strength.

Stamping Dies.—A test die made from easily worked low melting point alloy could be hardened sufficiently by immersing it in liquid nitrogen to permit the striking of six to ten trial stampings. When any necessary adjustments had been made, the die was then duplicated in steel for regular use.

Substitutes.—Aluminum was being substituted for steel in pipes, which were cheaper on a pound basis, but cost more per foot. Extruded tubing of tenite plastic was being used for piping gas in homes in southern California.

Nylon was being satisfactorily substituted for steel in some types of small gears.

Testing.—A supersonic thickness gauge was being used to measure the thickness of sheet metal which is accessible on only one side.

A direct reading spectrometer was developed which would determine simultaneously up to 16 different elements in the test sample, turning out analyses continuously every five minutes.

Welding.—New welding rods were developed for specialized uses in various lines—wear-resistant bronze, for high temperature, for use on light gauge mild steel, for hard surfacing, and for high tensile and impact strength. (G. A. Ro.)

Metal Prices and Production: *see* MINERAL AND METAL PRODUCTION AND PRICES.

Meteorology. The subject of artificial weather attracted wide attention during 1947; almost daily the press carried accounts from Australia, Hawaii, South America or some part of the United States about attempts to produce rain by sprinkling clouds with "dry ice," or solidified carbon dioxide. The first widely reported tests with dry ice to precipitate rain or snow were described before the American Meteorological society late in Dec. 1946. Some thought the method might be developed to dissipate fog and low clouds over airports, and to counteract hurricanes or divert them.

By the end of 1947 the evidence, although not conclusive, was sufficient to cause intensification of experiments and field tests to determine the practical possibilities of inducing rain or snow to fall where needed. The results so far could be summarized thus: first, fog or cloud particles must be at temperatures near or below freezing for dry ice pellets or any other known nucleating agent to condense out ice particles. The resulting snow or ice crystals grow at the expense of cloud droplets and may then fall as snow or rain, thus dissipating the cloud or fog. The requirement of freezing temperatures limited possible application to wintertime or to occasions when cloud tops extend upward into freezing atmosphere. Second, rainfall in sufficient quantity to be of value may be precipitated, but clouds at the shower stage from natural causes apparently must be present over the desired location. The effect of artificial measures was still undetermined. Third, it was doubtful that rain could be produced artificially over drought-stricken regions in the absence of humid air masses of broad extent and without the instability or the frontal formations in the atmosphere which usually cause rain. The natural phenomena necessary for formation of rain appear to involve quantities of air and moisture far beyond the capacity of dry-ice techniques. Fourth, although systematic tests on hurricanes were still awaited, many scientists believed such large-scale weather disturbances to be beyond the scope of artificial controls, at least temporarily. Fifth, if artificial rainmaking were developed to the point of commercial importance a new field of litigation would be opened. Some legal claims under consideration in 1947 were based on damage from heavy rain and destructive winds accompanying storms that were allegedly induced by artificial means. Moreover, a few landowners talked of water rights to moisture in the clouds above their property. Others on farms lying leeward of the rainmaking experiments feared they would be deprived of showers that otherwise would reach their lands and water their crops.

International Meteorological Organization.—An event of importance to meteorologists the world over was the conference of directors of the International Meteorological organization in Washington from Sept. 22 to Oct. 11, 1947. The meetings were concluded with adoption of a new charter providing for an intergovernmental World Meteorological organization after ratification by 30 member nations. These were the most widely attended and probably the most important meetings of the I.M.O. after its organization 70 years before. Directors of 60 foreign meteorological services were present.

The conference approved a plan of negotiation with the



"BERSERK," an apt picture of the unusual weather in 1947, which included heavy floods, destructive tornadoes and heat waves. Cartoon by Shoemaker in the *Chicago Daily News*

United Nations to bring the future W.M.O. into affiliation with the U.N. The conference also reviewed the work of the ten technical commissions which had held sessions in Toronto during August and early September and the regional commissions which had met since the extraordinary postwar conference at London in Feb. 1946. The commissions on aeronautical meteorology, agricultural meteorology, maritime meteorology and synoptic weather information in particular presented many plans for new facilities and for international co-operation in increasing the accuracy and scope of weather reports. Uniform units of measure and operating procedures, universal synoptic codes and standard values for certain physical constants were adopted. The conference elected new members for the interim executive committee composed of 25 directors from different countries.

Forecasting.—Agricultural, industrial and transportation interests and the general public had long pressed meteorologists to provide weather forecasts for longer periods in advance. The world food crisis in 1947 focused attention sharply on this problem. In the corn and wheat belts of the United States the unusually cool, wet spring was followed by prolonged hot weather and drought during the late summer. Plans of export control authorities of the U.S. government were vitally dependent on foreknowledge of the weather and its effects on crop yield. During World War II the major belligerents spent huge sums on research to develop new methods for long-range weather forecasting because foreknowledge of weather was so important in calculating the risks for strategic and tactical planning. To determine the reliability of forecasts military leaders in the United States requested the National Academy of Sciences to appoint a committee of scientists to study the results of the best methods of forecasting. After several months of investigation the committee reported little evidence of skill in specific forecasts beyond a period of three or four days. Although this conclusion applied primarily to detailed day-by-day forecasts rather than to general monthly or seasonal trends and climatological expectancy statistics, it served to epitomize the limitations of weather forecasting.

Despite discouragements research meteorologists and collaborating institutes and universities increased their work on methods for making forecasts more accurate and for longer periods. Among noteworthy efforts were the mathematical approach headed by scientists at the Institute for Advanced Study, Princeton, N.J., which included use of electronic computers; the studies of atmospheric circulation at the Massachusetts Institute of Technology, Cambridge, Mass., and the University of Chicago, and the extended forecast projects of the U.S. weather bureau. Other intensive studies in the composition and structure of the atmosphere and weather forecasting were in progress or about to be organized in universities of the west and southwest, with support of the U.S. air forces and navy. Among European nations, the U.S.S.R. appeared to be giving most attention to this subject.

The official meteorological bureaus of most countries were still issuing forecasts for periods of only 24 to 48 hr. Some issued regular forecasts in general terms for a week, but agreed that they showed little skill for forecasting more than the first three or four days. A very few issued experimental monthly or seasonal outlooks, but while they showed some evidence of skill none was reliable enough for general distribution and use.

Renewed attention was given during 1947 to calculation of future weather risks on the basis of expectancies derived from climatological statistics over many years. Monthly or seasonal weather guides of this kind give the frequency of occurrence of various weather conditions and could be projected into the future indefinitely to indicate the "probability" that the condition would occur, but this method did not show unusual conditions or anomalies for any definite time and place.

Most scientists agreed that progress in weather forecasting was most likely to come through extension of the system of upper-air soundings to give a quantitative analysis of the general circulation including elements which had been measured inadequately, if at all, such as the atmosphere's incoming and outgoing radiation and its effects at various levels. Undoubtedly the component quantities were so numerous and complex that they would require special mathematical treatment both for analysis and for computation of weather conditions at some future stage.

The widest gaps in the world-wide network of meteorological stations were still at sea, in polar regions and in other uninhabited or undeveloped areas. During 1947 two more stations were established in the arctic segment of the western hemisphere, one near Eureka sound at lat. 80° N.; long. 86° W.; the other at Resolute bay, lat. 75° N.; long. 95° W. The Eureka sound station was established entirely by air lift in April and was the most northerly permanent aerological station ever equipped, staffed and put into regular operation in this manner. The station at Resolute bay was established in August by means of surface icebreaker and transport ships. These two stations were staffed jointly by technicians from the national meteorological services of Canada and the United States. Their far northern reports added valuable information for the weather maps of the hemisphere and would assist in improving the daily and extended weather forecasting for Canada, the United States and western Europe.

On the oceans meteorology suffered from a shortage of fixed vessel weather stations or alternative sources of weather reports at sea. During World War II about 18 ocean stations were operated in the Atlantic to furnish weather reports and upper-air soundings four times or more daily. Eventually about 20 similar vessel stations were placed in the Pacific. All were spaced to give a network of representative weather reports. By agreement at the London meeting of the International Civil

Aeronautics organization in 1946, the peacetime requirements in the Atlantic were set at 13 vessel stations. Ships, equipment and personnel were to be provided by the principal maritime countries of North America and western Europe on the basis of their relative interest. Demobilization reduced the number in actual operation to two stations during part of the year, but by the end of 1947 four were again operating. In the Pacific only one station remained in the ocean east of Hawaii.

Because of the shortage of suitable ships and the cost of operation, meteorologists were searching in 1947 for more economical means of obtaining information and upper-air soundings at sea. Experiments were in progress to develop buoyed automatic weather stations, and there were tests also of balloons with altitude control by radio or automatic device similar to those used for incendiary purposes by the Japanese during the war. Aircraft reconnaissance was used extensively for weather observations by the air forces and navy over the Pacific and Arctic oceans, and in other places during seasons of tropical cyclones to aid the weather bureaus in collecting reports and soundings necessary for accurate forecasting. The system of weather reporting by regular merchant ships, a system well developed before the war, was also being restored. Proposals were revived for constructing floating seadromes that could be permanently moored and serviced by tenders less costly to operate than regular station ships.

Military meteorology, handicapped during 1946 by rapid demobilization, began recovery during 1947. New recruitment and recall of meteorological officers to active duty filled many of the vacancies with personnel for the specialized weather services to the armed forces. Noteworthy were the establishment of the first regular weather reconnaissance flights to the north pole by the U.S. air force, and the exploration of meteorological conditions in the antarctic by the navy in Operation "Highjump." To co-ordinate the many research projects in universities and other institutions, two interdepartmental meteorological groups, one primarily for civil purposes and the other for military, reviewed all major plans for meteorological research sponsored by the government. With interlocking memberships these two groups, the Committee on Aviation Meteorology of the Air Co-ordinating committee and the Panel on Meteorology of the Joint Research and

*Table I.—*Monthly and Annual Mean Temperature in °F., 1947, in U.S. Cities*

Cities	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Annual dep.†	Highest	Lowest
Albuquerque	33	42	47	55	67	73	80	76	73	60	41	35	57	+2	50	33
50-yr. avg.	34	41	46	54	63	73	77	74	68	57	43	35	55			
Bismarck	18	12	26	41	51	62	73	73	57	52	24	14	42	+3	73	12
75-yr. avg.	6	9	22	40	53	63	69	67	57	44	27	13	39			
Charleston	56	46	51	67	73	78	81	81	77	71	57	52	66	0	81	46
97-yr. avg.	50	52	57	65	73	79	81	81	77	68	58	52	66			
Chicago	29	20	32	47	54	66	71	80	67	62	35	30	49	0	80	20
77-yr. avg.	25	27	36	47	58	67	73	72	65	54	40	29	49			
Denver	33	31	37	47	56	63	74	74	68	57	35	36	51	+1	74	31
76-yr. avg.	31	33	39	48	57	67	73	71	63	52	40	33	50			
Helena	20	27	32	44	54	56	69	65	56	49	28	27	44	+1	69	20
68-yr. avg.	19	22	32	44	52	59	66	65	55	44	32	23	43			
Houston	53	50	57	70	75	82	84	84	81	77	60	56	69	0	84	50
67-yr. avg.	53	56	63	69	76	81	84	83	79	70	61	54	69			
Knoxville	43	33	41	62	65	74	75	79	73	66	48	41	58	0	79	33
77-yr. avg.	38	41	48	57	67	74	77	75	69	59	47	39	58			
Los Angeles	56	60	60	63	64	67	73	71	72	66	59	57	64	+2	73	56
70-yr. avg.	55	56	58	59	62	66	70	71	69	65	61	57	62			
Memphis	44	36	45	63	68	78	79	85	76	70	49	44	61	0	85	36
76-yr. avg.	40	43	52	62	70	76	80	78	72	61	50	42	61			
Miami	73	62	67	76	77	80	80	81	80	77	76	71	75	0	81	62
51-yr. avg.	68	68	70	74	77	80	82	82	81	78	73	69	75			
Mobile	55	49	55	69	74	81	81	83	77	73	58	54	67	0	83	49
75-yr. avg.	52	55	60	66	74	80	81	81	78	70	59	52	67			
New York	37	29	37	50	59	67	74	75	68	63	44	34	53	+1	75	29
75-yr. avg.	31	31	38	49	61	69	74	73	67	56	44	35	52			
Norfolk	49	37	43	59	69	74	77	79	75	67	51	43	60	0	79	37
76-yr. avg.	41	43	48	57	66	74	79	77	72	63	51	43	60			
North Platte	30	27	35	47	57	65	74	79	66	60	34	29	50	+1	79	27
72-yr. avg.	23	27	37	49	59	68	73	71	62	50	37	27	49			
Oklahoma City	39	38	46	59	67	78	80	86	78	71	47	42	61	+2	86	38
56-yr. avg.	36	40	50	60	68	76	81	80	73	62	49	39	59			
Phoenix	51	60	64	69	80	85	93	88	87	74	57	51	71	+1	93	51
52-yr. avg.	52	56	61	68	76	85	90	89	83	71	60	53	70			
Portland, Me.	22	25	33	41	51	60	71	69	59	58	39	23	46	+2	71	22
68-yr. avg.	20	21	32	40	51	60	66	65	58	50	38	25	44			
Portland, Ore.	39	48	52	56	63	62	68	66	65	56	48	45	56	+3	68	39
76-yr. avg.	39	42	47	52	57	62	67	67	62	54	47	41	53			
San Francisco	47	54	56	55	58	62	60	62	61	62	55	51	57	+1	62	47
76-yr. avg.	50	52	52	56	57	59	59	59	61	61	56	51	56			
Sault Ste. Marie	17	14	24	33	43	57	64	70	56	54	31	20	40	+2	70	14
58-yr. avg.	12	11	21	37	48	58	63	61	54	43	30	19	38			
Washington, D. C.	42	32	40	54	65	73	76	80	70	65	46	37	57	+2	80	32
76-yr. avg.	33	35	43	53	64	72	77	75	68	57	45	37	55			

Table II.—*Monthly and Annual Rainfall, in Inches, 1947, in U.S. Cities*

Cities	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Annual dep.†
Albuquerque	T	.1	T	T	.5	.2	.4	1.5	.7	.3	.5	1.1	5.3	− 3.2
Bismarck	.5	.3	.2	.9	.8	8.3	.7	1.1	1.5	2.3	1.0	.3	17.9	+ 1.5
Charleston	1.1	.4	7.3	4.4	2.8	10.8	5.0	6.8	10.2	3.5	6.3	6.1	64.7	+18.0
Chicago	2.1	.4	2.7	8.3	4.0	4.4	4.1	3.2	3.3	2.6	2.6	1.6	39.3	+ 6.4
Denver	.3	1.0	1.2	1.3	4.2	2.3	1.1	1.2	.5	2.8	.6	.2	16.7	+ 2.7
Helena	.3	.4	1.1	.8	.5	4.3	1.0	.8	3.1	.6	1.4	.3	14.6	+ 1.9
Houston	3.8	.7	2.2	1.2	10.2	5.4	.6	4.5	.8	2.3	5.5	4.2	41.4	− 5.6
Knoxville	9.7	2.7	2.9	2.4	3.4	2.7	3.3	2.1	1.4	1.6	3.3	2.1	37.6	− 9.9
Los Angeles	.4	.9	.8	T	.1	T	0	T	.1	.1	.1	1.6	4.1	−11.1
Memphis	6.0	.7	2.0	4.6	4.7	5.5	.6	2.4	.6	5.7	5.1	3.4	41.3	− 6.4
Miami	1.5	2.0	1.6	6.0	3.4	9.2	7.8	7.3	13.7	13.5	2.6	.7	69.3	+10.4
Mobile	8.7	2.3	14.3	9.5	11.4	4.6	1.1	4.6	5.0	2.8	10.7	7.3	82.3	+20.5
New York	3.2	2.4	2.8	5.5	4.9	3.2	2.7	8.8	2.7	2.3	6.5	3.9	48.9	+ 6.0
Norfolk	4.2	1.3	3.5	2.9	1.7	3.9	8.3	2.2	4.0	1.5	6.3	2.4	42.2	− 3.1
North Platte	.4	.2	.3	1.9	2.4	4.9	2.7	1.1	1.8	.5	1.6	.8	18.6	+ 0.5
Oklahoma City	.5	T	.5	11.9	7.9	2.1	5.1	6.0	2.4	.8	1.7	2.4	41.3	+ 9.6
Phoenix	T	.1	T	T	.4	0	.1	1.2	.4	.1	.6	.3	3.2	− 4.6
Portland, Me.	4.0	2.3	2.7	2.7	4.4	3.9	3.1	.3	1.7	.3	4.9	2.0	32.3	− 9.9
Portland, Ore.	4.3	3.1	5.3	2.1	.9	2.9	6.0	5.3	5.3	5.5	4.8	5.2	50.7	+ 9.1
San Francisco	1.4	2.7	3.6	1.0	.7	.7	T	T	T	2.1	1.4	1.8	15.4	− 6.8
Sault Ste. Marie	1.8	1.7	1.3	3.2	4.4	2.6	2.0	.5	3.4	.3	2.7	1.6	25.5	− 4.4
Washington, D.C.	3.7	1.7	1.2	3.4	4.1	5.8	5.4	3.7	3.7	1.3	5.1	1.5	40.6	− 1.5

T denotes a trace of precipitation, that is, less than 0.01 inch.

Table III.—*Duration of Sunshine, in Hours, 1947, in U.S. Cities*

Cities	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year	Annual dep.†
Albuquerque	235	215	266	273	328	388	370	297	332	287	201	188	3,380	− 30
Bismarck	152	137	202	163	278	218	417	354	221	192	79	97	2,510	−170
Charleston	118	216	197	215	269	202	250	248	233	188	118	181	2,435	−410
Chicago	134	149	193	155	228	278	358	339	255	236	122	107	2,554	− 86
Denver	232	195	218	244	262	309	328	301	273	250	180	150	2,942	− 24
Helena	149	175	196	239	334	294	387	356	239	197	90	126	2,782	+119
Houston	95	174	194	179	194	249	302	246	256	236	144	115	2,384	−386
Knoxville	92	180	187	218	282	237	230	104	179	163	95	128	2,095	−585
Los Angeles	250	185	245	300	235	260	400	350	285	235	245	235	3,225	+265
Memphis	80	220	208	225	339	378	395	355	321	268	146	171	3,106	+296
Miami	230	220	268	276	283	203	186	249	191	216	232	225	2,779	−157
Mobile	133	231	233	246	276	295	334	289	300	241	139	130	2,847	+180
New York	147	198	249	241	256	307	319	263	244	228	144	183	2,779	+ 96
Norfolk	149	218	209	235	298	255	265	260	209	180	127	192	2,597	− 80
North Platte	207	181	241	233	278	304	331	345	262	204	114	165	2,865	+ 55
Oklahoma City	171	198	199	192	271	302	379	336	320	287	146	171	2,972	+ 35
Phoenix	250	240	310	350	380	420	350	310	340	310	230	210	3,700	− 52
Portland, Me.	151	186	223	206	224	261	278	292	248	257	178	184	2,688	+280
Portland, Ore.	71	136	161	213	297	211	275	249	218	56	61	42	1,990	−165
San Francisco	197	116	174	200	317	326	360	284	281	207	205	125	2,792	−145
Washington, D.C.	161	221	280	276	331	312	327	265	255	228	145	189	2,990	+422

*Tables I, II and III are illustrative of variations in temperature, rainfall and sunshine in the United States during 1947 and are not the absolute extremes. Other places not listed in the tables may have had larger variations in these weather elements.

†Column headed "Annual dep." shows the departure from normal in the yearly figure. The normal is the average value over a long period of years. In the table of temperatures (Table I) the second line under each city shows the monthly normals for convenient comparison with the 1947 averages.

Development board guided the research program.

Among other research projects worthy of note were the thunderstorm studies near Wilmington, O., the cloud physics studies relating to artificial methods for causing rain, investigation of microseisms as an indication of distant typhoons and hurricanes, radar studies for early detection of severe local storms, and meteorological work relating to atomic energy production. Co-operating in one or more of these projects were the air forces, the navy, the signal corps, the National Advisory Committee for Aeronautics and the weather bureau.

The Weather in 1947.— Over most of the U.S. and southern Canada east of the Rocky mountains the temperatures during Jan. 1947 averaged much higher than usual. Highest abnormalities were in Manitoba and North Dakota where departures of +14° F. raised the mean temperatures to 15° or 20° F. Texas was exceptional. There the monthly temperature averages were between normal and 4° below normal. In the Rocky mountain and Pacific coast states averages were mostly 2° to 4° below normal. However, the weekly averages during January ranged from 18° or 20° below normal in Texas to 24° above normal in South Dakota. Actual extremes ranged from −45° F. in Minnesota and −30° F. in Kansas early in the month to + 52° F. in Minnesota and +63° F. in Kansas on the 24th. Total precipitation for the month was heavy east of the Mississippi, twice normal in parts of Alabama, Mississippi and Tennessee and below normal in the western two-thirds of the U.S. and Canada except in Iowa. Lowest amounts were in California and parts of Utah, Nevada and Arizona where only 25% or less of normal precipitation fell. A severe storm late in January brought extremes of weather to the central states. It caused freezing rain, sleet, snow and thunderstorms with sharp lightning. Deep snowdrifts halted traffic in Milwaukee and other north central cities.

In the British Isles and western Europe mild weather in mid-January gave no hint of the rigours of winter which were to follow; Jan. 20, 1947, brought the heaviest snowfall over southwest England since 1891. Although the average depth was generally less than 12 in., traffic was stopped and villages isolated with 12-ft. drifts in some places. Temperatures were zero or lower. Severe cold weather continued almost without interruption through February and the first half of March. Frequent snows added to the hardships. Then came spring thaws and floods that caused damage in England estimated at £12,000,000. Weather records indicated that for England as a whole February was the most severe winter month since Jan. 1814, and the three winter months ranked tenth in lowest mean temperatures for the preceding 200 years.

On Jan. 29 the lowest temperature at Greenwich was just under 10° F., the lowest since 1895. The mean at Oxford for February was 27° F., the coldest month there since records were begun in 1815. There was drifting ice in the North sea off the British coast, an extremely rare occurrence. For three weeks during February the sky over London was continuously obscured by clouds. Precipitation during March was three times the normal amount in many parts of England and Wales and the heaviest during that month for a century.

In the U.S. during February temperatures averaged as much as 10° F. below normal east of the Rocky mountains, and from 2° to 8° above normal over and west of the mountains. In northern Florida minima as low as 18° F. occurred and frost caused damage to citrus crops estimated at $50,000,000. Feb. 1947, however, was a typical winter month with the usual fluctuations in temperature and with occasional storms that brought snow, freezing rain and gale winds to many parts of the north central states. Precipitation was generally a little below normal.

In temperature distribution during its first half, March was similar to February, warmer than usual west of the Rockies and colder eastward except in New England where it was about 2° above normal. Exceptional rainfall occurred at Baton Rouge, La., where on March 13, 7 in. fell in about 6½ hr., causing flood damage. In other parts of southeastern states precipitation exceeded twice the normal amounts, but in the far southwest and in central parts of the Ohio and Mississippi basins rain and snow were less than half the normals.

April weather was not unusual for the U.S. Average temperatures ranged within 4° of normal. In the southeastern states and west of the continental divide averages were slightly above normal; in the plains, Great Lakes and New England states, slightly below normal. Except in a few localities precipitation was close to normal. Heaviest anomalies were in Nebraska and Michigan where amounts were two-and-one-half times normal. Tornadoes and spring floods made their usual appearance. The tornadoes came with a low pressure centre that developed over southern California and moved east-northeastward across Kansas followed by a sharp cold front. In Texas and Oklahoma tornadoes on April 9 and 10 were the worst in 10 years; they caused 150 deaths, 1,000 injuries and $12,000,000 property damage. The worst floods were in lower Michigan, North Dakota and in coastal streams of the Gulf states.

May and June were unseasonably cool and wet in most of the central states, and spring planting was seriously delayed. During the second week of May unseasonably heavy frosts damaged crops and fruit in the Ohio valley, Maryland and Virginia.

Table IV.—*Monthly Rainfall, in Inches, in Cities of the World, 1947*

Cities	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
London	1.35	1.19	4.66	1.68	1.35	3.17	1.41	0.40	1.17	0.15	1.07	2.14
Edinburgh	2.22	1.44	3.75	2.92	2.93	2.97	1.92	0.19	1.27	1.22	2.90	2.19
Hamburg	1.18	0.51	3.57	2.48	1.93	1.56	3.06	0.63	2.75	1.00	6.50	3.20
Stockholm	0.91	0.08	2.56	1.24	0.24	2.08	0.87	2.17	0.63	0.22	1.95	1.67
Brussels	0.92	0.72	4.04	2.60	1.36	1.74	3.81	0.72	1.50	0.87	3.21	3.69
Lisbon	4.54	11.39	4.98	1.16	2.15	0.26	0.00	0.22	0.70	2.57	3.59	
Luga (Malta)	3.06	0.33	0.04	0.14	0.02	0.00	0.23	0.28	0.24	1.28	0.24	3.13
Cairo (Helwan)	0.07	0.01	0.07	0.00	0.00	0.00	0.00	0.00				
Baghdad (Habbaniya)	0.39	0.70	0.53	0.02	0.12	0.00	0.00	0.00	T	T	0.94	0.34
Aden (Sheikh Othman)	0.70	0.11	T	0.00	0.02	0.00	T	0.64	T	0.06		
Salisbury (Rhodesia)												
Capetown	0.52	0.07	2.53	1.16	3.47	1.76	7.71	2.51	1.35	0.79	0.22	0.51
Colombo (Ceylon)	3.13	1.66	6.45	4.83	18.02	10.55	7.06	9.23	7.31	11.41	5.72	5.31
Toronto	1.57	1.00	2.52	2.33	3.37	4.53	5.64	2.36	1.79	1.12	1.29	1.03
Winnipeg	1.46	1.24	0.72	1.35	0.85	3.68	2.94	4.53	0.85	1.58	0.91	
Victoria, B.C. (Patricia Bay)	7.12	4.56	2.24	2.62	0.45	1.41	0.91	0.27	1.15	6.03	2.45	
Hobart	0.79	1.24	3.21	0.88	3.44	7.50	2.80	3.24	1.63	7.60		
Wellington, N.Z.	1.93	5.75	1.99	5.05	2.36	11.02	2.94	4.89	5.49	7.61	1.05	

T denotes trace of precipitation, less than 0.01 inch.

Table V.—*Monthly Mean Temperature in °F. in Cities of the World, 1947*

Cities	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
London	35.8	30.0	40.9	49.0	57.3	62.1	65.6	68.1	60.7	51.5	45.7	42.1
Edinburgh	36.1	29.1	34.2	44.9	50.5	55.3	58.7	61.2	55.3	51.1	42.9	40.5
Hamburg	24.4	19.6	34.0	48.4	60.6	65.7	66.2	67.6	62.2	47.3	42.6	37.2
Stockholm	25.3	13.8	24.1	41.5	55.2	62.8	66.4	64.4	58.6	44.6	32.7	29.1
Brussels	31.5	26.1	41.5	52.0	60.6	66.0	67.6	70.0	64.6	51.6	45.0	39.0
Lisbon	51.6	53.7	57.7	62.6	60.9	66.5	69.9	72.5	70.3	67.6	63.1	
Luga (Malta)	53.5	57.3	60.1	61.7	66.2	74.9	79.7	82.1	76.7	70.3	64.8	56.1
Cairo (Helwan)	55.8	61.0	67.5	70.0	79.2	81.1	84.4	83.5				
Baghdad (Habbaniya)	54.7	54.7	66.9	74.9	85.3	92.2	96.3	92.9	85.9	78.5	65.7	53.9
Aden (Sheikh Othman)	76.5	77.8	79.4	82.1	86.7	90.1	92.7	88.5	89.6	81.3		
Salisbury (Rhodesia)												
Capetown	69.9	73.1	70.4	63.1	59.1	54.4	54.3	55.9	59.8	62.3	67.1	69.2
Colombo (Ceylon)	79.1	79.7	81.5	82.5	82.5	83.1	81.6	80.5	80.1	79.4	79.5	78.3
Toronto	27.1	22.6	30.9	42.2	52.2	64.5	69.7	73.3	63.3	57.5	38.1	26.9
Winnipeg	6.9	−0.3	16.3	35.3	46.2	60.3	69.9	68.1	53.1	50.0	19.9	
Victoria, B.C. (Patricia Bay)	33.9	41.6	44.7	49.4	55.5	58.3	61.6	59.7	57.3	50.1	42.1	
Hobart	61.3	64.3	61.2	56.1	54.8	47.5	46.3	47.4	51.1	52.9		
Wellington, N.Z.	59.5	60.5	59.1	55.6	52.3	48.0	47.3	48.5	50.7	53.3	56.5	

Freezing weather extended as far south as North Carolina. Persistent rains in Arkansas, Kansas, Oklahoma and Texas caused floods in many of the streams, and snow in the northern plain states during the last week in May added to agricultural problems. In central Wisconsin the snowfall reached 9 in. in depth, and in northern Iowa 5 in.

Abnormal weather—cool and wet east of the Rockies, and warm and dry in the west—continued through most of June except in the Gulf states. The retarded season became so critical in the corn belt, especially in view of the world food shortage, that farmers laboured day and night, some by artificial light, to complete planting when the weather turned favourable. It was estimated that each day gained in this crucial stage added $10,000,000 to $20,000,000 to the total value of the corn crop in Iowa alone.

In June heavy flooding in the lower Missouri and central Mississippi valleys broke all-time records at many points. A crest of 40.3 ft. was reached later at St. Louis on July 2. Total precipitation from May 27 through June 30 was 15 in. in northern Arkansas and Iowa, and 8 in. or more over most of the Dakotas, Kansas, Nebraska and Illinois. Florida and the coasts of Georgia and the Carolinas recorded 8 to 12 in. The heavy rains caused damaging flash floods in parts of Kansas, Nebraska, Iowa and Missouri. Tornadoes were typical of May and June in number and distribution.

In July the weather turned generally hot and dry except in the Ohio valley and the Carolinas where it was cooler than usual, and in New England where it continued wet. By the last of August central and eastern U.S. and Canada, especially in southern Ontario, were suffering from heat and drought in contrast to the cold and rain of May and June. In Toronto the all-time records for sustained heat were exceeded during August and new records were established also in parts of the middle west. Exceptional was a very local flash flood in Erie, Pa., on July 22. In 24 hours 10.4 in. of rain fell, most of it between 9 A.M. and 6 P.M. During July temperatures averaged 2° to 4° above normal west of the Mississippi and in New England and Ontario, but in states along the Ohio river and in the southeast they were 2° to 4° below normal.

In August the weather was warmer than usual almost everywhere in the U.S. except in California, Oregon and Florida. Largest excess in temperature was in Iowa where the departure from normal was +10° F. This gave average temperatures between 80° and 85° for the entire month. Precipitation during August was only about half the normal in the plains, southern Rocky mountains and New England states, and except for local anomalies of 50% to 100% above normal in southern Ohio, northern Montana and coastal zones of Oregon, Texas and North Carolina, rainfall was elsewhere close to normal. For the summer as a whole (June, July and August) average temperatures were about 2° above normal except in the Ohio valley and the southeastern and plateau states where it was approximately average. Rainfall during the summer was about 50% normal in much of the south central and southwestern states.

The hot, dry summer weather continued through two-thirds of September, then gave way in the east to an unusually long period of fine weather, but in the west the brief periods of cooler weather were quickly followed by return to temperatures which averaged as much as 12° above normal in Kansas and Wyoming during the last week of September. Averages for the month were 6° above normal for Kansas and northern Texas. September was very dry in the far western and southwestern states with only 25% to 50% normal rainfall. At the end of the month the warm weather was quickly followed by killing frosts in the northern states. The short growing season was at an end and agricultural production for the world food program suffered.

Although several tropical cyclones were reported in the Caribbean and Gulf of Mexico during August, September and October, only two caused major and widespread damage. The first appeared about 750 mi. east of Martinique, W.I., on Sept. 11. By the 17th it reached Florida. Winds of 140 m.p.h. or more were reported from the storm area, in paths extending to a width of 120 mi. at times. In its passage near Miami, Fla., and New Orleans, La., the storm cut off communications from those cities and isolated the principal hurricane warning headquarters of the U.S. weather bureau in those two cities.

A smaller hurricane brought heavy rain but did relatively little damage except for flooding in southern Florida on Sept. 23 and 24. Still another caused squalls and heavy rain on the east coast of Florida and Georgia on Oct. 6. The second major hurricane appeared near Swan Island on Oct. 9, crossed southern Florida during the 10th and 11th and brought winds of 100 m.p.h. and further heavy rains. This tropical cyclone was noteworthy because it apparently turned westward into Georgia after having left the Florida coast and moved northeastward for a considerable distance into the Atlantic.

In the British Isles the unusual cold of February and March gave way to weather nearer normal in April with its usual large variations in rainfall and condition of sky. In the south of England there was somewhat more sunshine than usual; and in the north more rain, a record fall of 10 in. occurring at Eskdalemuir. Although weather in May was alternately warm and cold, it was not very unusual except for the maximum temperatures on May 31. In London the highest was 90° F. In some places this heat wave gave the highest temperatures in May for 75 years. Continuation of the heat into June with little relief even at night brought such abnormal temperatures that the month came to be known by some as "flaming June." Temperatures of 90° F. and above were the more remarkable because of the contrast with minima below zero only 10 or 12 weeks before. At Kew observatory near London 91° F. broke all previous June records. The remainder of June was sunnier than usual in southeast England, and warmer. Elsewhere it was typically unsettled.

Rather warm weather even for the season continued during July. Thunderstorms were more frequent than usual. During the last few days of the month many places in France reported maximum temperatures at record highs above 100° F. August brought an unusually long period of fine weather. Mean temperature at Kew was 68° F. Rainfall was negligible in many places and generally less than 25% of the average for August.

Weather continued generally fair through September, the fifth successive month with mean temperatures above average in most parts of the isles. In October it turned very dry again, and for much of England was the driest October on record. During November and December also the meteorological conditions throughout Europe were not unseasonable in general, but in Switzerland shortage of rain threatened to cause shutdowns in major hydroelectric plants and stop rail traffic.

In North America the last three months of 1947 were noteworthy for several weeks of warm, dry weather, especially in New England where many destructive forest fires occurred. Practically everywhere in the U.S. mean temperatures for October were above normal. The greatest excesses were in Iowa and states bordering Lake Michigan where temperature means were in the 60s F. Not until the last of October was the period of pleasant weather interrupted by wintry cold which brought snow to Montana, Wyoming and North Dakota. But it turned warm again the first of November and portions of North Dakota averaged 12° F. above normal for the week ending Nov. 4. A low pressure centre which developed over Colorado and moved northeastward into Canada the second week of November again reversed the temperature trend. The cold front carried tempera-

tures to freezing or lower almost everywhere east of the Rockies except in the coastal and southeastern states. In the northern plain and plateau states temperatures went below zero; killing frosts were extended to northern Texas, Arkansas and almost to the Ohio valley. Temperatures remained below normal in most regions and the November averages were generally low, the lowest monthly departures being in Wyoming and Nebraska, 6° below normal. However, for the three autumn months as a whole average temperatures in the U.S. were above normal, about 2° above in most regions, but 4° above normal in the central plain states. Precipitation was fairly close to normal in most states during November, and the totals for the three autumn months were mostly representative of the season. In early December snow covered the ground throughout interior New England and from Michigan to the western slopes of the Pacific coastal ranges and southward to Colorado and Utah. Depths were 12 in. or more in Minnesota, the Dakotas and the Rocky mountain states. Exceptional were two snowstorms in the Boston, Mass., and New York city areas near the close of the year. The first struck Boston Dec. 23 and 24 in time to give much of New England a white Christmas; the second buried New York city and northern New Jersey on Dec. 26 and practically stalled the city's business for two days. It marooned suburban trains and disrupted street traffic and communications. Within about 20 hr. 25.8 in. of snow fell in the city. This was almost 5 in. more than the amount that fell in the famous blizzard of March 1888 and was the greatest depth of snow from a single storm in the recorded history of New York city. (*See* also DISASTERS; FLOODS AND FLOOD CONTROL.) (F. W. RR.; X.)

Methodist Church. There were four church-wide Methodist gatherings in the United States during 1947. (1) A congress of 200 leaders met in Chicago, Ill., called by the board of temperance. Prohibition was scarcely mentioned, the emphasis being on measures to protect dry territory from invasion of the liquor traffic by means of newspaper and magazine advertising. Feb. 15, 1948, was named as Commitment day, the focus of a pledge-signing campaign. (2) More than 200 rural pastors met in Lincoln, Neb., in July to consider plans for strengthening this field, which is the chief recruiting ground for the ministry and which is too often left to men who have seen their best days. (3) The 7th Ecumenical Methodist conference met in Springfield, Mass., in September for a nine-day session. This world congress has no authority but affords a forum for the discussion of matters common to Methodism everywhere. It set up a new ad interim agency, the Ecumenical Methodist council, composed of 200 members from 24 groups, the largest of which, the Methodist Church, U.S.A., had 50 members. Bishop Ivan Lee Holt of St. Louis, Mo., and Dr. Wilbert F. Howard of Birmingham, Eng., were cochairmen; Prof. Victor Murray of Cambridge university and Bishop Paul N. Garber of Geneva, Switz., vice-chairmen, and Harold Roberts of England and Oscar T. Olson of Cleveland, O., secretaries. (4) The National Methodist Youth conference, made up of 10,000 representatives of the 2,000,000 members of the Methodist Youth Fellowship, met in Cleveland, O., Dec. 30. This unique assembly, sponsored by the board of education, gives youth its first opportunity to express its mind on current problems in the church, the nation and the world. Its motto is "Christ Above All."

Officers of the Council of Bishops in 1947 were: Bishop Paul Kern of Nashville, Tenn., president; Bishop James C. Baker of Los Angeles, Calif., vice-president; Bishop G. Bromley Oxnam of New York city, secretary.

The year's obituary list is headed by five bishops of whom two were "effective" and three "retired." Schuyler H. Garth (48) of Madison, Wis., perished with his wife in the crash of a U.S. army plane in China, Jan. 15; F. H. Otto Melle (72), broken by his wartime labours and cares, died in Berlin, Ger., March 26; at Naini Tal in his beloved India, where he had been a missionary 40 years, John W. Robinson (81) died on May 5; Bruce Baxter (54) of Portland, Ore., died there on June 20 in the midst of an active career; and Ernest G. Richardson (73), who had been recalled to active service in the Wisconsin area, died in Philadelphia, Pa., on Sept. 3.

The general conference, the supreme legislative body of the Methodist Church, was to convene in Boston, Mass., on April 28, 1948, and the six jurisdictional conferences in the United States were to follow within 60 days after its adjournment. Their chief function is the election of bishops. Among the numerous proposals for legislation were several dealing with the race question. Some proposed the abolition of the central jurisdiction, which segregates the Negro membership. Others advocated the complete removal of the jurisdictional feature of the unified church as being essentially divisive and a needless piece of machinery. Still others would restore episcopal elections to the general conference, where they were until 1940 when the three churches came together.[1]

The Methodist publishing house reported unprecedented sales volume in 1947, the total rising to $9,910,309, though mounting costs of paper and labour reduced profits. The appropriation of $400,000 for ministerial pensions was equal to that of 1946. *The Christian Advocate* (Chicago, weekly) had a circulation of 345,363.

The latest available statistics placed the membership, active and inactive, at 8,567,772; amount paid for ministerial support, $49,395,157; for world service, $10,555,589; for current expenses (except pastoral support) and on local church debts, $83,667,251; for other benevolences, $20,520,466; total paid for all purposes, $164,138,463.

Bishop Herbert Welch, chairman, reported for the committee on relief receipts for the year ending May 31, 1947, as $1,677,186, bringing the total for this purpose after 1940 to more than $6,000,000. The funds had been distributed to needy war-sufferers in 30 European and Asiatic countries and the Philippines. About one-half of the total was distributed through interdenominational agencies. A notable item in the relief program was the response to *The Christian Advocate's* appeal for gifts of $100 each for the families of German Methodist ministers. Within a few weeks the receipts exceeded $50,000.

Appropriations for missions for 1948, home and foreign, were $10,177,738, an increase of $796,239. Of this total, $3,857,539 was designated for overseas work, $2,048,535 for the home field, and $4,271,664 for the Women's Division of Christian Service, which supports activities for and by Methodist women at home and abroad. The Board of Missions approved the project for a Christian university in Japan, which was characterized as a "voluntary gift as a gesture of goodwill from the Christian people of America to the people of Japan."

The plan for extending aid to Methodist youth of foreign lands in the form of scholarships in schools and colleges in the U.S. and other countries was in full operation. In 1947, 195 young men and women were helped in the U.S., besides others in their own lands. (*See* also CHURCH MEMBERSHIP.)

(J. R. J.)

Metropolitan Museum of Art: *see* MUSEUMS.

[1]This article summarizes the activities of the new church which was formed in 1939 by the union of three Methodist sects—the Methodist Episcopal Church, the Methodist Episcopal Church, South, and the Methodist Protestant Church. It does not cover the activities of the numerous smaller bodies of Methodists, viz.—African Methodist Episcopal Church, African Methodist Episcopal Zion church, Coloured Methodist Episcopal Church, Wesleyan Methodist Church, Free Methodist Church, Primitive Methodist Church, etc.

Mexico. A federal republic of North America lying between the United States and Central America. Area, 767,168 sq.mi.; pop. (est. 1946) 22,752,738 (19,473,741, census 1940). Approximately 55% of the population was mestizo, 29% Indian, 15% white, with foreigners and others making up less than 1%. The language is Spanish, but an estimated 14% speak only Indian tongues. There is no official state religion, but the people are overwhelmingly Roman Catholic. The capital is Mexico City (pop. 1,965,997). Other principal cities are: Guadalajara, 228,049; Monterrey, 180,942; Puebla, 137,324; Mérida, 98,334; León, 86,089; Tampico, 81,334; Aguascalientes, 81,124; San Luis Potosí, 78,042; Torreón, 76,613; Veracruz, 70,958; Chihuahua, 57,456; Pachuca, 52,387. President in 1947 was Miguel Alemán (took office Dec. 1946).

History.—President Miguel Alemán began his term of office in the closing weeks of 1946. His plans were keynoted in his first major declaration of 1947 when he issued what purported to be his fourteen points. In summary his points were to: (1) expand production of foodstuffs so that Mexican people would have sufficient quantities at reasonable prices; (2) encourage adequate exports so as to assist in feeding other peoples in fulfilment of international obligations; (3) mechanize agriculture, improve co-ordination and extend ample credit to increase farm production; (4) modernize industry; (5) conserve industry established during the emergency which would be needed in the national economy; (6) foster development of new industries which would better the country; (7) defend the principle of fairness in regard to factors of production; (8) develop training, techniques and sciences; (9) foster harmonious development of potentialities of each region; (10) invest more than $300,000,000 in irrigation and electrical power plants, sufficient to water 3,400,000 ac. of land; (11) group industry adequately according to zone; (12) accentuate interest of the state in public health and adequate housing; (13) develop social security; and (14) raise the general standard of living. It should be noted that the program, ambitious though it may be, was relatively conservative. No mention was made of sweeping reforms or righting of injustices. Neither did the program discuss international relations or attitudes. Full attention was given to law, order and internal development.

The year began, however, with a major agricultural calamity, which grew as the year progressed. This was a serious outbreak of hoof-and-mouth disease which was estimated eventually to have affected almost one-third of the nation's cattle. The outbreak was traced to the importation of some blooded bullocks from Brazil. Interestingly enough, negotiations had originally been for United States stock, but the price was then felt to have been too high. As soon as the epidemic became known, certain of the border states of the United States began agitation for the closing of the Mexican border. This could have been very serious to Mexico, since beef export was an item of major importance and since Mexico needed exports to support its currency. A joint United States-Mexican commission was formed, which recommended the extreme measure of destroying all exposed and infected cattle. The Mexican government promised to reimburse the farmers at the rate of one peso (20.64 cents U.S.) per pound and to supply tractors and mules to substitute for draught animals. By December, almost 500,000 cattle had been sacrificed in the mass slaughter, but still the disease continued. Resistance to the government measures in rural areas ran very high. Farmers tried to hide cattle, smuggled cattle out of infected areas, and even offered armed resistance. In Ciudad Hidalgo, state of Michoacan, for example, a squad of six soldiers and a veterinarian were stabbed to death while making an inspection. As a result of the farmers' opposition, the government removed the soldiers and substituted civilians for sacrificing the animals to avoid repercussions against the army. Agreement was finally reached with the commission to temper the policy by switching from eradication by destruction to extensive use of vaccines and destruction of infected animals only. However, the year ended with the disease still largely unchecked.

One result of the attention given to the grazing industry was the decision to improve the meat packing and processing facilities of Mexico so as to make that country more self-sufficient. Plans were laid for the establishment of three meat packing plants in Sonora, two in Chihuahua and in Coahuila, and one each in Michoacan, Jalisco, Veracruz, and Tamaulipas. Both frozen and canned meats would be processed.

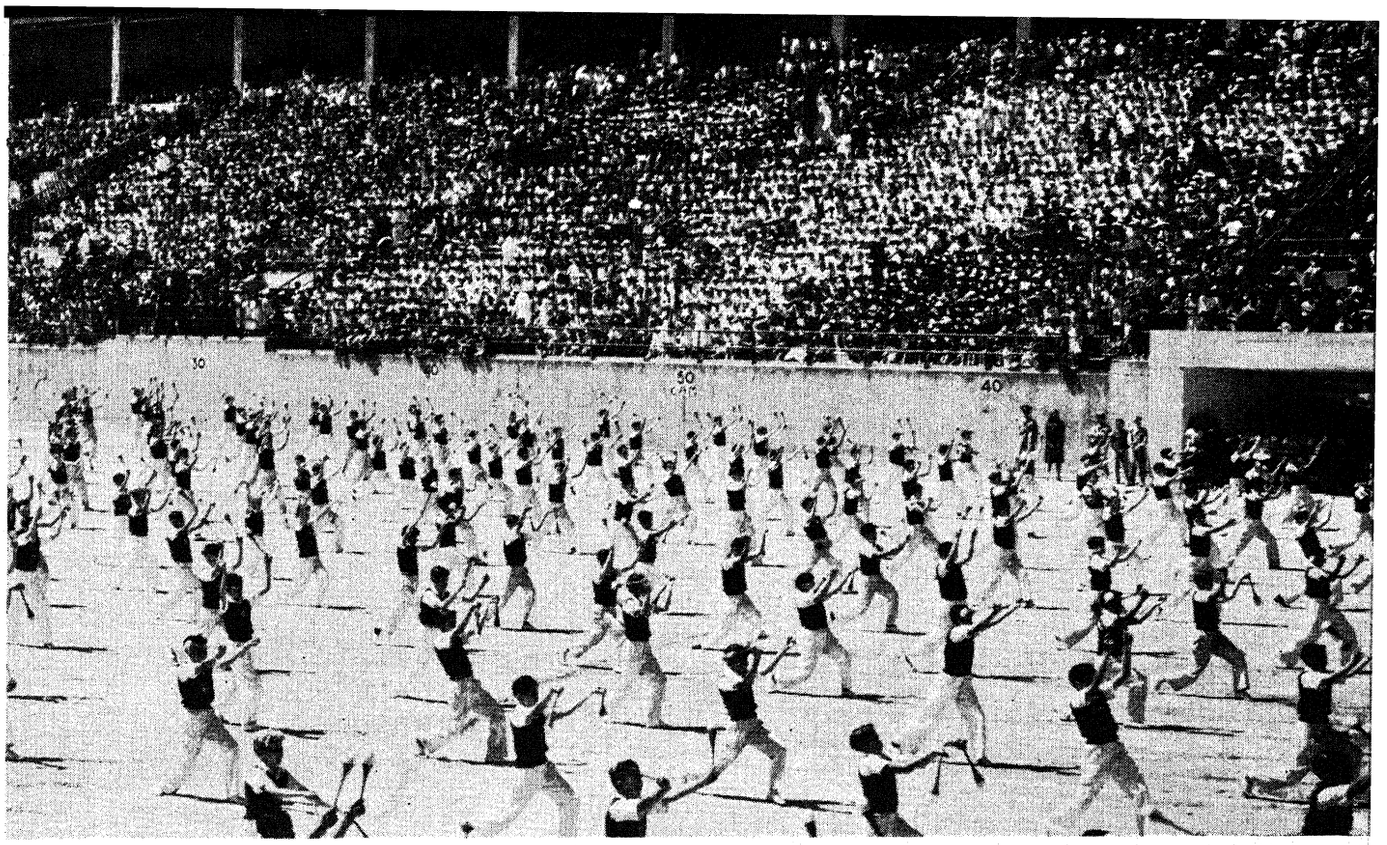
A much more pleasant note was sounded in the visit of the president of the United States to Mexico and the return visit of Pres. Alemán to the United States. The announcement was made in January that arrangements were being made for a visit of President Harry S. Truman in March. Inasmuch as 1947 marked the centennial of the battle for Mexico City in the war between United States and Mexico there was some concern over the project. However, comment was generally very favourable, and when Pres. Truman arrived in his special plane, the "Sacred Cow," on March 3, he was given a very warm and friendly reception, including a 21-gun salute. Pres. Truman and his party were taken on a tour which included visits to the pyramids and Mexico's newly formed volcano, San Paricutín. Almost upon arrival, the United States president made the unprecedented and apparently unscheduled request of being permitted to lay a wreath upon the monument to the Mexican military cadets, who had sacrificed themselves a century before in attempting to hold Chapultepec against the invading United States troops. This tribute to the Mexican national heroes brought immediate acclaim in Mexico and increased still further the enthusiasm of the president's reception. Pres. Alemán then accepted an invitation to visit the United States.

On April 29 the "Sacred Cow" arrived in Mexico City and took aboard Pres. Alemán and his party, including Jaimé Torres Bodet, secretary of foreign relations, Ramón Beteta, secretary of the treasury, and the United States ambassador, Walter Thurston. An ovation was given to Pres. Alemán at Washington, where he was met by Pres. Truman and a 21-gun salute. After a tour of the Capitol, Pres. Alemán was invited to address the United States congress. He then travelled to New York where he was given an ovation and Mayor William O'Dwyer proclaimed the day of his visit as Mexico day.

During Alemán's visit to the United States a $100,000,000 loan was arranged. By the agreement, $50,000,000 was loaned to Mexico by the Import-Export bank, and the United States treasury agreed to purchase $50,000,000 worth of Mexican pesos over the next five years to help support the Mexican currency.

In November, Mexico played host to the second conference of U.N.E.S.C.O., the educational and scientific organization of the United Nations. The conference was opened by President Alemán in the Mexico City opera house, Bellas Artes, on Nov. 6. Later sessions were held in the auditorium of the Normal school, where special attention was given to such subjects as expositions, libraries, museums, primary education and educational reconstruction. Mexico offered to set aside a school in the state of Nayarit to serve as a pilot establishment for testing the precepts developed by U.N.E.S.C.O.

Except for a few local instances in some of the provincial capitals, Mexico was relatively quiet in 1947. The leftist opposition was still headed by Vicente Lombardo Toledano, the labour leader. Lombardo Toledano made several minor reorganizations in his party and keynoted his nationalist position by



FIESTA DANCES at the National stadium in Mexico City staged in honour of Pres. Harry S. Truman during his visit to Mexico in March 1947

the statement: "We do not serve Moscow, or Washington, only Mexico." However, the A.F. of L. removed three of the Lombardo Toledano men from its leadership, showing further rift in that quarter. Conservative opposition in Mexico was more and more being paced by the pro-clerical Sinarquista group. The Sinarquistas crusaded loudly against "communism" and at one time publicly offered to raise 1,000,000 men to assist the United States in a war with Russia, which, needless to say, was given no official notice.

Economically, there were several significant developments in Mexico. In the first place, final agreements were reached for the settlement of the British and Dutch oil expropriation claims. These claims of $250,000,000 were scaled to $21,250,000. Also, a final payment of $4,085,327 was made to United States firms, bringing the total U.S. payment to $29,137,700.

There was a general business lull in Mexico during 1947. Cost of living remained little changed (index in terms of pre-World War II: 297.1, 1946; 284.8, 1947), and unemployment increased to an estimated 5%. Also, the building boom in the capital eased considerably, although there was still a housing shortage. Steps were taken through subsidies to increase the fishing industry. Plans were made to grant approximately ten cents per pound for all fish caught. It was hoped thus to increase the interest of Mexicans in building a fishing fleet to compete with the United States fishermen who were fishing in or near Mexican waters. With the depletion of the United States sardine supply and the migration southward of the giant tuna, this could prove to be a very important move. Most disturbing, perhaps, was the drop in the price of silver which also reflected adversely upon the trade balance. Motion picture production, from which so much had been expected, slumped from 80 to 60 pictures. The explanation was that costs had risen more than 300% and, more important, that banking regulations had badly frozen credit. Mexican films were produced largely on short-term loans, since no important financial interests had as yet been developed. As a result, much of the export market in Latin America was being regained by United States and other foreign producers. Another element of concern was the continued falling off of remittances from Mexican labour in the United States. In 1945 remittances were $40,000,000, in 1946, $10,000,000, and in 1947 they had dwindled even more.

On the brighter side of the economic picture, both manufacturing and agricultural production continued to rise. Increased irrigation and the governmental policy of granting five years of tax-free operations to newly licensed enterprises contributed to this effect. President Alemán specifically made a bid for the investment of foreign capital—but, of course, under the Mexican laws requiring a predominance of Mexican management and labour. There was some indication that the president's policy was meeting with at least limited success in this regard.

Education.—Education is free, compulsory and divorced from religion. Private schools are allowed, however, to teach religion. There were approximately 25,000 primary schools, with 2,765,568 enrolment (the federal government had, in 1946, 32,778 teachers and 1,837,400 students). Secondary schools had about 80,000 enrolment (47,332 enrolment in 522 government schools in 1946 including technical and agriculture). Also, the 10 universities had about 30,000 enrolment, of which 22,230 (1945) attended the autonomous University of Mexico, Mexico City. Six normal schools had 3,800 students in 1946. Illiteracy was about 35%; however, this number decreased about one-fifth under the impact of the new program of "each person teach one person to read," and as a result of special instruction given to all personnel in the army who were illiterate. An estimated 41.8% of illiterates were reached by the end of 1946.

Finance.—The monetary unit is the peso (value in Dec. 1947, 20.64 cents, U.S.). By July 1947 money circulation, including bank deposits, totalled $835,283,920 ($852,947,800 in 1946) of which $344,956,320 was in bank bills and $384,795,280 was in deposits. There were 362 banks with total assets of $517,981,440 and outstanding loans of $197,315,200.

The national income was $2,677,108,000 in 1946 ($2,474,323,200 in 1945, and still rising in 1947). Earnings in 1946 were: agriculture $279,672,000; grazing $134,160,000; fishing $17,544,000; forestry $33,024,000; mining $196,180,000; oil $28,896,000; manufacturing $695,568,000; commerce and finance $639,840,000; rentals $160,992,000; transportation $127,968,000; government service and public works $158,928,000; domestic service $86,688,000; entertainment, professional service, and other $94,944,000.

For 1947 the national budget totalled $247,974,514.74. Some of the larger items were $37,585,440 for army national defense; $8,297,280, navy; $42,910,560, education; $39,009,600, irrigation; $11,904,532, public aid; and $31,401,489 to be applied on the public debt.

Trade and Communication.—The balance of trade during 1946 was unfavourable for the second successive year for Mexico although the total volume of trade was higher than in previous years. During the first half of 1947 the unfavourable balance continued and volume continued to increase, running one-third to one-quarter greater than in 1946. In order to ease the unfavourable balance and to support the currency, severe restrictions were imposed upon certain classes of imports commonly

known as luxuries. The effects of this move had not been fully tabulated by the end of 1947. Exports in 1946 equalled $404,750,400 ($275,234,400 in 1945). Gold, silver, copper, lead, zinc, oil and other mining products comprised the largest group of exports. Beef, henequen, tomatoes, chicle, bananas, coffee, guayule rubber, cotton, tuna fish, vanilla, vegetable wax and fodder stood high on the export list. Values according to certain general classes during 1946 were: animal products $26,439,840; vegetable products $82,931,520; mineral products $166,864,160; other $118,556,160.

Imports in 1946 were $544,276,800 ($330,941,760 in 1945). Manufactures, including machinery and processed items, comprised the largest portion of the imports; wheat, wool and rice figured heavily. Values according to certain general classes in 1946 were: food products $73,602,240; durable goods $110,506,560; investment goods $200,228,640; industrial products $95,728,320; and other products $59,567,040.

Communications were by sea, especially through Veracruz; by three main railways to the United States and one to Guatemala; by air to all parts of the hemisphere; and by a growing network of motor roads.

Merchant fleet gross tonnage in 1947 was 118,703 for freight and passenger service, and 3,095 for fishing. There were 236 craft of Mexican registry of which 23 were tankers (68,698 gross tonnage). In 1946 there were 1,036 locomotives, 17,491 freight cars and 560 passenger cars belonging to the national railroads of Mexico. These carried 26,124,510 tons of freight in 1945 and 39,000,000 passengers. Railroad milage was about 15,000. There were also more than 36,000 mi. of improved roads of which 5,000 were paved and 7,000 were traversable in all types of weather.

Agriculture.—Mexico had an estimated 37,050,000 ac. of tillable land, of which 13,410,556 ac. were under cultivation according to the 1940 census. More than 17,000,000 ac. were under cultivation in 1945. Forest land comprised 25,893,993 ac. (latest estimate by bureau of forestry 70,322,182 ac., of which 64,458,768 ac. had standing timber); grazing land 69,713,715 ac.; 2,471,000 ac. were estimated to be under irrigation by the end of 1945 (more than 2,000,000 ac. of this was under cultivation). Latest estimates on the amount of land which could be irrigated if all potential waters were employed totalled about 12,000,000 ac.

Agricultural production was (in tons): maize 2,843,160 (1946); wheat 380,100 (1946); rice 145,464 (1945); sugar 413,300 (1946); beans 201,666 (1945); large kidney beans 18,594 (1943); chick peas 109,688 (1945); bananas 5,169,000 stems (1945); pineapple 11,247 (exported 1945); coffee 58,406 (1945); henequen 167,000 (1945); chicle 11,590 (1945–46); oranges 254,200 (1945); green peppers 41,000 (1945); dry peppers 13,300 (1945); potatoes 140,000 (1945); cotton 443,000 bales (1946); sesame 72,500 (1944); tobacco 25,300 (1944); avocados 68,400 (1945); vanilla 164 (1943) and copra 48,520 (1944).

Animal census (1940) by head was: cattle 11,621,879; horses 2,511,175; mules 932,522; donkeys 2,341,539; sheep 4,401,014; goats 6,849,709 and hogs 5,067,642. An estimated 164,000,000 ac. were devoted to range.

Timber produced in 1946 was 330,564,000 bd.ft. of sawed lumber (mostly pine, mahogany, red cedar, white cedar and primavera). Other timber amounted to 303,017,000 bd.ft. and firewood, 278,860,400 bd.ft. Dyes and turpentine yielded 47,400 tons; charcoal, 177,000 tons; resins, 24,300 tons; vegetable wax 5,200 tons, other products, 41,200 tons.

Manufacturing.—Expansion of Mexican industry continued during 1947, but at a much decelerated rate. During the first six months of 1947, 26 new industries were registered in Mexico. This compared with 46 during the previous half year and 230 for the period Jan.–June 1946. They included semicellulose, maguey fibres, steel, vitamized milk, leather tanning, linen thread, Portland cement, metal containers, carbon steel, electric switches, table salt, viscose rayon, cement and appliances. Other important manufactures were cigarettes, textiles (cotton cloth totalled more than 600,000,000 yd. in 1946 and woollen cloth about 150,000,000 yd.), glass, sugar, shoes (3,523,700 pairs in 1946), chemical works, breweries, flour, paper, electricity (3,068,451,000 kw. hr. in 1945), ceramics, and woodworking.

Tourists entered Mexico in 1946 to the amount of 272,121.

Comparative average weekly wages for 1946 were: railroad $13.54; cotton spinners and weavers $9.87; silk spinners and weavers $13.14; mining $10.11; and oil $23.59.

Mineral Production.—Although mineral production was no longer the greatest single factor in Mexico economy, it still ranked very high in importance and was fourth in importance as regards national income. Surveys of strategic metals during World War II showed a vast potential awaiting development. During 1945 mining, except for coal and iron, fell off slightly, silver being worse hit. However, the first figures received for the period January–April 1947 indicated an improvement. Production of the various metals in 1946 was: gold 420,506 oz. troy; silver 43,263,800 oz. troy; copper 67,765 tons; lead 154,438 tons; zinc 153,768 tons; antimony 7,241 tons; arsenic 10,632 tons; bismuth 84 tons; cadmium 790 tons; coal 1,077,017 tons; chrome 115 lb.; tin 294 tons; graphite 24,189 tons; iron 311,032 tons; manganese 13,600 tons; mercury 443 tons; molybdenum 1,449 tons; tungsten 52 tons; and silicon 200 tons (1945).

Petroleum production continued to increase during 1946 and 1947, and was the highest after 1928. Crude produced in 1946 equalled 49,235,421 bbl. (8,675,551 bbl. heavy crude and 40,559,870 bbl. light crude). During the first six months of 1947, 27,676,163 bbl. of crude were produced and 33,201,229 bbl. of derivatives. Refinery products in 1946 comprised: fuel oil 25,763,702 bbl.; Diesel oil 5,033,044 bbl.; gasoline, crude, 11,538,282 bbl.; gasoline, refined, 6,491,311 bbl.; kerosene, crude, 3,126,344 bbl.; kerosene, refined, 1,641,281 bbl.; lubricants 330,250 bbl.; paraffin, crude, 103,156 bbl.; paraffin, refined, 106,855 bbl.; asphalts 2,216,181 bbl.; and other 396,861 bbl. Local consumption accounted for 40,670,757 bbl. of petroleum and petroleum products.

Well drilling continued at an improved rate. During 1946, 52 wells were drilled (31 producing, 11 dry and 10 salt water). Twenty-two wells had been drilled during the first six months of 1947.

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Mica.

The major world producers of mica are India, Canada and the U.S., with smaller but significant outputs in Brazil, Argentina, Madagascar, Norway, Rumania, Spain and Sweden. From the standpoint of total tonnage, the United States is the largest producer, but the bulk of the output is scrap mica, while it is sheet mica that is of chief importance.

United States.—The significant data of the mica industry in the United States are presented in the following table.

Data of Mica Industry in the U.S., 1941–46

(In short tons)

	1941	1942	1943	1944	1945	1946
Amount sold or used						
Sheet and punch	1,333.2	1,380.9	1,724.1	761.7	649.3	534.4
Scrap	32,500	43,262	46,138	51,727	41,060	53,602
Total	33,833	44,643	47,862	52,489	41,709	54,136
Imports	8,300	11,294	13,759	7,242	9,405	13,945
Sheet and punch	1,008.4	1,622.4	2,750.9	2,516.5	2,124.4	2,249.8
Scrap	1,251	2,179	2,048	2,412	3,567	6,208
Splittings*	6,041	7,493	8,960	2,314	3,695	5,487
Splittings, consumption	3,648.8	3,318.3	4,206.7	4,408.5	3,948.7	3,908.
Stocks, Dec. 31	4,775.8	4,380.7	2,258.6	1,997.5	1,532.3	3,294.5

*Includes other manufactured forms.

While the production of scrap mica rose to a record figure in 1946, sheet mica continued to decline.

Canada.—Mica production in Canada dropped from 3,522 short tons in 1945 to 2,261 tons in 1946, but there were no data on the proportion of sheet mica included in the total.

(G. A. Ro.)

Michael (Mihai) I

(1921–), former king of Rumania, was born on Oct. 25 at Sinaia, son of Crown Prince Carol and Princess Helen, daughter of Constantine, king of the Hellenes. On the death of his grandfather, King Ferdinand, he was proclaimed king on July 20, 1927, under a regency, by virtue of his father's renunciation of the succession. He ceased to be king on his father's accession on June 8, 1930, when he received the title of Great Voevod of Alba Iulia. He was proclaimed king again on King Carol II's abdication on Sept. 6, 1940. King Michael took a leading part in overthrowing, on Aug. 23, 1944, the authoritarian and pro-German regime of Marshal Ion Antonescu. For his initiative in this coup d'état and the participation of the Rumanian army in the final stages of World War II on the Allied side, King Michael was awarded, in June 1945, the Order of Victory, the highest soviet military decoration. On Nov. 20, 1947, he went to London to attend the wedding of Princess Elizabeth. On Dec. 15 it was announced in Lausanne that King Michael was engaged to Princess Anne of Bourbon-Parma. On Dec. 30, shortly after his return to Bucharest, he abdicated and Rumania was proclaimed a "people's republic."

Michigan.

One of the north central group of states of the U.S., Michigan was the 26th state admitted to the union; it is popularly known as the "Wolverine State." Land area 58,216 sq.mi. (excluding 39,960 sq.mi. of Great Lakes water surface); pop. (1940) 5,256,106; (estimate, Jan. 1, 1948) 6,300,000. Of the state's population in 1940, 3,454,867 were urban, 1,801,239 rural. Whites composed 95.9% of the population, nonwhites 4.1% (215,934). Capital, Lansing (78,743). Larger cities were Detroit (1,623,452), Grand Rapids (164,292), Flint (151,543), Saginaw (82,794).

History.—The Michigan legislature convened for its regular biennial session on Jan. 1, 1947, to remain for 157 days, the

third longest session since 1865. All but 9 of the 132 seats were filled by Republicans. A most difficult problem confronting the legislature was the loss of one-third of the state's sales tax income through its diversion to local governmental units in accordance with the constitutional amendment adopted by popular vote in Nov. 1946. The first seven months' operation of the amendment diverted $31,000,000 to schools, counties, cities, villages and townships. An attempt to retain a part for the state by creating a single school district to care for state educational expenses such as appropriations for the state university, colleges, and schools, and the teachers' retirement fund, was found unconstitutional. The legislature provided by joint resolution for the resubmission of the tax-diversion question to the electorate in Nov. 1948. A tax of three cents a package on cigarettes, expected to yield about $18,000,000 in revenue, was levied, but a bill to increase the gasoline tax from three cents to four cents a gallon was vetoed by Gov. Kim Sigler.

In spite of its failure to solve the problem of revenue, to free itself of undue lobbying activity, to break the state liquor monopoly, or to enact much of Gov. Sigler's "clean government" program, the legislature could claim many major accomplishments. Among the 371 bills enacted into law (10 others were vetoed) were many important measures. A community property law opened the way to savings in federal income taxes for many Michigan residents; provision was made for the payment of $270,000,000 voted in 1946 to Michigan veterans of World War II; the child labour laws were revised and codified; compulsory arbitration of labour disputes in public utilities and hospitals was provided for; the state planning commission was abolished and a department of economic planning created; the workmen's compensation system was reorganized; old-age pensions were increased from $40 to $45 a month; $6,400,000 was appropriated to the University of Michigan and to Michigan State college for new buildings; the juvenile institute commission was abolished and its duties transferred to the department of social welfare; and provision was made for submitting to the electors the question of calling a convention to revise the state constitution.

In the biennial spring elections the Republican-endorsed candidates Henry M. Butzel, Leland W. Carr and John R. Dethmers won by substantial majorities in the nominally nonpartisan contest for three seats on the supreme court. Republicans also won two places on the board of regents of the state university, two on the state board of education and two on the board of agriculture. In the election of state superintendent of public instruction, Eugene B. Elliott, Republican incumbent, received 381,377 votes to 203,116 for George F. Montgomery, Democratic candidate. A constitutional amendment relative to cancelling noncontest judicial primaries carried 273,308 to 203,075, while a proposal relating to the length of time corporations may hold real estate lost 209,159 to 247,948.

In a program to strengthen the executive branch of the government, Gov. Sigler made a number of changes in personnel and organization. A special session of the legislature in November empowered him to abolish the existing state prison and parole system and to centralize control in executive hands. He appointed Joseph W. Sanford, warden of the federal penitentiary at Atlanta, as the new corrections commissioner, made Garrett Heyns, former corrections director, head of the new division of prisons and industries, and appointed Ralph Hall Ferris, former assistant director in charge of probation, as director of the new division of pardons, paroles and probation. As head of the department of social welfare, newly organized and expanded, he named W. J. Maxey.

The death of Henry Ford in June not only recalled his long career in Michigan industry, but also focused attention upon the policies of his grandson and successor, Henry Ford II. Other Michigan citizens much in the news were Walter Reuther, newly elected head of the United Automobile Workers of America, whose principal problems at the close of the year were the maintenance of peace within the organization and the continued rise in cost of living; federal district Judge Frank A. Picard, who ruled against union claims to portal-to-portal pay in a decision resulting from his earlier ruling in the Mount Clemens Pottery company case; and Joe Louis, whose victory over Joe Wolcott aroused discussion in sports circles only overshadowed by the University of Michigan football team's winning the western conference championship and its consequent selection to play in the Rose Bowl contest on Jan. 1, 1948.

Education.—There were 5,282 school districts in the state public school system in 1947 with an average membership of 607,189 pupils and 19,823 teachers in the elementary grades and 351,602 pupils and 12,594 teachers in the secondary grades. The fall enrolment in Michigan's 68 universities, colleges and normal schools reached a peak of 100,571 full-time students, of whom 52,433 were veterans.

Social Insurance and Assistance, Public Welfare and Related Programs.—The various state institutions of correction and their populations as of Dec. 1, 1947, were as follows: State Prison of Southern Michigan 5,704; Michigan reformatory 1,316; Marquette Branch prison 806; Detroit House of Correction 318; Cassidy Lake Technical school 80. There were 24 wayward minor boys and 42 wayward minor girls in custody. Expenditures of the state department of correction for the fiscal year 1946–47 were $6,137,444.

The activities of the social welfare department were considerably expanded when the legislature abolished the juvenile institute commission and placed the Boys' Vocational school in Lansing, the Girls' Training school in Adrian and the Michigan Children's institute in Ann Arbor under the jurisdiction of the department. More than $60,000,000 joint federal-state aid was granted to the aged, the blind and dependent children; more than $12,000,000 financed by state and local governments was spent for direct relief by the county welfare departments. The number of Michigan residents dependent to some extent upon these programs had risen from a wartime figure of 150,000 to 210,000, of which 92,000 represented old-age assistance. Numbers on direct relief declined from 93,000 in March 1946 to 57,000 in Dec. 1947.

Figures for the first ten months of 1947 indicated a death rate of 9.3 per 1,000, the lowest on record, and that births would probably exceed 150,000, breaking the 1946 record of 138,572. Figures for the same period indicated a divorce total of 24,500, 16% below the 1946 number, 29,158.

Communications.—The Michigan state highway department in 1946 started an $81,000,000 three-year construction program to be completed by 1950 with approximately half the cost to be borne by the federal government under the provisions of the Highway Act of 1944. At the end of 1947, of the projects under contract, representing a cost of $36,300,000, 114 had been finished and paid for, 54 were under construction and 17 had been put under contract. When all were finished they would provide 199 mi. of pavement; 151 mi. of gravel surface; 79 mi. of grading for future paving; 96 bridges, including several grade separations; and 218 mi. of bituminous concrete pavement resurfacing. The three-year program for county roads involved an expenditure of $17,762,020, one-half to be paid by the federal government. Contracts had been let for $7,134,798, involving 89 projects, which when completed would provide 306 mi. of new surfaces and 47 new structures.

Banking and Finance.—The 346 state banks in Michigan on Oct. 6 had total assets of $2,541,190.24; assets of 3 industrial banks were $7,962,396; those of 8 trust companies $45,873,524.37. Deposits had reached a total of $1,317,368,835.03, an increase of more than $440,000,000 from June 1941. Total assets of 78 national banks were $2,643,179,137.06 on Dec. 31, 1947. Total revenue from taxes, federal agencies, state enterprises, etc., for the fiscal year ending June 30, 1947, was $382,257,140.69; total operating expenditures, $369,480,278.42.

Agriculture.—In spite of lower yields caused by unfavourable weather conditions in 1947, the aggregate value of field and fruit crops was $418,000,000, an increase of 7% over 1946 and more than double the ten-year average (1936–45). Wheat and hay were above the previous year; corn, oats, potatoes, sugar beets, beans, apples and peaches, below.

Table I.—*Leading Agricultural Products of Michigan, 1947 and 1946*

Crop	1947 (est.)	1946
Corn, bu.	44,165,000	50,512,000
Winter wheat, bu.	29,800,000	22,896,000
Oats, bu.	38,150,000	71,890,000
Potatoes, bu.	12,390,000	18,327,000
Apples, bu.	6,600,000	7,560,000
Peaches, bu.	4,526,000	5,100,000
Field beans, 100-lb. bags	3,129,000	3,841,000
Barley, bu.	3,450,000	5,037,000
All tame hay, tons	3,730,000	3,464,000

Because of the poor field crops, pig production for 1947 was the lowest since 1938. Cherries were down about 10%, popcorn 80%, alfalfa, alsike, red and sweet clover about 50%, while the maple syrup yield increased more than 125%.

Manufacturing.—Manufacturing in Michigan continued at about the pace set in the latter half of 1946. Unemployment stood at only 90,000 as compared with 110,000 at the end of 1946. Weekly man-hours were up 1.6 and weekly pay rolls 1.4. Average weekly hours were 40.4 in durable goods industries and 42.8 in nondurable goods. Average weekly earnings were $55.26.

The consumers' price index for moderate income families (Sept. 1941 = 100%) stood at 148.1 for all items in September (for food 181.5); although the increase in cost of living continued, the pace had slackened by the end of the year.

Mineral Products.—Michigan ranked first in the U.S. in salt and gypsum and led the midwest in the production of chemicals. Production of oil and gas, with 3,600 oil and 800 gas wells in operation, remained at a fairly constant level, with new discoveries and extensions of old fields balancing depletions from other areas. In 1947 for the first time an aeroplane was used to record magnetic attraction of iron deposits. As a result, known iron reserves were increased by about 10,000,000 tons.

Table II.—*Mineral Production of Michigan, 1945 and 1944*

	1945		1944	
	Quantity	Value	Quantity	Value
Iron ore, tons	11,834,652		13,693,377	$38,537,000
Copper, lb.	60,801,716		84,842,000	11,453,670
Salt, tons	4,285,493	$14,942,443	4,287,758	14,921,719
Petroleum, bbl.	17,267,493	24,262,364	18,490,000	26,600,000
Cement, bbl.	6,243,322	9,937,834	5,177,176	7,733,185
Natural gas, M. cu. ft.	23,298,548	3,159,839	21,253,903	12,900,278
Sand-gravel, tons	12,199,977	6,107,890	12,184,583	6,103,136

BIBLIOGRAPHY.—*Michigan, A Guide to the Wolverine State* (American Guide Series, 1941); *The Michigan History Magazine,* quarterly; press releases and printed reports of the various governmental offices; *Michigan Official Directory and Legislative Manual,* published by the secretary of state biennially. (L. G. V. V.)

Michigan, University of. Enrolment levels established in the fall of 1946 were maintained and somewhat increased in 1947. For the first semester of 1946–47 the net total of resident students was 19,176, for the second semester 19,232 and for the entire year, which includes the 1946 summer session, 24,858. Nearly 5,500 others were enrolled in extension credit courses and short postgraduate professional courses, and 10,359 in noncredit extension courses. For the fall semester of 1947–48, 20,637 resident students registered. In view of increased costs occasioned by these larger numbers the state legislature of 1947 appropriated $8,570,000 for the university's operating expenses and $3,200,000 toward completion of the educational buildings already begun. The additions to the chemical laboratory and the engineering building, the food service building and a portion of the residence hall for men were occupied in the fall of 1947, and work continued on the other projects. On Jan. 24, 1947, the regents accepted from the war assets administrator the deed to the airport at Willow Run, including two large hangars, a number of smaller structures and more than 1,900 ac. of land. Reserving an adequate amount of space for purposes of research and instruction in aeronautical engineering and related sciences, the university leased the landing field and hangar facilities to a group of air lines which operated the airport as a terminal. Thus, one of the largest and most modern airports in the country was preserved for public use and at the same time invaluable laboratory facilities were acquired by the university. The deanship of the graduate school was filled by the appointment of Prof. Ralph A. Sawyer of the department of physics, who had served in the navy during World War II and had acted as technical director of the Bikini atom-bomb test. Other important events were the organization of a centre for Japanese studies and a survey research centre. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (F. E. R.)

Microphotography: *see* PHOTOGRAPHY.

Mikolajczyk, Stanislaw (1901–), Polish politician, was born in Gelsenkirchen, Germany, the son of a farm labourer who emigrated from western Poland to work in the Westphalian mines. The family later returned to western Poland. He was wounded during the Russo-Polish War in 1920. After the war, he entered politics and at the age of 29 was elected to the sejm, serving from 1930 to 1935. He was made president of the Polish Peasant party in 1937. When the nazis invaded Poland in Sept. 1939, Mikolajczyk saw military action in the unsuccessful defense of Warsaw. He fled to Hungary and later escaped to France. He became President Paderewski's deputy in the Polish parliament in exile, and succeeded to the presidency on Paderewski's death. Mikolajczyk became prime minister in 1943. He sought a settlement with the Soviet Union on the Polish boundary dispute, but his efforts were hamstrung by anti-soviet elements within his cabinet, and he resigned Nov. 24, 1944. Mikolajczyk endorsed (April 15, 1945) the Big Three decision on Poland which was reached at Yalta, and joined the new Warsaw government as deputy premier, June 23, 1945.

Throughout 1946, Mikolajczyk protested frequently that the Polish elections were not free and that the government used terrorist methods to intimidate his followers. In early 1947, he complained of the lack of "free and unfettered" elections in memoranda sent to the U.S., British and Soviet ambassadors at Warsaw. Becoming increasingly unpopular with the Polish government, Mikolajczyk fled Poland on Oct. 20 and made his way to London and thence to the United States.

Military Academy, U.S. A government-maintained college at West Point, N.Y., for the training of young men for leadership in the professional military service.

The new four-year curriculum went into full effect in the fall of 1947. The nine additional professors authorized in 1946 were selected and assigned to their respective departments. During the previous summer the new four-year course in tactical training also began. Physical aptitude examinations for candidates were applied for the first time as a part of the regular entrance examinations in March. The exchange of visits between midshipmen of the U.S. Naval academy and the cadets was continued, as were the joint amphibious manoeuvres in the summer.

The course in military psychology and leadership was expanded to a full year. A subdepartment was set up to handle it under the department of tactics, consisting of a director, an associate director, who is a professional psychologist, an aptitude officer and four instructors. In addition to its instructional functions, the subdepartment is charged with the responsibility of implementing the policy on determining cadet aptitude for the military service.

(For statistics of enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.)

BIBLIOGRAPHY.—*The Catalogue of Information of U.S. Military Academy, West Point, N.Y.*, obtainable from the Adjutant General, Department of the Army, Washington, D.C., gives complete data on entrance requirements, examinations, courses, etc. (M. D. T.)

Military Government, Allied: *see* OCCUPIED AREAS, ADMINISTRATION OF.

Milk. Production of milk in the United States in 1947 was estimated by the U.S. department of agriculture at 120,276,000,000 lb., which was slightly above the total of 119,302,000,000 lb. for 1946 and somewhat short of the record production of 1945. The 1947 output was about 16% above the prewar 1935–39 output. Total milk production was estimated at 834 lb. per capita, compared with 839 lb. in 1946 and 862 lb. in 1945. Consumption of fluid milk and cream was estimated at about 403 lb. per capita, compared with 425 lb. in 1946 and the high record of 433 lb. in 1945. More milk and cream were used in butter and cheese than a year earlier. Exports of dairy products declined in the first half of 1947, amounting to only about 3% of the total production, compared with more than 5% exported in 1944.

The high production of milk in 1947 was remarkable because

of the reduction in number of cows milked; the output per cow was estimated at 4,900 lb., about the same as in 1946. In September the production per cow was the highest in the 18 years that records had been kept. This record was all the more remarkable because of the high cost of feed. Dairymen maintained a high rate of feeding in spite of the high prices. Pastures were good in the early summer, and the drought in midsummer was not severe enough to affect production to any noticeable extent.

Butter production in 1947 increased over the low record of 1946 because of the larger milk supply; less milk was taken by the whole-milk market. Butter prices were high, stocks low and the supply much below the prewar level. The 1947 output was about 12 lb. per capita, compared with nearly 18 lb. 1925–34. Cheese production increased at a rate somewhat below that of buttermaking, and ice cream production declined. The drop in export demand early in the year reduced the output of dried and condensed milk, but slightly more evaporated milk was made.

The price of milk to producers was at a high peak of $5.13 per cwt. in Nov. 1946. The average in Jan. 1947 was $4.96 per cwt., followed by a steady decline to $3.64 per cwt. in June, then by a recovery to $4.35 in September and $5.02 in December. The price of butterfat followed the same trend but did not decline so much. During 1946 the price of butterfat had jumped from 52 cents per pound in June to 90 cents per pound in October when controls were removed. The price in Jan. 1947 was 74.5 cents per pound, 63 cents in June and 87.7 cents in December. The retail price of milk was raised in many areas from about 16 cents per quart to 18 cents and in large cities to 20 and 23 cents. While consumers resisted the price advances, the reduction of consumption was not large because of the advancing prices of other foods. (*See* also BUTTER; CHEESE; DAIRYING.) (J. C. Ms.)

Millstones: *see* ABRASIVES.

Mineral and Metal Production and Prices.

As will be seen from an examination of the world production tables shown in articles on the various minerals and metals scattered throughout this volume, most of the gaps in the data for the war years have been filled in. There are still some data missing, and it is quite likely that the war record will never be made complete, but at least it was in 1947 sufficiently complete for most of the important commodities to enable one to form a fairly accurate picture of the war production record.

Supplementing the world production data presented in connection with the various commodities, Table II gives the available data on mineral production in 1946 for the more important producing countries and their leading commodities. While space is lacking to make a table of this kind complete, enough data can be shown on one page to give the reader an idea as to the general distribution of production and the relative importance of the different producers.

Table I abstracts the opening and closing prices for the leading metals and their ores, as quoted on the New York and London markets during 1947. With only a few exceptions, it will be noted that prices advanced sharply after the relaxation or abandonment of wartime price control measures. In the New York market much of the advance had been accomplished by the end of 1946, but in the London market matters moved more

Table I.—*Mineral and Metal Prices in 1947*

New York market as reported by *E&MJ Metal and Mineral Markets*					London market as reported by the *Metal Bulletin*							
							Open			Close (*d*)		
Open	Close	Grade	Units		Grade	Units	£	s.	d.	£	s.	d.
15.00 ¢	15.00 ¢	99% ingot	Pound	Aluminum	98–99%	Long ton	72	15	..	80	..	..
$ 3.85	$ 4.425	50–55% Sb	S.T. unit	Antimony, Ore	50–55% Sb	Unit	..	19	..	..	22	6
29.625 ¢	36.03 ¢	Domestic, cased	Pound	Antimony	Domestic, 99%	Long ton	150	..	..	180	..	..
nom. ¢	nom. ¢	Chinese	„	„	Chinese	„	..	(*e*)	..	..	(*e*)	..
6.00 ¢	6.00 ¢	White oxide	„	Arsenic	Foreign, 99%	„	40	7	6	43	5	..
$ 14.75	$ 20.50	4% Be (*a*)	„	Beryllium-copper alloy	Strip (*a*)	Pound	..	13	3	..	14	7½
$ 1.80	$ 2.00	Ton lots	„	Bismuth		„	..	10	..	..	11	..
$ 1.50	$ 1.75	Commercial sticks	„	Cadmium		„	..	10	..	..	12	6
$ 38.50	$ 39.00	48% Cr_2O_3, 3 Cr:1 Fe	Long ton	Chromium, Ore	Rhodesian, 1st grade	Long ton	10	..	..	9	17	..
89 ¢	92 ¢	98%, spot	Pound	Metal	98–99%	Pound	..	4	5	..	5	..
17.10 ¢	16.10 ¢	4–6%, C, 66–70 Cr (*a*)	„	Ferroalloy	4–8% C.	Long ton	..	(*e*)	..	..	(*e*)	..
19.50 ¢	19.50 ¢	2% C, 67–72% Cr (*a*)	„	Ferroalloy	2% C. (*a*)	Pound	..	(*e*)	..	..	(*e*)	..
$ 1.50	$ 1.65	97–99% Co	„	Cobalt		„	..	9	..	..	10	..
19.275 ¢	21.20 ¢	Domestic	„	Copper	Fire ref., high gr.	Long ton	116	10	..	131	10	..
19.625 ¢	21.425 ¢	Export	„		Electrolytic	„	117	..	..	132	..	..
$ 35.00	$ 35.00		Ounce	Gold	Official	Ounce	..	172	3	..	172	3
$110.00	$ 82.50	Sponge, powder	„	Iridium		„	32	10	..	19	10	..
$ 5.05	$ 5.55	Mesabi, nonbessemer	Long ton	Iron, Ore	50% N. African	Long ton	..	(*e*)	..	..	(*e*)	..
$160.50	$195.65	80%, Joplin, Mo.	Short ton	Lead, Ore	80% R/C	„	..	(*e*)	..	..	(*e*)	..
12.55 ¢	15.00 ¢	New York	Pound	Metal	Foreign, soft	„	70	..	..	90	..	..
20.50 ¢	20.50 ¢	99.8% car lots	„	Magnesium, Ingots		Pound	..	1	6	..	1	2
27.50 ¢	27.50 ¢		„	Sticks		„	..	1	10	..	1	6
70.50 ¢	66.00 ¢	48% Atlantic ports	L.T. unit	Manganese, Ore	50–52% Mn	Unit	..	1	4½	..	1	7
$135.00	$145.00	78–82%	Long ton	Ferroalloy		Long ton	..	(*e*)	..	..	(*e*)	..
$ 40.00	$ 47.00	19–21% Mn	„	Spiegel	18–22% Mn	„	..	(*e*)	..	..	(*e*)	..
$ 90.00	$ 80.00	(76 lb.)	Flask	Mercury	(76 lb.)	Flask	22	15	..	16	..	..
45 ¢	45 ¢	90% MoS_2 (*b*)	Pound	Molybdenum, Ore	85% MoS_2	Unit	..	46	3	..	50	9
95 ¢	95 ¢	55–65% Mo (*a*)	„	Ferroalloy	70–75% Mo, C free (*a*)	Pound	..	(*e*)	..	..	(*e*)	..
35 ¢	33.75 ¢	Cathodes	„	Nickel	Refined	Long ton	192	10	..	190	..	..
$ 24.00	$ 24.00		Ounce	Palladium		Ounce	5	17	6	5	17	6
$ 75.00	$ 75.00	24% P	Long ton	Phosphorus, Ferro-	20–25% P.	Long ton	..	(*e*)	..	..	(*e*)	..
$ 53.00	$ 66.00	Wholesale	Ounce	Platinum		Ounce	14	..	..	16	2	6
$125.00	$125.00		„	Rhodium		„	31	5	..	27	10	..
$ 1.75	$ 2.00	99.5%	Pound	Selenium		Pound	..	8	6	..	10	..
14.75 ¢	16.75 ¢	97+% Si, spot	„	Silicon	97% Si	Long ton	97	..	..	108	7	6
17.45 ¢	8.80 ¢	50% Si (*a*)	„	Ferroalloy	45% Si	„	..	(*e*)	..	..	(*e*)	..
9.25 ¢	11.20 ¢	75% Si (*a*)	„	„	75% Si	„	..	(*e*)	..	..	(*e*)	..
83.75 ¢	74.625 ¢	Foreign, New York	Ounce	Silver	Official, spot	Ounce	..	..	55½	..	..	45
$ 1.75	$ 1.75		Pound	Tellurium		Pound	..	7	..	..	8	9
70.00 ¢	94.00 ¢	Straits	„	Tin	99%+	Long ton	380	10	..	437	..	..
$142.50	$ 1.35 (*a*)	20–25% Ti	Short ton	Titanium, Ferrocarbon-	15–18% Ti	Pound	..	(*e*)	..	..	(*e*)	..
$ 24.00	$ 30.00	Domestic	S.T. unit	Tungsten, Ore	65%	Unit	..	71	3	..	136	3
$ 24.00	$ 30.00	Chinese	„	„								
$ 1.90	$ 2.30	75–80% W (*a*)	Pound	Ferroalloy	80–85% W (*a*)	Pound	..	(*e*)	..	..	(*e*)	..
$ 2.625	$ 3.10	99% W	„	Powder	98–99% W	„	..	6	4	..	10	10
27.50 ¢	27.50 ¢	(*c*)	„	Vanadium, Ore	18–20% V_2O_5	Unit	..	40	..	..	70	..
$ 2.80	$ 3.00	(*a*)	„	Ferroalloy	35–60% V (*a*)	Pound	..	(*e*)	..	..	(*e*)	..
$ 64.00	$ 70.35	60%, Joplin, Mo.	Short ton	Zinc, Ore	52% R/C	Long ton	..	(*e*)	..	..	(*e*)	..
10.50 ¢	10.50 ¢	St. Louis	Pound	Metal	G.O.B., foreign	„	70	..	..	70	..	..

(*a*) Per pound of base metal contained. (*b*) Per pound of MoS_2 contained. (*c*) Per pound of V_2O_5 contained. (*d*) Dec. 15. (*e*) Not quoted in *Metal Bulletin*.

Table II.—*World Mineral and Metal Production in 1946*

(Metric tons unless otherwise specified: Th. indicates thousands and Mi. millions of units.)

Country	Aluminum (Th.)	Antimony	Asbestos (Th.)	Bauxite (Th.)	Cadmium (Th. Lb.)	Chromite (Th.)	Coal (Mi.)	Coke (Mi.)	Copper in Ore (Th.)	Copper (Smelter) (Th.)	Diamonds (Th. carats)	Gold (Th. Oz.)	Gypsum (Th.)	Ilmenite (Th.)	Iron Ore (Mi.)	Pig Iron (Mi.)	Steel (Mi.)
Algeria	—	—	—	—	—	—	0.2	—	—	—	—	—	18	—	1.67	—	—
Angola	—	—	—	—	—	—	—	—	—	—	808	—	—	—	—	—	—
Australia	—	172[5]	1.8[5]	3.5[5]	494.1	1.4[4]	19.6	1.08[5]	P	19.1	—	824	109	7.3[4]	1.59[5]	0.89	1.07
Belgian Congo	—	—	—	—	36.5	—	p	—	P	143.9	6,033	331	—	—	—	p	2.17	2.28
Belgium	—	—	—	—	196.0	—	22.8	3.86	—	—	—	—	—	—	—	—	—	—
Bolivia	—	6,407	p	—	—	—	—	—	—	6.1	—	—	—	—	—	—	—	—
Brazil	0.3	—	p	1.2	—	—	1.3	p	—	—	325	3	P	5.0[5]	1.0	0.37	—	—
Burma	—	—	—	—	—	—	—	—	—	—	—	200	—	—	—	—	—	—
Canada	175.4	286	496.8	—	761.4	2.8	16.1	2.59	168.3	151.5	—	2,808	1,664	1.2	1.43	1.38	2.12
Chile	—	—	—	—	—	—	1.7	—	—	358.6	—	231	344	—	1.35	0.17[5]	—
China	p	P	P	—	—	—	P	0.10	0.9	0.9	—	P	P	—	1.44[5]	p	—
Colombia	—	—	—	—	—	—	p	—	—	—	—	437	—	—	—	—	—
Czechoslovakia	—	P	—	—	—	—	33.5	4.53[4]	—	—	—	—	—	—	0.48[4]	0.96	1.67
France	47.6	14.3[5]	0.6	478.2	103.6	—	49.5	4.96	p	9.7	—	34	449	—	16.21	3.50	4.40
Germany	—	—	—	p	P	—	114.1	53.40	15.0	19.1	—	P	P	—	13.22[2]	2.32	3.00
Gold Coast	—	—	—	116.8	—	—	—	—	—	—	830	587	—	—	—	—	—
Greece	—	p	p	p	—	8.5	p	—	—	—	—	—	P	—	—	—	—
Guiana, Brit.	—	—	—	1,138.1	—	—	—	—	—	—	—	20	—	—	—	—	—
Guiana, Neth.	—	—	—	570.6	—	—	—	—	—	—	—	5	—	—	—	—	—
Hungary	P	P	—	100.8	—	—	6.3	—	—	—	—	—	—	—	0.13	0.16	—
India	p	—	0.6[4]	14.1[5]	—	31.1[5]	29.7	1.41[4]	11.0[5]	6.4	—	132	92[5]	102.4[4]	2.30[5]	1.35	1.25
Indo-China	—	25[4]	—	p	—	—	0.6[4]	p	—	—	—	p	p	—	p	—	—
Italy	10.6	270[5]	4.8[5]	65.4	55.1	—	2.6	2.0[3]	—	—	—	1.6[5]	328[1]	—	0.13	0.17	1.30
Japan	—	49	1.7	—	2.0	7.1	24.8	3.76[4]	17.2	26.9[5]	—	36	83[4]	—	0.54	0.19	0.55
Luxembourg	—	—	—	—	—	—	—	—	—	—	—	—	P	—	2.25	1.36	1.30
Malaya	—	—	—	P	—	—	—	—	—	—	—	p	—	P	p	—	—
Manchuria	—	—	—	—	—	—	P	—	—	—	—	—	—	—	—	—	—
Mexico	—	—	—	—	1,539.7	—	0.9[5]	—	61.1	52.4	—	421	P	—	0.28	0.28	—
Morocco, Fr.	—	260	0.5[4]	—	—	—	0.2	—	—	—	—	P	p	—	0.13	—	—
Neth. Indies	—	—	—	P	—	—	2.0[0]	—	—	—	—	P	—	—	—	—	—
New Caledonia	—	—	—	—	—	24.9	—	0.84[2]	—	—	—	—	7	—	—	—	—
Norway	16.6	—	—	—	61.7	—	—	—	P	7.5	—	—	64.0[4]	0.09	0.12[4]	—	—
Peru	—	969	—	—	3.0	—	0.2	—	24.6	19.7	—	158	50	—	—	—	—
Philippines	—	—	—	—	—	58	p	—	—	—	—	P	—	—	—	—	—
Poland	—	—	—	—	255.7	—	48.1	2.15	—	—	—	—	P	—	0.39	0.74	1.22
Portugal	—	5	—	—	—	1.7[5]	0.5	—	—	—	—	—	p	0.3[5]	0.13	—	—
Rhodesia, No.	—	—	—	—	—	—	—	—	—	185.5	—	7	—	—	—	—	—
Rhodesia, So.	—	16	50.7	—	—	151.4	1.6	0.09[5]	—	—	—	545	—	—	—	—	—
Sierra Leone	—	—	—	—	—	p	—	—	—	—	559	P	—	—	0.64	—	—
South Africa	—	2,330	17	—	—	188.9	23.6	0.18[4]	27.0	26.7	1,282	11,918	62.5	—	0.87[5]	0.56	—
So. West Africa	—	—	—	—	—	—	—	—	—	—	164	p	—	—	—	—	—
Spain	0.6[5]	108[5]	p	4.9	—	—	12.1	0.76	8.6	8.1	—	3[5]	41[5]	0.2[5]	2.38	0.47	—
Sweden	3.2[5]	—	—	—	—	—	0.6[5]	0.08[3]	16.3	16.4	—	86[5]	p	—	3.93[5]	0.70	1.21
Thailand (Siam)	—	—	—	—	—	—	—	—	—	—	—	—	P	—	—	—	—
Tunisia	—	—	—	—	—	—	p	—	—	—	—	—	—	—	0.18	—	—
Turkey	—	57	p	—	—	109.3	4.3	0.04	P	10.1	—	—	1,715	—	0.12	0.08	—
United Kingdom	32.1	—	—	37.0[5]	P	p	131.2	14.21	—	—	—	—	—	—	12.40	7.89	12.89
United States	371.6	—	12.8	1,090.0	8,384	3.7	543.1	53.07	552.2	592.2	—	1,462	5,107	256.2	71.98	42.02	60.42
U.S.S.R.	86.3[5]	2,091	—	400[5]	P	325[3]	160	13.0[3]	—	160[5]	—	6,000?	P	—	18.0[5]	9.0[5]	19.50
Venezuela	—	—	p	—	—	—	p	—	—	—	21	37	—	—	—	—	—
Yugoslavia	p	P	—	P	—	65[3]	7.3[1]	—	P	22.3[4]	—	—	P	—	P	p	—
World Total	750	24,900	?	4,000	?	1,100	?	117.44	1,860	1,835	10,313	27,800	10,300	461[4]	160	80	116

Country	Lead (Smelter) (Th.)	Magnesite, (Th.)*	Manganese Ore (Th.)	Mercury (Th. Lb.)	Nickel (Th.)	Petroleum (Mi. Bbl.)	Phosphate Rock (Th.)	Platinum (Th. Oz.)	Potash (Th.)†	Pyrite (Th.)	Salt (Mi.)	Silver (Mi. Oz.)	Talc (Th.)	Tin, in Ore (Th.)	Tin (Th.)	Tungsten Conc.‡ (Th.)	Zinc, (Smelter) (Th.)
Algeria	—	—	—	25.8	—	—	584.8	—	—	40.4	0.05[5]	p	—	—	—	—	—
Angola	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Australia	153.6	25.5	2.2[4]	—	—	—	93[5]	0.1	p	130	0.16	9.07	6.1[4]	2.2	2.0	1.0	78.5
Belgian Congo	—	—	p	—	—	—	—	p	—	—	—	5.05	—	14.3	2.4	0.4	—
Belgium	23.8	—	—	—	—	—	18.0[5]	—	—	—	—	—	—	—	—	—	86.2
Bolivia	—	—	—	—	—	0.36	—	—	—	—	—	6.11	—	38.2	—	2.1	—
Brazil	—	—	149.1	—	p	p	5.2[4]	—	—	—	0.45[4]	0.03	—	p	—	1.6	—
Burma	—	—	—	—	p	0.7	—	—	—	—	0.06	P	—	P	—	P	—
Canada	150.4	—	—	—	86.0	7.67	p	244.6	—	P	0.48	12.66	29.2	—	—	—	168.4
Chile	—	—	15.7	65.5[5]	—	—	13.2[5]	—	p	—	0.05[5]	0.53	0.5[5]	—	—	p	—
China	p	—	9.6	130.0	—	0.51	—	—	—	—	2.27	P	80[2]	3.5[5]	2.0	2.7	—
Colombia	—	—	—	—	—	22.12	—	43.8	—	—	0.12	—	—	—	—	—	—
Czechoslovakia	—	P	—	196.2[0]	—	0.16	—	—	—	—	p	P	—	—	—	—	P
France	34.7	—	—	—	—	0.37	88.9	—	510	187.2	1.6	0.30	66.5	—	—	p	30.4
Germany	140[4]	25.4[2]	p	37.5[2]	p	4.5	p	—	1,925.5[4]	P	4.0[4]	P	13.5[2]	—	—	—	28.4
Gold Coast	—	—	721.4	—	—	—	—	—	—	—	—	0.05	—	—	—	—	—
Greece	0.6	4.5	p	—	p	—	—	—	—	80.1	0.11	—	—	—	—	—	—
Guiana, Brit.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Guiana, Neth.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hungary	—	—	16.9	—	—	5.15	—	—	—	—	0.34[3]	—	—	—	—	—	—
India	—	42.6[4]	213.6[5]	—	—	2.19	0.5[5]	—	—	—	2.23[5]	p	22.7[5]	—	—	p	—
Indo-China	p	—	—	—	—	—	7.1[4]	—	p	—	0.19[1]	p	0.5[5]	p	—	p	—
Italy	14.0	13.7[2]	15.4[5]	3,747.9	p	0.07	p	p	—	397.3	1.48[1]	p	46.3[5]	0.1	—	p	15.6
Japan	12.6[5]	—	29.4	108.0	0.7[5]	1.34	2.0[5]	p	—	474.8	0.19[5]	1.07	0.2	1.8	p	0.1	18.6[5]
Luxembourg	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Malaya	—	—	p	—	—	—	—	—	—	—	—	—	—	7.4	7.6	p	—
Manchuria	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mexico	137.7	—	25.0	886.2	—	49.24	—	—	—	—	—	43.26	—	0.3	—	0.1	42.0
Morocco, Fr.	—	—	45.3[5]	—	—	—	2,783.6	—	—	—	0.01	p	—	—	—	p	—
Neth. Indies	—	—	p	—	P	2.1	24[4]	p	—	—	0.39[0]	—	—	8.9	0.5	p	—
New Caledonia	—	—	—	—	2.8	—	—	—	—	—	—	—	—	—	—	—	—
Norway	p	p	—	—	p	—	—	—	—	537.9	—	0.13[5]	30.5[3]	—	—	p	—
Peru	36.5	—	—	p	—	12.46	—	—	—	—	0.5	12.33	—	p	—	0.5	31.0
Philippines	—	—	P	—	—	—	—	—	—	—	p	p	—	—	—	—	1.3
Poland	9.0	—	—	—	—	0.86	—	—	—	P	P	—	—	—	—	—	56.6
Portugal	—	—	5.9	—	—	—	—	—	—	315.0	—	—	—	0.5	0.1	0.6	—
Rhodesia, No.	8.4	—	1.4	—	—	—	—	—	—	—	—	p	—	p	—	—	17.5
Rhodesia, So.	—	—	—	p	p	—	—	—	—	25.4	—	0.10	—	0.1	—	0.1	—
Sierra Leone	—	—	—	—	—	—	—	p	—	—	—	—	—	—	—	—	—
South Africa	p	7.1[5]	206.3	68	0.5	—	21.1[4]	75.1	—	38.0	P	1.20	2.6	0.5	0.9	0.7	—
So. West Africa	p	—	—	—	—	—	1.7	—	—	—	0.01	—	—	0.2	—	—	—
Spain	32.3	6.7[5]	24.9[5]	3,116	—	—	18.6	—	100.3	792.6	0.77	0.70	19.3[5]	1.4	—	0.4	17.6
Sweden	8.6	—	18.0[5]	—	0.4[5]	—	160.8[4]	—	—	262.0[5]	—	1.14[5]	7.8[5]	—	—	0.45[5]	—
Thailand (Siam)	—	—	—	—	—	—	—	—	—	—	0.11[0]	—	—	—	—	P	—
Tunisia	7.5	—	p	p	—	—	1,399.9	—	—	2.3	0.06[5]	p	—	—	—	—	—
Turkey	—	0.8[4]	1.8	—	—	—	—	—	—	0.3	0.23	—	—	—	—	—	—
United Kingdom	2.7	—	11.5[5]	—	—	0.41	—	—	—	10.9	3.29[5]	p	2.8[4]	0.8	29.0	0.1[5]	66.4
United States	306.7	294.5	130.3	1,926.4	0.3	1,733.42	6,970.8	26.5	845.3	826.4	13.73	21.10	414.6	—	44.2	4.7	700.7
U.S.S.R.	110[4]	P	2,251.[5]	p	13.4[5]	164	2,000[1]	P	—	P	—	—	—	—	—	—	P
Venezuela	—	—	—	—	—	388.49	—	—	—	—	0.09	—	—	—	—	—	—
Yugoslavia	P	P	p	—	—	—	—	—	—	P	p	—	—	—	—	—	—
World Total	1,166	?	3,861.[5]	10,564.	127.	2,750	11,885	576.	2,240	7,000	35.5	129	770	90.	93.5	19	1,580

Notes: Each item of data previous to 1946 is followed by a reference superscript indicating the year to which the figure belongs—[5] for 1945, [4] for 1944, and so on for the earlier years. A figure with less decimals than others in the column is an estimate. The letter "p" indicates a small production unknown in amount or less than the minimum base of the table; "P" indicates a larger but unknown production.
*Crude magnesite. †K₂O equivalent of salts produced. ‡60% WO_3 basis.

Table III.—*Value of Mineral Products of the United States*

(Millions of dollars)

Year	Metallics	Fuels	Nonmetallics	Total
1938	892.6	2,820.3	650.3	4,363.2
1939	1,291.7	2,834.3	788.2	4,914.2
1940	1,678.6	3,116.5	812.8	5,613.9
1941	2,132.0	3,708.1	1,037.9	6,878.0
1942	2,363.9	4,103.4	1,109.0	7,576.3
1943	2,488.0	4,608.3	974.7	8,071.0
1944	2,340.0	5,178.0	901.0	8,419.0
1945	1,974.0	5,212.0	954.0	8,140.0
1946	1,823.0	5,725.0	1,311.0	8,859.0
1947 (est.)	3,000.0	7,800.0	1,600.0	12,400.0

slowly, as price controls were relaxed more gradually.

The *E. & M. J. Metal and Mineral Markets* weighted index of nonferrous metal prices, which had previously stood at 96.42, jumped to 117.11 in July 1946 with the expiration of the price control bill, but was forced back to 114.25 in October by temporary renewal of control measures. With the final scrapping of price control in November it rose to 131.23 in November and 142.19 in December. After declining to 140.42 in Feb. 1947 another advance followed, to 154.03 in May. After another decline to 148.73 in July, a fourth advance brought the year-end index to approximately 152—a total increase of more than one-half since midyear of 1946, 80% of which was crowded into the last half of 1946, against 20% in 1947.

Table III shows the trend of the total dollar value of mineral production in the United States, as reported by the U.S. bureau of mines. Largely because of strikes, the 1946 value of metallics declined, but not enough to offset the increase in nonmetallics, let alone the even greater increase in fuels. All told, the value of mineral production increased to a new record high, 9% above the 1945 level, and 5% above the former 1944 record, though the metallics value was the lowest since 1940. The preliminary estimate for 1947, which was due partly to increased outputs and partly to the inflated postwar prices, shows advances which far surpassed anything in the previous production record of the U.S. Nonmetallics rose 22% over 1946 and 44% over the 1942 high; fuels were 36% ahead of 1946, which was also the previous record high; metallics soared to 64% above 1946 and 20% above the 1943 record; while the total value advanced 40% over 1946 (the previous record year) and 47% over the war peak of 1944. (*See* also STRATEGIC MINERAL SUPPLIES and the reviews of the various metals and minerals.) (G. A. Ro.)

Mineralogy. New minerals described during 1947 included nigerite, a brown and weakly magnetic mineral containing tin and aluminum as the essential constituents, discovered in the tin-bearing pegmatites of Kabba province in central Nigeria (R. Jacobson and J. S. Webb, *Mineralogical Magazine,* vol. XXVIII, pp. 118–128, and F. A. Bannister, M. H. Hey, H. P. Stadler, *Ibid.,* pp. 129–136); and (2) groutite, a jet black manganese mineral with the chemical composition $HMnO_2$, occurring in the Cuyuna range in Minnesota and associated with iron minerals (J. W. Gruner, *American Mineralogist,* vol. 32, pp. 654–659).

In her article "Single Crystal Diamonds Are of Two Types" (*Gems and Gemology,* vol. V, pp. 455–461), Kathleen Lonsdale of London showed that by X-ray diffraction patterns, diamond crystals may be classified as (1) perfect and (2) mosaic single crystals. Perfect single crystals possess a definite and continuous arrangement and spacing of the atoms which make up the crystal, while mosaic crystals consist of many extremely small perfect crystals. Studies on the fluorescence and phosphorescence of the diamond on exposure to ultra-violet radiation were made by George Switzer in "Fluorescent Diamonds" (*Ibid.,* vol. V, pp. 392, 393, 398); by R. M. Shipley in "Notes on the Abundance and Colour of Fluorescent Diamonds" (*Ibid.,* vol. V, pp. 395–398); and by G. O. Wild and H. Biegel in "The Fluorescence of Diamonds" (*Gemologist,* London, vol. XVI, pp. 228–229). Shipley estimated that approximately 65% of gem quality diamonds fluoresce strongly enough to be noticeable to the naked eye when exposed to an arc light and viewed with a Woods filter.

The great increase in the use of the diamond for industrial purposes led to the establishment of the Diamond Research laboratory of Industrial Distributors, Inc., at Johannesburg, South Africa. The laboratory was well staffed in 1947 to conduct extensive studies on the various properties of the diamond which should be of inestimable value to the industry.

On Sept. 23, 1947, the Linde Air Products company announced the first successful production of synthetic star rubies and star sapphires of good gem quality. The chief characteristics of these new synthetic gems were described by R. J. Holmes in *Gems and Gemology,* vol. V, pp. 452–454, 478. Limited numbers of these synthetic star gems were to be marketed.

Identification of natural and culture pearls by X-ray diffraction methods was discussed in an extensive article by W. H. Barnes (*Gems and Gemology,* vol. V, pp. 387–391, 428, 429, 440–444, and 471–474) and by A. E. Alexander in "Pearls Are Not What They Seem" (*Journal of Gemology,* vol. 1, pp. 2–5). In "The Present Status of the Japanese Pearl Culture Industry" (*Gems and Gemology,* vol. V, pp. 417–420) W. F. Foshag reviewed methods of culture, harvesting, production, and marketing of culture pearls. The industry was almost completely suspended during World War II, but was operating at about 30% capacity in 1947.

During the year, the fourth edition of B. W. Anderson's *Gem Testing* (London) and the fifth enlarged edition of E. H. Kraus and C. B. Slawson's *Gems and Gem Materials* (New York) were issued. The very useful and well-illustrated *Handbook of Gem Identification,* by R. T. Liddicoat of the Gemological Institute of America (Los Angeles) was also published.

At the meeting of the Mineralogical Society of America held in Ottawa, Canada, Dec. 30, 1947, the Washington A. Roebling medal was awarded to Professor Paul Niggli of Zürich, Switzerland, in recognition of his many significant contributions to mineralogy and petrography. (*See* also MINERAL AND METAL PRODUCTION AND PRICES.) (E. H. KR.)

Mining: *see* MINERAL AND METAL PRODUCTION AND PRICES. *See* also under separate minerals.

Minnesota. A north central state of the United States, popularly known as the "Gopher state." Area, 84,068 sq.mi., of which 4,059 are water. Pop. (1940), 2,792,300. The urban population was 49.8% of the total. Capital, St. Paul (287,736). Other principal cities, Minneapolis (492,370); Duluth (101,065). The native-born white inhabitants in 1940 numbered 2,474,078, foreign-born 294,904 and Negro 9,928. The bureau of the census estimated the civilian population of the state at 2,597,580 on July 1, 1944; 2,617,538 on July 1, 1945; and 2,817,972 on July 1, 1946.

History.—Principal elective officials of the state in 1947 were: governor, Luther W. Youngdahl; secretary of state, Mike Holm; treasurer, Julius A. Schmahl; auditor, Stafford King; attorney general, J. A. A. Burnquist.

The 55th session of the legislature met in regular biennial session on Jan. 7, 1947, and adjourned on April 24, 1947. The 1947 legislature, by resolution, created a constitution commission of Minnesota, effective July 1, 1947, with an appropriation of $12,000, to study and consider Minnesota's constitution and report to the legislature, the governor and the supreme court by Oct. 1, 1948. The legislature established by law a Minnesota legislative research committee, with an appropriation of $25,000

for the biennium. It also created three new divisions of state government: youth conservation commission; division of housing and rent control; and department of business research and development.

Education.—The contribution of the state to local schools, including income from trust funds and fixed income tax allotments, was expected to amount to $66,705,660 for the biennium that began July 1, 1947. Total public school expenditures for the 1946–47 school year were $79,358,035, compared with $67,433,573 for the 1945–46 school year. In 1946–47, Minnesota had 8,124 elementary schools, 645 secondary schools, 6 public state teachers colleges and 11 junior colleges. Enrolment was 328,508, with 11,865 teachers in elementary grades; 164,605, with 7,994 teachers, in the secondary grades; 3,755, with 180 teachers, in junior colleges; 12,665, with 155 teachers, in adult education classes; and 306, with 25 teachers, in teacher training departments. Dean M. Schweickhard was commissioner of education.

Social Insurance and Assistance, Public Welfare and Related Programs.—The aid to dependent children average grant per case rose 24.3% from Nov. 1946 to Nov. 1947, while old-age assistance and aid to the blind average grants per recipient rose 20.2% and 16.7%, respectively, during the same period. During the year ending June 30, 1947, $2,559,292 was spent on general relief, with the number of cases averaging 5,832; on old-age assistance, $23,128,837, with the number of recipients averaging 54,082. A total of $3,643,749 was spent on aid to dependent children, with the number of families aided averaging 5,492 and number of children helped averaging 14,043. An average of 952 persons shared in the total allowance of $485,490 in aid to the blind. The state prison, two state reformatories and two training schools for delinquents had 2,101 inmates on June 30, 1947.

Communications.—Minnesota had, at the end of 1946, 11,237 mi. of state trunk highways and 102,004 mi. of other highways, excluding city streets. Expenditures of the state highway department for construction, maintenance and administration during the year ended June 30, 1947, were $25,123,768, as compared with $14,794,000 for the year ended June 30, 1946. The state highway building program, with federal aid, was expected to make possible about $75,000,000 in construction in the first four postwar years. Railway mileage at the end of 1946 was 9,080 mi. There were 60 licensed municipal airports, 16 seaplane bases, 44 privately owned public airports and 119 privately owned landing strips for private use.

Banking and Finance.—Resources of Minnesota banks, on July 1, 1947, were approximately 6% lower than on July 1, 1946. The 495 state banks, 1 mutual savings bank and 4 trust companies had deposits of $887,298,000 and resources of $942,106,000, compared with deposits of $846,012,000 and resources of $898,844,000 on July 1, 1946. The 180 national banks had deposits of $1,844,515,000 and resources of $1,856,354,000 on July 1, 1947, compared with deposits of $1,960,700,000 and resources of $2,083,326,000 on July 1, 1946. The state had 41 state building and loan associations on July 1, 1947, with resources of $69,445,000, as compared with resources of $62,014,000 on July 1, 1946. The 30 federal savings and loan associations had resources of $175,943,000 on July 1, 1947, compared with resources of $152,767,000 on July 1, 1946. Total operating disbursements of the state government (excluding public debt redemption, stores for resale, annuities and pensions, land and interest in land) amounted to $140,738,007 for the year ended June 30, 1947, as compared with $116,901,122 for the year ended June 30, 1946. Outstanding state bonds and certificates of indebtedness were reduced $5,880,500 during 1947, to a net of $58,057,443, making a $71,730,217 reduction in nine years. Four principal trust funds of the state, income of which is devoted largely to schools, reached $160,561,621 on Dec. 31, 1947.

Agriculture.—Based on volume of production in 1947, Minnesota ranked first among the states in flaxseed; second in oats, alsike clover seed, and sweet clover seed; fourth in corn, spring wheat, barley, rye, all hay, and timothy seed; fifth in soybeans for beans; seventh in red clover seed; eighth in potatoes; and ninth in alfalfa seed. Butter production in 1946 was 175,891,000 lb. For the calendar year 1946, cash receipts from farm marketings totalled $1,054,876,000 with $811,281,000 from livestock and livestock products and $243,595,000 from crops.

Leading Agricultural Products of Minnesota, 1947 and 1946

Crop	1947	1946
Corn, all, bu.	191,041,000	239,888,000
Oats, bu.	163,332,000	197,506,000
Barley, bu.	25,838,000	21,257,000
Wheat, all, bu.	20,633,000	27,080,000
Potatoes, bu.	14,520,000	17,365,000
Flaxseed, bu.	15,103,000	9,303,000
Hay, all, tons	5,687,000	5,897,000

Manufacturing.—The 1939 census of manufacturers listed 4,008 manufacturing establishments employing 92,084 persons. The department of business research and development estimated there were 5,900 manufacturing establishments in 1947. The number of employees in manufacturing industries in Nov. 1947 was estimated at 199,858, 0.2% lower than in Nov. 1946.

Mineral Production.—An estimated 63,250,000 gross tons of iron ore were shipped from Minnesota mines in 1947, as compared with 50,010,067 gross tons in 1946. Tonnage shipped in 1947 was the largest for any peacetime year. (R. B. J.)

Minnesota, University of.

An institution of higher education at Minneapolis, Minn.

At the outset of the fall quarter of 1947, enrolment of regular collegiate students showed a tendency to level off. Veterans enrolled for the term numbered 16,736. The Duluth branch, one of the state teachers' colleges, became a part of the university on July 1, 1947. The percentage of women continued to drop, reaching a new low of 24.9. A new school of veterinary medicine, operating within the College of Agriculture, Forestry and Home Economics (one of the four major units in the department of agriculture) opened in the fall of 1947 with Dr. Willard L. Boyd as director. During the year all of the work on the Minneapolis campus in fine arts, including the university gallery but excluding art education in the College of Education, was consolidated into a new department of fine arts. Dr. S. C. Lind, dean of the Institute of Technology, retired on June 30, 1947. During the year the head of the summer session was made a dean. After the fall of 1946, students in the state teachers' colleges, the junior colleges and the liberal arts colleges of Minnesota were permitted, if they met admission requirements, to register jointly at the university. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (J. L. Ml.)

Minor League Baseball: *see* BASEBALL.
Mint, United States: *see* COINAGE.
Miquelon: *see* FRENCH OVERSEAS TERRITORIES.

Missions, Foreign.

For foreign missions the year 1947 was in general one of advance. Restoration of staffs depleted by World War II continued. More missionaries, both Catholic and Protestant, re-entered Japan and the regions from which they had been expelled by the Japanese invasion—Korea, east China, the Philippines, Siam and Burma. Indonesia was still disturbed politically, but the churches had strong Indonesian leadership, much of it young. In the Netherlands many missionary candidates were preparing, chiefly for Indonesia. Germany had more aspirants for missionary service than could be sent. Many lands under governments with which Germany had been at war were still closed to missionaries of German citizenship. For both Catholic and Protestant missions the United States was increasingly the main reservoir for funds. From it came also more and more of the personnel.

In Protestant circles the most outstanding event of the year was the meeting in July of the International Missionary council at Whitby, Ont. The International Missionary council was the agency through which the majority of Protestant missions cooperated for world-wide planning and action. In the Whitby meeting, the unity of spirit of older and younger churches (those of the occident and the nonoccident) was marked. A world Christian community which knew no distinctions of race was obviously emerging. At Whitby stress was laid upon evangelism —the presentation of the Christian faith to all men.

Some political and social movements were working adversely to Christianity. The intensification of Arab self-consciousness brought difficulty to Christian missions, for Islam was identified with Arab culture. Anti-Christian nationalist attitudes were especially acute in Egypt. In Ceylon the growth of nationalism was accompanied by emphasis upon Buddhism as the community faith and by restrictions on the churches and missions. Madagascar saw a wave of antiforeignism which at one stage wished to kill or expel all white men and which was, accordingly, in part antimissionary. The civil war and mounting inflation in China were serious problems, and in the spreading communist areas missions found operations impeded or impossible. In India, however, the emergence of the two dominions of India and Pakistan and the communal disturbances between Hindus and Moslems and Moslems and Sikhs seemed for the moment to

work in favour of Christian missions. There must be noted, too, the consummation of the Church of South India, a union of Anglicans, Methodists, Presbyterians and Congregationalists.

(K. S. L.)

Mississippi. A southern state of the U.S., admitted to the union in 1817, popularly known as the "Magnolia state"; area, 47,716 sq.mi. (47,420 sq.mi. land and 296 sq.mi. water); pop. (1940), 2,183,796; capital, Jackson (62,107). Other cities: Biloxi (17,475); Greenville (20,892); Gulfport (15,195); Hattiesburg (21,026); Laurel (20,598); Meridian (35,481); Natchez (15,296); Vicksburg (24,460). Of the state's population in 1940, 432,882, or 19.8%, were urban. In 1940 there were 1,106,327 whites; 1,074,578 Negroes; 2,177,324 native-born; 6,472 foreign-born. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 2,175,877.

History.—For 1948–52 the elected officers of the state, chosen in the Democratic primaries in Aug. 1947 and in the general election of that year, were: governor, Fielding L. Wright; lieutenant governor, Sam Lumpkin; secretary of state, Heber A. Ladner; attorney general, Greek L. Rice; state tax collector, Mrs. Thomas L. Bailey; state treasurer, Robert W. May; state auditor, Carl N. Craig; state superintendent of public education, J. M. Tubb; state commissioner of agriculture, S. E. Corley; state land commissioner, Walter L. McGahey; state commissioner of insurance, Jesse L. White; clerk of supreme court, Tom Q. Ellis.

Education.—In 1946–47 there were 1,313 white elementary schools in Mississippi and 3,345 Negro elementary schools, a total of 4,658. The enrolment in elementary schools was 470,012, of whom 217,056 were whites and 252,956 Negroes. The state had 556 white high schools and 118 Negro approved high schools, with a total enrolment of 76,840 in 1946–47. There were 9,128 white elementary and high school teachers (including superintendents and principals) and 6,426 Negro elementary and high school teachers (including superintendents and principals), a total of 15,554 teachers. The total enrolment in white elementary and high schools was 277,447; in Negro elementary and high schools, 269,405.

Social Insurance and Assistance, Public Welfare and Related Programs.—From July 1, 1946, to June 30, 1947, the state department of public welfare paid $7,123,884 to 43,938 recipients of old-age assistance; $527,088 to 2,213 recipients of aid to the blind; and $1,401,921 for aid to 6,306 families for 16,895 dependent children. The department continued its regular program of child welfare services on all types of problems affecting children, particularly those children in rural areas. Special child welfare workers were assigned to 11 county departments of public welfare, to the State Industrial and Training school and to the Negro Juvenile reformatory. A state-county program of foster boarding care for children was inaugurated. The department of public welfare continued its service to the Mississippi state parole board in making preparole investigations and in supervising parolees and persons out on suspended sentence.

Through its division for the blind, the department maintained a state-financed program of sight conservation, restoration and services and continued its program of training adult blind persons to work on factory-type sewing machines. This division continued to serve as the channel for federal funds for vocational rehabilitation of blind civilians.

Communications.—In 1947 the state maintained 6,742.6 mi. of highways. In 1947 the counties maintained approximately 53,983 mi.

In 1947 state maintenance expenditures were estimated at $3,082,623.43; in 1946, $2,156,904.64. In 1948 county expenditures for maintenance costs amounted to $10,156,908.27.

The total mileage of railroads in the state on Dec. 31, 1947, was 3,924.02 mi.

Banking and Finance.—On Oct. 6, 1947, there were 181 state banks in Mississippi, with 22 branch banks and 32 branch offices. There were 25 national banks in Mississippi. The resources of the state banks were $573,351,099.77 and the total deposits were $538,066,451.16; the resources of the national banks were $224,783,638.24 and total deposits were $212,643,311.86.

The balance in the general fund account as of Jan. 1, 1946, was $23,156,889.38; on Dec. 31, 1947, it was $27,199,678.84. The special fund account as of Jan. 1, 1946, was $8,131,891.17; on Dec. 31, 1947, it was $21,097,415.07.

On Dec. 31, 1947, the full faith and credit debt of the state of Mississippi was $15,326,000; outstanding highway bonds amounted to (payable from the gasoline tax) $56,478,000, making a total state debt of $71,804,000.

Agriculture.—The 1945 census reported 265,528 farms, with 19,616,533 ac. in farms. In 1946, cropland harvested was 6,022,000 ac. The 1946 receipts from marketings were $303,576,000, of which $207,934,000 were from crops and $95,642,000 from livestock and livestock products; the value of farm products consumed in farm households was $109,018,000.

Manufacturing.—The value of all manufactured products in Mississippi for the year 1945 was $439,000,000.

The amount of wages paid in 1945 to persons employed in all industries employing eight or more persons amounted to $237,000,000 as against the amount of $234,000,000 for 1944, and $94,000,000 in 1939.

Mineral Production.—The total value of mineral production in 1945, including natural gas, sand and gravel and other mineral products, was $20,982,489.30, and in 1946, $32,709,705.80.

Table I.—Leading Agricultural Products of Mississippi, 1946 and 1945

Crop	1946	1945
Cotton (500-lb. bales)	1,040,000	1,560,000
Cottonseed, tons	432,000	640,000
Corn, bu.	36,465,000	48,580,000
Oats, bu.	11,160,000	14,880,000
Hay, tons	1,182,000	1,139,000
Sweet potatoes, bu.	5,152,000	5,916,000
Sugar-cane syrup, gal.	3,500,000	3,520,000
Sorghum syrup, gal.	1,400,000	1,680,000
Peanuts, lb.	7,700,000	9,100,000
Pecans, lb.	4,050,000	6,500,000

Table II.—Principal Mineral Products of Mississippi, 1946 and 1945

Mineral	Value, 1946	Value, 1945
Natural gas	$ 157,384	$ 355,298
Sand and gravel	1,926,923	1,143,331
Petroleum	30,323,206	19,290,062
Other mineral products	302,191	193,797

On Dec. 31, 1947, there were approximately 1,073 producing oil wells in the state.

(A. B. Bu.)

Missouri. A west north central state of the U.S.A., admitted to the union in 1821; popularly known as the "Show Me" state. Area 69,674 sq.mi. of which 404 are water. Pop. (1940) 3,784,664 (51.8% urban, 48.2% rural); 3,425,062 (90.5%) native white, 114,125 (3%) foreign-born white and 244,386 (6.5%) Negro. The bureau of the census estimated that on July 1, 1946, the population of the state was 3,776,250. Capital, Jefferson City (1940 census) (24,268). Largest cities: St. Louis (816,048), Kansas City (399,178), St. Joseph (75,711), Springfield (61,238).

History.—The 64th general assembly (Jan. 8–May 23, 1947), with Republicans in control of both houses, passed important legislation. An act relating to labour disputes forbids any employee of the U.S. or of the state from calling, supporting, or participating in any strike against his employer. It bars any employee from engaging in or inducing any strike not authorized by a majority vote in a collective bargaining unit at an election supervised by the state. It prohibits jurisdictional and sympathy strikes, as well as secondary boycotts. It also provides that any collective bargaining agreement between an employer and a labour organization shall be enforceable in the courts. An act relating to labour disputes in public utilities authorizes the governor to take possession of any public utility in case a strike, work stoppage or lockout would result in the failure to continue the operation of the utility so as to interfere with the public interest, health and welfare. A law concerning schools provides that in all public and private schools (except privately operated trade schools), and in all state-supported colleges and universities, regular courses of instruction are to be given in the constitution of the United States and of the state of Missouri, and in U.S. history. It also provides that no student in such educational institutions be given a certificate of graduation unless he has passed a satisfactory examination in these subjects. A motor vehicle act provides for staggered registration of motor vehicles and permanent retention of licence plates by the owners. The assembly, by joint resolution, ratified the proposed amendment to the U.S. constitution limiting the president's tenure of office.

In 1947 investigations were made into vote frauds in the Aug. 6, 1946, Kansas City primary. A Jackson county grand jury indicted 71 persons on May 27. That night thieves stole ballots and other evidence the jury had impounded in a courthouse vault. Thereafter two federal grand juries, investigating the vote frauds and the theft of ballots, indicted 41 persons for vote frauds; and of the seven tried in 1947, three were convicted and one pleaded guilty. No one was indicted for the

theft of ballots.

The major state officers (1947), all Democrats, were: Governor, Phil M. Donnelly; lieutenant governor, Walter N. Davis; secretaries of state, Wilson Bell (died May 20) and Edgar C. Nelson (appointed May 23); auditor, Forrest Smith; treasurer, Robert W. Winn; attorney general, James E. Taylor.

Education.—For the school year ending June 30, 1947, the public school system consisted of 7,631 elementary schools, with 316,877 pupils and 16,899 teachers; 852 secondary schools, with 152,294 pupils and 6,297 teachers; three state colleges and three state teachers' colleges, with 11,031 students and 469 teachers; Lincoln university (Negro), University of Missouri, (Rolla) School of Mines and Metallurgy, schools for the deaf and blind and a Negro vocational school. Hubert Wheeler was state commissioner of education.

Under the G.I. Bill of Rights and the Vocational Rehabilitation act for disabled veterans, 69,808 veterans of World War II were enrolled in schools and colleges and 21,855 were receiving job training in Missouri on Dec. 31, 1947.

Social Insurance and Assistance, Public Welfare and Related Programs.—For the year ending June 30, 1947, unemployment insurance totalled $18,320,205, and the government employment services made 107,063 placements. For the same period old-age assistance amounted to $43,931,653, aid to dependent children $7,262,505, general relief $3,672,440 and blind pensions $1,053,281; the monthly average number of persons receiving old-age assistance was 109,752, aid to dependent children 45,582, general relief 27,060, blind pensions 2,865. During the year ending June 30, 1946, the state penitentiary had an average of 2,540 inmates per day; the reformatory and industrial schools, 960. In the same period expenditures for the penal and correctional institutions amounted to $2,034,822.

Communications.—On Dec. 31, 1946, Missouri had 16,471 mi. of state highways and 100,504 mi. of rural roads. During 1946 the state highway department spent $29,504,187 (state and federal funds), of which $9,093,515 was for construction and $8,140,047 was for maintenance. On Dec. 31, 1944, railroad mileage totalled 6,882 mi. There were 965,547 telephones in use on Dec. 1, 1947.

Banking and Finance.—On June 30, 1947, Missouri had 484 state banks, with deposits of $1,988,613,000 and resources (loans and investments) of $1,857,100,000; 80 national banks, with deposits of $1,141,562,000 and resources (loans and investments) of $1,140,969,000; 163 building and loan associations, with resources of $217,085,648.

During the fiscal year ending June 30, 1947, the receipts of the state treasury totalled $173,238,984; disbursements $157,870,646. The state debt on July 1, 1946, was $59,000,000 and on June 30, 1947, $53,000,000.

Agriculture.—During 1946 cash income from crops and livestock was $867,163,000, and cash income from government payments was $26,083,000. The value of Missouri's 1946 crops was $526,094,000, and the value of the 1947 crops, harvested from 12,534,300 ac., was estimated at $526,302,000. The 1947 production of corn, oats, soybeans and potatoes was from one-third to one-half less than in 1946, principally because of a wet spring, floods in the late spring and early summer (inundating 1,409,000 ac.), and summer drought.

Table I.—Leading Agricultural Products of Missouri, 1947 and 1946

Crop	1947 (est.)	1946	Value, 1947
Corn, bu	98,441,000	163,355,000	$241,180,000
All hay, tons	4,392,000	4,214,000	70,272,000
Winter wheat, bu	24,438,000	18,195,000	57,429,000
Cotton, bales	320,000	307,000	49,600,000
Oats, bu	30,107,000	57,133,000	30,107,000

Manufacturing.—The number of persons employed in the manufacturing industries in Sept. 1947 was 356,800, an increase of 7½% over Aug. 1946, but 17% less than the wartime peak of 430,500 in July 1943. In 1939 Missouri's industries manufactured products valued at $1,388,056,267, employed 178,538 wage earners and 24,275 salaried persons and paid $190,735,851 in wages and $58,937,137 in salaries.

Table II.—Principal Mineral Products of Missouri, 1946 and 1945

Mineral	Value, 1946	Value, 1945
Lead	$30,326,416	$30,370,900
Cement	12,142,018	6,134,452
Bituminous coal	9,137,000	10,322,177
Stone (exclusive of sandstone)	8,996,440	6,055,747
Clay (raw and products)	7,221,000	3,774,478
Lime	5,931,485	5,031,222
Zinc	5,425,096	5,100,250

Mineral Production.—In 1946 the value of Missouri's mineral production was $87,100,000, an increase of 18% over 1945. (R. P. Br.)

Mohammedanism: *see* Islam.

Molotov, Vyacheslav Mikhailovich (1890–), soviet statesman, was educated at St. Petersburg Polytechnical institute and during his youth organized bolshevist student groups. He was appointed president of the soviet of people's commissars in 1930, was named foreign commissar on May 3, 1939, and signed the nazi-soviet nonaggression pact in Aug. 1939.

On May 6, 1941, Joseph Stalin took over the premiership; Molotov retained the foreign ministry portfolio and was made vice-premier. During and after World War II, he acted as Stalin's right hand in diplomatic dealings with the Allies and he headed the soviet delegation at the U.N. conference in San Francisco in Aug. 1945.

After World War II, Molotov was the Soviet Union's principal delegate at most of the major international parleys. Generally unbending and uncompromising, he engaged in frequent verbal clashes with western bloc delegates.

In 1947, he protested formally against U.S. Undersecretary of State Dean Acheson's statement that soviet policy was "aggressive and expanding," and found Secretary of State George C. Marshall's explanation unconvincing. In turn, Molotov rejected a U.S. protest against a Moscow journal's slurring reference to Pres. Harry S. Truman as a contender "for the laurels of the little corporal from Munich."

The soviet foreign minister did not conceal his hostility toward the Truman "doctrine" of U.S. aid to Greece and Turkey; subsequent enunciation of the Marshall plan, in which the U.S. would underwrite a program for the economic recovery of Europe, left him at first suspicious and later openly antagonistic, and on July 2 at a conference in Paris he turned down the Anglo-French proposals for the European recovery program.

Following the Paris parley, Molotov proceeded briskly to knit eastern European nations into a strong politico-economic bloc. This policy, aided by speedy soviet negotiation of trade treaties with nations in its orbit, was loosely called the "Molotov plan."

The failure of the London conference of foreign ministers at the close of 1947, was blamed on the U.S.S.R. by Marshall. Molotov, however, said the responsibility must be placed on the "U.S. ruling classes," contending that only soviet Russia wanted the parley to end in a peace treaty.

Molybdenum. The molybdenum production of the United States, as reported in the following table, accounted for 80%–90% of the world output.

Metal Content of Molybdenum Concentrates, 1939–46

(In millions of pounds)

	1939	1940	1941	1942	1943	1944	1945	1946
Production	30.32	34.31	40.36	56.94	61.67	38.68	30.80	18.22
Shipments*	32.42	25.33	38.38	66.44	53.96	39.42	32.52	16.30
Consumption	?	?	16.9†	56.39	49.89	31.52	32.70	14.99
Stocks	?	?	?	?	20.16	23.31	21.65	?
Industrial	?	?	21.22	12.54	17.99	19.34	16.90	19.26
Metals reserve	—	—	?	?	2.17	3.97	4.75	?

*Including exports. †Second half only.

Demand declined sharply after the close of World War II, and the 1946 output was the lowest after 1936. Even so, production was kept in advance of consumption, and heavy additions were made to stocks, which at the end of 1947 stood at considerably more than a year's supply at the existing rate of consumption.

The operating rate was stepped up in 1947, giving 20,820,500 lb. of metal content of concentrates turned out in the first three-quarters. Shipments also improved, to 14,857,100 lb. of contained molybdenum, but consumption in the second and third quarters was at a rate of 22,500,000 lb. a year. (G. A. Ro.)

Monaco. A principality on the Mediterranean coast, bounded on the land side by French territory. Area: 375 ac. (0.59 sq.mi.); pop. (1946 census) 19,242. Chief towns: Monaco (1,854), La Condamine (9,421), Monte Carlo (7,967). Language: French. Ruler: Prince Louis II.

History.—In June, celebrations of the 25th anniversary of

Prince Louis II's reign took place. The state of war with Germany was ended by decree on Sept. 1. (J. RA.)

Education.—(1947) Primary schools 9, scholars 1,960; secondary schools 3, scholars 559.

Finance.—Revenue (1946) frs. 262,000,000; expenditure (1946) frs. 242,000,000. Currency French francs, 1 franc=0.841 cents U.S. (July 1947).

Tourist Industry.—(Aug. 1945–July 1946) Visitors to hotels and boarding houses 39,779. The chief manufactures are perfume and pottery.

Monazite. The supply of monazite in the United States, obtained from imports from India and Brazil, increased from 384 short tons in 1944 to 549 tons in 1945; since monazite is one of the source materials for atomic energy, government regulations prevented the publication of the 1946 imports. (G. A. RO.)

Monetary Units: *see* EXCHANGE CONTROL AND EXCHANGE RATES.

Mongolia (OUTER AND INNER). A vast, arid, sparsely settled tableland in northeastern Asia, bounded north by Siberia, east by Manchuria, west by Sinkiang, south by the Chinese provinces of Kansu, Shensi, Shansi and Hopei. The portion next to the Great Wall of China and south of the Gobi desert is known as Inner Mongolia; it is a part of China. Outer Mongolia, north and west of Inner Mongolia, is an independent nation. Area (Outer and Inner Mongolia): 956,844 sq.mi. Pop. (est.): between 6,000,000 and 8,000,000. Lack of water, type of soil and the short growing season make agriculture impossible in the greater part of the area. The chief industry is grazing and the Mongols live a nomadic life, moving wherever water and pasture are available. Religion: Lamaism, a variety of Buddhism. Of the male population 30% live in lamaseries.

Outer Mongolia.—Pop. (est. 1941) 900,000; area 580,158 sq.mi. Capital, Ulan Bator (formerly Urga) (100,000). In the treaty of Aug. 1945 with the U.S.S.R., China agreed to recognize the independence of Outer Mongolia if this met with the wishes of the people of the area. China officially recognized the independence of the Mongolian People's Republic on Jan. 5, 1946, after a plebiscite had been held. In Feb. 1946 treaties were concluded with China and the U.S.S.R. In June and July of 1947 there were border skirmishes between Chinese and Mongolian forces in the Peitashan region of Sinkiang.

The application of the Mongolian People's Republic in June 1946 for membership in the United Nations was rejected by the Security council in 1946 and again in 1947 after the general assembly had recommended reconsideration. The U.S.S.R. strongly supported the application. China opposed it, charging the Mongolian People's Republic with invasion of the Chinese province of Sinkiang, while the United Kingdom and the United States voted against it on the ground that no information regarding the country was available and that its independence had not been proven.

Economic and Social Developments.—All processing of agricultural products, power plants, mining and even such minor industries as automobile repair and printing are in the hands of state combines. Land and all natural resources are nationalized. State co-operatives produced goods valued at 64,000,000 tugriks in 1941, and in 1940 handicraft co-operative organizations turned out goods valued at 19,000,000 tugriks (1 tugrik= $.5146 U.S.). Soviet sources reported 163,000 ac. under cultivation. In 1941 there was a total of 27,000,000 head of cattle. In 1944 there were 285 primary schools, 36 secondary schools, 8 technical schools and 190 nomad schools. In 1947 there were 90 hospitals, 52 dispensaries and 234 medical centres.

Government.—The constitution drafted in 1940 established a government strikingly similar to the soviet system of the U.S.S.R. The supreme organ of the state is the Great Hural which is elected by the hurals of the provinces and the hural of Ulan Bator. The constitution specifies that it must meet at least once in three years. A second body, known as the Little Hural, is elected by the Great Hural and serves as the supreme organ of government when the former is not in session. The Little Hural chooses a presidium of seven members which functions in its place when it is not in session. The administrative functions are carried on by a council of ministers whose membership consists of the heads of the ten departments of government. Local government is based on a system of hurals of the various geographical subdivisions. All men and women 18 years of age or over have the right to vote.

Inner Mongolia.—Inner Mongolia is a part of China and includes the provinces of Jehol, Chahar, Suiyuan and Ningsia. Chinese reside in the cities and on the farms while the Mongols predominate in the grazing areas.

The area was occupied by the Japanese in 1937 and organized into a new state, Menchiang. On the surrender of the Japanese forces in Aug. 1945, most of Chahar and Jehol were taken over by the Chinese communists. On Oct. 11, 1946, Chinese nationalists captured Kalgan, capital of Chahar. There were no major changes in the military front in Inner Mongolia in 1947. In July the nationalist armies were forced to evacuate Peipiao, Jehol rail and coal centre. The success of the nationalists in holding most of the territory they had captured was attributed to Gen. Fu Tso-Yi who was able to mobilize the people in the district into well-trained militia. At the close of 1947 the communists controlled the northern section of Chahar and most of Jehol. The nationalists controlled Suiyuan, Ningsia and the southern half of Chahar.

According to Chinese estimates, the population of Inner Mongolia was more than 7,000,000. Principal products of the area are wool, furs, coal, iron, opium, cereals and linseed.

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Montana. A northwestern state of the United States, popularly known as the "Treasure state." Land area 146,316 sq.mi.; water area 822 sq.mi.; pop. (1940): 559,456 (1947 est., 582,300); principal cities (1947 pop. est.): Helena, the capital (18,000); Butte (39,000); Great Falls (38,000); Billings (32,000); Missoula (22,000); Anaconda (13,600); Bozeman (12,500); Kalispell (14,000). Of the total population in 1940, there were 540,468 whites, of whom 484,826 were native born and 55,642 were foreign born. The urban population was 211,535 or 37.8%. The Indian population numbered 16,841.

History.—Incumbents in the principal state offices in 1947 were: Sam C. Ford (Rep.), governor; Ernest T. Eaton (Rep.), lieutenant governor; Sam W. Mitchell (Dem.), secretary of state; R. V. Bottomly (Dem.), attorney general; George P. Porter (Rep.), treasurer; John J. Holmes (Dem.), auditor; Elizabeth Ireland (Rep.), superintendent of public instruction. In the 1946 elections the veteran statesman Burton K. Wheeler, seeking a fifth term in the United States senate, was defeated in the primary by former Associate Justice Leif Erickson who in turn lost in the general election to Zales Ecton (Rep.). Mike Mansfield (Dem.) and Wesley D'Ewart (Rep.), were re-elected representatives to congress. Paul T. Smith (Dem.), was elected railroad and public service commissioner, and Frank Murray (Dem.), clerk of the supreme court. Hugh Adair and Lee Metcalf were elected to the supreme court on a nonpartisan ticket. Elections for the state legislature returned strong Republican majorities in both houses.

Education.—There were 1,467 elementary schools in Montana in 1947, with an enrolment of 68,278 and a teaching staff of 3,382. There were 179 high schools with 27,650 students and 1,333 teachers. The net amount spent on the operation of these schools was $17,095,758. After a careful state-wide study of public elementary and secondary schools, made by a special commission of nine members, a bill was introduced into the legislative session in 1947 providing for sweeping changes in school district organization and financial methods, but was rejected.

Social Insurance and Assistance, Public Welfare and Related Programs.—Approximately 19,500 persons received public assistance in 1947. Grants totalling $7,347,141 were distributed as follows (figures in parentheses indicate the average number of recipients per month): old-age assistance (10,696) $4,892,190; aid to dependent children (4,413) $1,344,405; aid to needy blind (396) $191,909; subsistence (1,242) $404,170; medical care (375) $64,331; hospitalization (428) $409,552; burials (39) $40,584. Unemployment benefits of $919,106 were paid to 7,934 persons, an average of $14.39 per week for 8.05 weeks, or $115.84 per claimant. Correctional institutions with their average populations and total expenditures in 1947 were: Montana state prison, 364 inmates, $263,372; state industrial school, 76 inmates, $93,095; vocational school for girls, 36 inmates, $53,248.

Communications.—In 1947, the state highway commission maintained 8,756 mi. of highways, of which 1,222 mi. were unsurfaced. State highway expenditures in 1947 were $10,164,425, including federal aid. There were 95 designated airports, of which 26 were suitable for large commercial or military aircraft.

The railway mileage was 5,235 mi. The number of telephones was 93,700.

Banking and Finance.—There were 110 banks in the state in 1947. The 39 national banks had total deposits of $279,768,000, and their total assets were $292,618,000. State banks had total deposits of $242,052,393, and their total assets were $253,229,473. There were 16 building and loan associations with assets of $18,572,851. For the fiscal year 1946–June 30, 1947, the net state income, all sources, was $45,585,968.56 and the expenditures were $40,007,481.34, plus bonds redeemed of $3,368,000. The gross debt of the state on July 1, 1947, was $4,992,000 and the net debt, $4,454,776.

Agriculture.—Unusually high prices and increased production of many principal crops boosted the total value of agricultural products harvested in Montana during 1947 to the all-time peak of approximately $288,000,000, which was $66,500,000 more than in 1946 and nearly 3 times the average value for the preceding decade. All wheat, with a value of $166,000,000, accounted for three-fourths of the gain over 1946 in the total crop value. Other grains and flaxseed were responsible for 21% of the increased value. More new land was brought under cultivation in 1947 and the acreage of crops harvested was about 380,000 more than the acreage in 1946.

Table I.—*Leading Agricultural Products of Montana, 1947 and 1946*

Crop	1947	1946
Wheat, bu.	64,325,000	62,888,000
Hay, tons	2,773,000	2,569,000
Barley, bu.	17,940,000	17,550,000
Oats, bu.	10,478,000	10,912,000
Sugar beets, tons.	893,000	891,000
Corn, bu.	2,988,000	2,520,000
Flaxseed, bu.	1,008,000	518,000
Potatoes, bu.	1,820,000	2,210,000
Dry beans, 100-lb. bags	364,000	280,000
Alfalfa seed, bu.	112,000	120,000
Mustard seed, lb.	17,360,000	38,250,000
Seed peas, 100-lb. bags	244,000	348,000

Manufactures.—The total value of manufactures (1939 census) was $151,885,026. Total employment in 1939 was 10,898, and wages and salaries paid, $15,832,241. There were no official figures on the value of manufactures in Montana after 1939, but reports of the state unemployment compensation commission show that an average of 17,000 persons (wage and salary earners) were employed in manufacturing in Montana in 1947 with total wages of about $40,000,000. For the year 1947 electrical power to a total of 2,779,116,000 kw.hr. was generated in the state.

Table II.—*Industrial Products in Montana, 1946 and 1945*

Products	1946	1945
Cheese, lb.	3,470,000	4,172,438
Butter, lb.	9,453,000	9,899,081
Ice cream, gal.	2,797,000	1,588,491
Beet sugar, tons.	117,000	128,000
Flour, sacks	4,121,000	3,426,383
Mill feed, lb.	142,760,000	132,996,509
Beer, bbl.	271,469	265,000
Gasoline, gal.	177,463,481	159,491,392
Electric power generated, kw.hr.	2,315,056,000	2,318,036,000

Mineral Production.—Increased production in most metals, coupled with increases in the prices of silver, copper and lead, brought about a marked improvement in most phases of Montana's metal-mining industry in 1947 and reversed a four-year downward trend with a 57% over-all gain in the total value of the five metals. Zinc production increased 155%, lead 87%, silver 82% and gold 23%. Copper production showed a decrease of 1%.

Table III.—*Principal Mineral Products of Montana, 1947 and 1946*

Mineral	Value, 1947	Value, 1946
Copper	$24,087,250	$18,947,844
Zinc	10,009,350	4,091,880
Silver	5,386,560	2,644,697
Lead	4,526,000	1,805,040
Gold	3,024,000	2,467,745
Total value	$47,033,160	$29,957,206

Crude oil production in Montana in 1947 totalled 8,705,607 bbl. as compared with 8,801,000 bbl. in 1946. The coal tonnage produced was 3,131,625 in 1947 and 3,800,000 in 1946. Natural gas deliveries to pipe lines at wells in Montana fields were approximately 32,000,000,000 cu.ft. each year. (E. E. B.)

Montenegro: *see* YUGOSLAVIA.

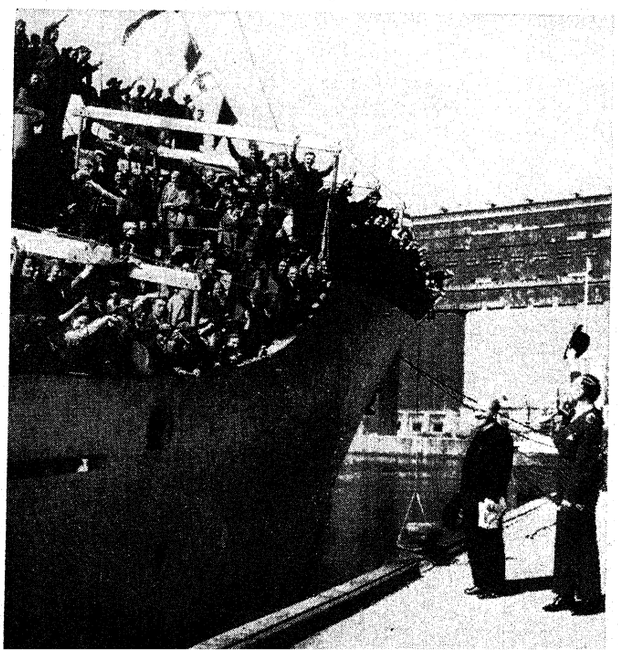
Montgomery of Alamein, Bernard Law

Montgomery, 1ST VISCOUNT, OF HINDHEAD (1887–), British army officer, was born in London on Nov. 17, and was educated at St. Paul's school. He served in France in World War I, and in World War II led the 8th army from Egypt to Tunis and in the landings in Sicily and Italy. He was later in command of the 21st army group in the operations in northwest Europe. In 1946 he succeeded Field Marshal Viscount Alanbrooke as chief of the imperial general staff. His main duties were to adapt imperial defense to the conditions of reduced British forces.

At the invitation of Marshal of the Soviet Union Alexander Vasilevsky he visited the U.S.S.R. in Jan. 1947 where he saw methods of Russian military training, and was received by Stalin, who gave a dinner in his honour. In May, on the anniversary of their liberation, he visited the islands of Jersey and Guernsey. In the summer he visited British troops in Palestine, India, Ceylon and Singapore, and as the guest of the New Zealand and Australian governments visited the two dominions. Continuing his tours of foreign countries, in the autumn he went to Rhodesia and the Union of South Africa. In the late summer, on his return from the far east, he was concerned with problems of reducing the size of the armed forces. His own account of the conduct of the campaign in northwest Europe was published under the title *Normandy to the Baltic.*

Montreal. A city in the province of Quebec, Canada, first called Ville Marie, founded in 1642 on the site of the Indian village of Hochelaga, Montreal is on an island at the confluence of the Ottawa and St. Lawrence rivers, approximately 1,000 mi. from the Atlantic ocean and 2,760 mi. from Liverpool. It is at the head of ocean navigation and is the terminus for vessels from the Great Lakes. It is served by three canal systems—the St. Lawrence canals (1,230 mi. to the Great Lakes),

DR. J. D. VAN ROYEN, Netherlands ambassador to Canada, waving to immigrants arriving at Montreal, Que., in 1947. Arrangements were made in June for the admission of 1,000 Netherlands agricultural workers



the eastern United States canals, via the Richelieu river and Lake Champlain (length 127 mi.) and the Ottawa river canals (length 119 mi.).

The population of the city proper, as estimated by *Lovell's Directory* (1947), was 1,376,462, and of greater Montreal 1,594,712.

The city is governed by a mayor and a council of 99 members, of whom one-third are appointed by public bodies, one-third elected by the property owners and one-third by the citizens generally. The mayor is elected by the citizens. The council appoints from among its members six councillors to act as an executive committee.

Greater Montreal is supervised by the Metropolitan commission, on which the city and suburban municipalities are represented.

The port of Montreal is the largest in Canada. Deep-sea-vessel arrivals in 1947 (commercial) numbered 898, with a net tonnage of 3,512,366. The number of coastal- or inland-vessel arrivals (commercial) in 1947 was 2,408, with a net tonnage of 2,415,886. In addition there were noncommercial vessels (such as warships, pleasure boats, yachts, etc.) numbering 127, with a net tonnage of 20,285.

The assessed value of real estate, as of April 30, 1947, was $1,294,413,315, of which $944,646,993 was taxable and $349,766,322 was exempt from taxation. In 1947 building permits were issued for 2,909 new buildings having a value of $41,484,882, and for 2,662 repairs, having a value of $9,797,645.

Bank clearings for 1947 were $13,062,526,776. (J. A. Ma.)

Montreal, University of. The French University of Montreal provided physical facilities in its spacious buildings for many congresses and conferences held in the Canadian metropolis throughout 1947; chief among them were the pest control operators, the World Congress of the Young Christian Workers (J.O.C.) with delegates from the five continents taking part in the deliberations, the International Conference bureau, the Action Sociale Catholique (L.I.C.).

A subscription campaign was launched in October to provide the funds necessary to execute the plans drafted for the completion and development of the university, an objective of $11,000,000. The whole population of Montreal and neighbouring counties, without distinction of social rank or creed, immediately responded to the call for support.

The university was the recipient of several gifts apart from the subscription, chiefly a bequest of $100,000 willed by Angelina Ritchot.

The institute of experimental medicine and surgery was housed in its proper quarters in September.

Lectures were given by members of the *Académie Française:* Emile Henriot, Etienne Gilson, Dr. Pasteur Vallery-Radot.

(O. M.)

Montserrat: *see* Leeward Islands.

Mormons. The year 1947 was the centennial of the arrival of the Mormon pioneers in Utah under Brigham Young (July 24, 1847). Celebrations of this event were held throughout the state during 1947 under the direction of a commission appointed by the governor and presided over by President David O. McKay of the First Presidency.

During the year the church accelerated its efforts to amplify its welfare program. Besides the help it extended to the needy in the U.S. and Canada (99,602 lb. of clothing and 8,742,386 lb. of food), it sent to European war-stricken countries 2,200,544 lb. of food and clothing, mostly to Germany, but also to Austria, Belgium, England, Finland, France, the Netherlands and Norway. The bulk was produced under the welfare plan; a small percentage was purchased on the open market.

Building operations were intensified. In 1947, 70 meeting houses (chapels) were under construction, at costs running from $10,000 to $200,000 each. Commitments had been made for more than 500 other meeting houses at approximately the same costs.

Activity among the priesthood organizations of the church (all male members twelve years of age and over hold some grade of the priesthood) was intensified with a view to bringing about a feeling of stronger brotherhood among the members. (*See* also Church Membership.) (J. R. Cl.)

Morocco: *see* French Overseas Territories; Spanish Colonal Empire.

Mortgages, Farm: *see* Agriculture; Farm Credit Administration; Farmers Home Administration.

Mortgages, Home: *see* Housing.

Moscow. The year 1947 was likely to prove a decisive one in Moscow's history. On Sept. 7 the whole of the U.S.S.R. celebrated the 800th anniversary of the foundation of the city, which was marked by the bestowal of the Order of Lenin on its citizens and an order of the day from Joseph Stalin. The most significant feature of the whole affair was the stress laid on Moscow as the true and ancient capital, the mother of the centralized Russian state. For some time past there had been a steady movement toward the exaltation of Moscow above Leningrad, a movement reflected in attempts to curb the traditionally independent and experimental frame of mind of Peter's capital, and in the gradual transfer of talent to the old capital in the heart of the Russian plain—from the Academy of Sciences on the one hand to individual ballerinas of outstanding talent on the other. The 800th anniversary of the foundation of the seat of the old Muscovite princes and the first Russian tsars set the seal on this process, which underlined the affinity of the soviet regime with the isolationism and obscurantism of Russia before Peter the Great.

On the material side, the anniversary was made an occasion for announcing the resumption of the ten-year development plan for Moscow, begun in 1935 and interrupted by World War II. For the last six years, while steel skeletons of giant buildings rusted and half-completed blocks of flats steadily crumbled away, innumerable slum dwellings scheduled for demolition continued to house constantly increasing numbers. In 1947 the city council re-started work on the unfinished constructions and cleared the ground for others postponed for many years. Even the giant Palace of Soviets, planned as the tallest building in the world, was to be proceeded with, although every Muscovite had long taken it for granted that the war would provide an excuse for abandoning the project. In addition to this, other skyscrapers were planned, including a 20-story office and apartment block on the Smolenskaya; while the Academy of Sciences was to have a magnificent building on the river front and 1.2 mi. of office blocks and laboratories lining the Kaluga road. For the ordinary Muscovite, the star-shaped underground was to be provided with an outer circle which, by 1952, would bring half the population within easy walking distance of the system; three great arterial boulevards were planned to lead outward from Dzerzhinsky square; while housing space was to be increased by 1.2 sq.mi. of living space by 1950. Since Moscow had at least 2,000,000 more inhabitants than it had room for it would plainly be some time before the housing situation could prove equal to the city's new role as the so-called "cultural centre of the world." (W. E. Cw.)

Motion Pictures. U.S. box-office business held up fairly well in 1947. But box-office grosses were accounted for in part by increased admission prices, and there was growing complaint by exhibitors against the necessity of playing some outstanding attractions at advanced rates. Financial statements of the leading film companies generally continued to be healthy, though somewhat off from the high levels of 1946.

The long agitation over asserted communist influence in motion pictures at last reached its climax in the fall of 1947, with the hearings at Washington, D.C., by the house of representatives committee on un-American activities.

Among those who testified were Eric Johnston, president of the Motion Picture Association of America; producers Louis B. Mayer, of Metro-Goldwyn-Mayer, Jack L. Warner, of Warner Bros., Walt Disney, of Walt Disney Productions; director Sam Wood; among the actors were Adolphe Menjou, Gary Cooper, Robert Montgomery, Robert Taylor and Ronald Reagan.

Opinions on the extent of communist penetration differed sharply. Mayer insisted that the communists could not inject their propaganda into pictures because scripts were carefully edited to prevent this. On the other hand, Menjou charged that communists in Hollywood, though in a minority, were highly dangerous because of the sinister way in which they operated.

J. Parnell Thomas, chairman of the committee, asserted that communists had been able to insert propaganda insidiously into various pictures, but by the end of 1947, such instances had not been officially specified.

Ten Hollywood writers, directors and producers refused to state if they were communists and were cited by congress for contempt. Their cases were scheduled for court action in 1948. Those cited were Ring Lardner, Jr., Dalton Trumbo, Samuel Ornitz, John Howard Lawson, Alvah Bessie, Adrian Scott, Edward Dmytryk, Lester Cole, Herbert Biberman and Albert Maltz.

Shortly after adjournment of the committee hearings, leading film executives, meeting in New York, announced a policy of refusing to hire known communists. They discharged or suspended those of the ten witnesses cited for contempt who were in their employ. The industry feared that the communist investigation would give added strength to the movement for government censorship of films. Johnston declared on the stand:

> We insist on the right to decide what will or will not go into our pictures . . . I don't propose that government shall tell the motion picture industry, directly or by coercion, what kind of pictures it ought to make.

In the summer of 1947, the British government placed a tax of 75% on the earnings of foreign films. Repercussions in both Great Britain and the U.S. were sudden and sharp. The U.S. Motion Picture Export association voted to stop all shipments to England of American motion pictures made by its members. British exhibitors protested to their government that they could not keep their theatres open without the U.S. product because the British film makers did not turn out enough pictures to keep the theatres supplied.

Returns from Great Britain constituted the greater part of the foreign market revenue of the U.S. industry. It was estimated that approximately $68,000,000 came annually from the British market, which the new tax would reduce to about $17,000,000. In addition, the British action increasingly agitated the unsettled state of U.S. foreign markets already harassed by hindrances and restrictions. A number of countries, suffering like Great Britain from dollar shortage, considered imitative action.

J. Arthur Rank, whose productions were probably the finest to come out of England, announced a loss of $8,000,000 and a curtailment of production. This further aggravated the plight of the British theatres in the matter of obtaining sufficient product to keep their doors open.

The British tax situation, still unameliorated at the end of 1947, threatened revolutionary changes in the U.S. production structure. The loss of revenue called for stern retrenchment. Economy waves swept U.S. studios, and thousands of employees were thrown out of work. Every effort was made to acquire greater efficiency in production. The choice lay among (a) increased efficiency, (b) increased admission prices, (c) decreased quality. In the main, industry leaders hoped that the latter two possibilities could be avoided. It was apparent that superproductions, costing $3,000,000 or more, would be rarities for some time.

Tightening of revenues served to reverse the trend of several years toward increased independent production. The period of lush profits had made independent production so inviting that increasing concern had been felt by the major studios. However, during 1947, a number of independent companies ceased production. Two, Rainbow and Liberty, were absorbed by Paramount. The long and complicated litigation between David O. Selznick and Mary Pickford, Charles Chaplin and United Artists was settled out of court with Selznick selling his stock back to the company.

Late in 1947, Donald M. Nelson resigned as president of the Society of Independent Motion Picture Producers.

Protest against the 20% federal tax on theatre admissions was made by exhibitors at hearings of the house of representative ways and means committee. The American Theatres association submitted an estimate, based on theatre collections, of an average weekly attendance at U.S. motion-picture houses of 91,491,129 for the 12 month period ending April 30, 1947. The federal admission tax from film theatres for this period was estimated at $333,027,705.

Late in 1947, 20th Century-Fox's *Forever Amber* became the third of a trilogy of pictures around which violent censorship battles had raged, its predecessors being Howard Hughes's *The Outlaw* and David O. Selznick's *Duel in the Sun. Forever Amber,* based on the best-selling novel of that name, dealing with a lady of many lovers in the reign of Charles II of England, first was banned by the Legion of Decency and then given an "objectionable in part" rating after some changes had been made. In Dec. 1947, the Motion Picture Association of America tightened its production code, with emphasis on film content, titles and advertising. Crime pictures were dealt with especially.

Appeals were taken to the U.S. supreme court from the findings of the U.S. district court in New York, in 1946, in the government's antitrust action against eight motion-picture companies. The government sought to separate theatre ownership from the film companies. The distributor defendants asked revision of methods prescribed for picture distribution. Arguments on the appeals were to be heard early in 1948.

In 1947, the Production Code administration approved 365 U.S. features and 37 foreign, a total of 402. In 1946, 397 U.S. features and 28 foreign features went through the Johnston office, a total of 425, or 23 more than in 1947.

The studio strike, called by the Conference of Studio Unions in jurisdictional strife with the International Alliance of Theatrical Stage Employees, went into its second year. Peace efforts continued, and there were withdrawals and loosening of restrictions by a number of the striking organizations. But officially the strike continued in effect, although the studios showed little sign of practical harassment by the situation.

From the standpoint of type of product, the most significant development of 1947 was the filming of two pictures dealing with anti-Semitism: 20th Century-Fox's *Gentleman's Agreement* and RKO's *Crossfire.*

Gentleman's Agreement won the New York film critics award as the best picture of the year; Elia Kazan, who directed it and *Boomerang,* was voted the best director. Deborah Kerr was given honours as the best actress, and William Powell, the best actor. The Italian film *To Live in Peace* was judged the best foreign language offering of the year.

Among the newcomers to attract the most attention in 1947 were Alida Valli and Louis Jourdan in *The Paradine Case,* Richard Widmark in *Kiss of Death,* Barbara Bel Geddes in *The Long Night* and Wanda Hendrix in *Ride the Pink Horse.*

The outstanding U.S. films of 1947 included: *Gentleman's Agreement, Mourning Becomes Electra, A Double Life, Cary and the Bishop's Wife, Black Gold, Lady in the Lake, The Farmer's Daughter, Miracle on 34th Street, Life with Father, Mother Wore Tights, Cass Timberlane, The Long Night, Road to Rio, Possessed, Boomerang, Unconquered, Welcome Stranger, Bachelor and the Bobby Soxer, Perils of Pauline* and *Secret Life of Walter Mitty.*

The *Motion Picture Herald's* annual poll showed the following stars as the leading box-office attractions in 1947: Bing Crosby, for the fourth year, headed the list as the top money-maker. The other nine were Betty Grable, Ingrid Bergman, Gary Cooper, Humphrey Bogart, Bob Hope, Clark Gable, Gregory Peck, Claudette Colbert and Alan Ladd.

Academy of Motion Picture Arts and Sciences awards for 1946:

Best picture, *The Best Years of Our Lives,* Samuel Goldwyn, RKO; performances: actor, Fredric March in *The Best Years of Our Lives;* actress, Olivia de Havilland in *To Each His Own,* Paramount; supporting actor, Harold Russell in *The Best Years of Our Lives;* supporting actress, Anne Baxter in *The Razor's Edge,* 20th Century-Fox; best direction, William Wyler for *The Best Years of Our Lives;* best written screen play, Robert E. Sherwood, *The Best Years of Our Lives;* best original screen play, Muriel Box and Sydney Box for *The Seventh Veil,* J. Arthur Rank-Sydney Box-Ortus, Universal; best original motion-picture story, Clemence Dane for *Vacation from Marriage,* London Films Prods., Ltd., Metro-Goldwyn-Mayer; best art direction—black and white—Lyle Wheeler and William Darling for *Anna and the King of Siam,* 20th Century-Fox; colour, Cedric Gibbons and Paul Groesse for *The Yearling,* Metro-Goldwyn-Mayer; best cinematography—black and white—Arthur Miller for *Anna and the King of Siam;* colour, Charles Rosher, Leonard Smith and Arthur Arling for *The Yearling;* best sound recording, John Livadary for *The Jolson Story,* Columbia; short subjects—cartoon, *The Cat Concerto,* Metro-Goldwyn-Mayer (Frederick Quimby, producer); one-reeler, *Facing Your Danger,* Warner Bros. (Gordon Hollingshead, producer); two-reeler, *A Boy and His Dog,* Warner Bros. (Gordon Hollingshead, producer); best film editing, Daniel Mandell for *The Best Years of Our Lives;* best scoring of a dramatic or comedy picture, Hugo Friedhofer for *The Best Years of Our Lives;* best song, "On the Atchison, Topeka and Santa Fe" from *The Harvey Girls,* Metro-Goldwyn-Mayer (music by Harry Warren, lyrics by Johnny Mercer); best special effects, Thomas Howard, visual, for *Blithe Spirit,* J. Arthur Rank-Noel Coward-Cineguild, United Artists; best interior decoration—black and white—Thomas Little and Frank E. Hughes for *Anna and the King of Siam;* colour, Edwin B. Willis for *The Yearling;* special awards, documentary—short subject, *Seeds of Destiny,* U.S. war department; Irving G. Thalberg memorial award, Samuel Goldwyn; other special awards, Laurence Olivier for his outstanding achievement as actor, producer and director in bringing *Henry V* to the screen; Harold Russell for bringing hope and courage to his fellow veterans through his appearance in *The Best Years of Our Lives;* Ernst Lubitsch for his distinguished contributions to the art of the motion picture; Claude Jarman, Jr., outstanding child actor of 1946. (L. O. P.)

Educational Motion Pictures.—The leading producing organization in the field, Encyclopædia Britannica Films Inc., released during 1947 a schedule of 48 new subjects and announced plans for the production in 1948 of 25 additional films, making a total of more than 500 subjects available through E.B.F. During 1947, *Atomic Energy* was the largest-selling E.B.F. subject, followed by *Gray Squirrel, Adventures of Bunny Rabbit* and *Heart and Circulation.* E.B.F. also reported that its all-time best-selling subject during the 18 years of its activity had been *Sound Waves and Their Sources.* Other popular E.B.F. subjects were *Body Defenses Against Disease, Digestion of Foods, Electrodynamics, Electrons, Molecular Theory of Matter* and *Plant Growth.*

Coronet Instructional Films reported it had 120 subjects available for delivery as of Dec. 31, 1947, with 5 additional subjects scheduled for January release. Of these, 90 subjects



SCENE from *Shoe-Shine,* Italian film released in the U.S. during 1947

were available in colour as well as black-and-white. Coronet reported that 35% of all prints sold in 1947 were in colour. This amounts to nearly 50% in dollar value of Coronet sales and indicates a strong interest in colour films for educational purposes, although prints cost twice as much as black-and-white. Coronet announced a production schedule of 60 subjects for 1948, to be released at the rate of 5 a month. Coronet's most popular subjects in 1947 were those dealing with basic skills—*How to Study, Know Your Library, Maps Are Fun, Global Concepts in Maps, Spelling Is Easy, How to Read a Book* and *Improve Your Reading.* Among the new subjects made by Coronet were films on *Dancing, Secretarial Training, Powers of Congress* and *Political Parties.*

United World Films completed 19 subjects in 1947 and announced a release schedule of 67 new subjects for 1948. It was also expected that United World would soon distribute in America the first children's films being produced in England by Mary Field of the J. Arthur Rank organization, including 8 features, a 5-part serial and 18 issues of a children's film magazine, besides travelogues and nature subjects.

RKO-Radio Pictures published in Jan. 1948 a 40-page catalogue of 16-mm. versions of its most notable features, many of them recommended by the National Education Association Department of Secondary Teachers for school use, including Walt Disney features based on children's classics, as well as historical and biographical films.

Young America Films reported a total of 46 sound films and

53 slide films available at the end of 1947. Of these, 34 were exclusively Young America productions; 12 were productions of other companies, released through Young America Films. The company announced a production schedule of 15 films for 1948. Greatest in demand among Young America items was *The House I Live In,* a plea for racial tolerance, featuring Frank Sinatra and previously released to theatres by RKO. Most popular of Young America's own productions were *We the People, What Is Four?, What Makes Rain?* and *Safety to and from School.*

Teaching Films, Inc., completed, in less than a year, 9 sound films and 17 filmstrips. The company's best film was *Rhythm Is Everywhere.*

During 1947, British Information Services further developed its policy of granting on an exclusive basis the sales rights of many films to a number of dealers throughout the U.S., while retaining its own rental service for these films. One of its most successful films of the year, *Instruments of the Orchestra,* was handled in this manner. The Benjamin Britten *Variations and Fugue,* which forms the sound track, was recorded by Columbia Recording company under the title, *A Young Person's Guide to the Orchestra.* Another important British release was *Charter of the United Nations.* The sales rights are held by Films of the Nations, Inc., official distributor of United Nations Films. B.I.S. films were being increasingly used on television programs. The 15 film libraries maintained throughout the country by B.I.S. continued to distribute prints of more than 350 subjects to schools, clubs, industries, churches, adult groups and individuals.

The *Reader's Digest,* at the request of the Department of Secondary Teachers of the National Education association, released in Oct. 1947 an excellent kit of six filmstrips entitled *Our American Heritage,* for high school classes in English and the social studies, including visualizations of *The Vocabulary of Freedom* and *The Literature of Freedom,* as well as sections on the appreciation of American democracy. Within three months, the schools purchased 1,100 of these kits.

Religious films and filmstrips became increasingly available in Protestant churches. The Protestant Film commission released its first production, *Beyond Our Own,* which was well received. The Wartburg Press completed *The Way of Peace,* a colour film utilizing puppets. Hack Productions reported an increasing demand for *The Frontier Parson.* The number of productions offered by Cathedral Films, Inc., included 23 films and 23 filmstrips. Among the most notable filmstrips were those produced by The Pilgrim Press, Church Screen Productions, Church-Craft Pictures and the Department of Visual Aids of the Congregational churches. United World Films, joining the trend, announced the formation of a religious film division. *Audio-Visual Guide* published a list of 50 sources of religious films. Although William H. Mooring, motion-picture editor of *The Tidings,* official weekly of the archdiocese of Los Angeles, reported in Dec. 1947 that no worthwhile movies geared to the purposes of Catholic education had been produced, Loyola Films had launched a series of Catholic teaching films and announced the availability of 15 Biblical films for parish schools.

Most active of the organizations interested in visual education was the N.E.A. Department of Secondary Teachers. That organization launched the Audio-Visual Awards project and established the idea of an annual Audio-Visual Education week, Oct. 27–31, to measure progress of its ten-point program for improvement of audio-visual methodologies, publication of bibliographies of audio-visual materials, investigation of children's film standards, development of "pilot" schools, fostering of book-film relationships, co-operation of schools with churches and community organizations in developing children's film programs, improvement of instruction in critical appreciation of photoplays, stimulating of school-made films, and co-ordination of research studies. The program received the support of state and local authorities through proclamations of governors, mayors and boards of education. It received endorsements from the National Association of Visual Education Dealers, the Allied Non-Theatrical Film association and the Film Council of America. Manufacturers, producers, distributors and university extension authorities announced that they would present projectors, screens, films, photographic accessories, pictured encyclopaedias and other materials as practical awards to supplement the "glory" of committee citations for outstanding work, with a view to setting up demonstration centres throughout the U.S. A total of $20,000 worth of equipment had been officially promised by the end of 1947 for presentation on the anniversary of National Audio-Visual Education week, the last week of Oct. 1948. It was suggested that A-V week be made international after 1948.

The Film Council of America was organized during World War II as the National 16-mm. Advisory committee to help the treasury department and the Office of War Information boost the civilian war effort. It became known as the Film Council of America in 1946 and was made up of seven national organizations. They were: American Library association; Educational Film Library association; The National University Extension association; The National Education association; The National Association of Visual Education Dealers; The Allied Non-Theatrical Film association; Visual Equipment Manufacturers council.

During 1947 a board of trustees of nationally noted leaders in education and business was named. Nearly 100 community film councils had been formed by early 1948, and the year's goal was 350 new councils. Each of these, made up of community leaders, held regular meetings and interested other groups in using informational films at club meetings for discussion and to foster better understanding and better education.

The council appointed Thurman White of the University of Oklahoma its travelling executive director and adopted a plan to establish these local councils under the leadership of C. R. Reagan of Texas, founder and first president of the council, and Stephen M. Corey of the University of Chicago, chairman of the board of trustees. In two months of activity, the council reported the enrolment of 45 local councils as of Dec. 31, 1947.

Among the most noteworthy projects of the Film council was the Films of the World festival held in Chicago during Oct. and Nov. 1947, when for the first time in history the outstanding 16-mm. informational films produced all over the world were shown for eight consecutive Saturday afternoons. Several other cities also started film festivals of informational motion pictures before the year's end.

The 1947–48 *Anfa Year Book* listed 131 manufacturers of projectors in the audio-visual field, 178 producers, 260 sponsors of 16-mm. films, 712 film libraries and 2,330 individuals in its audio-visual directory. The 1946 *Year Book* had listed only half as many.

One of the leading 16-mm. distributing organizations, Films Incorporated, estimated in Dec. 1947 that there were 50,000 sound projectors in the schools. Its mailing lists included 35,000 schools so equipped. L. C. Larson, head of the Indiana University Film centre, predicted that the number of machines in the schools would be tripled by 1950. This would mean that the goal set by the American Council on Education—at least one projector for every 200 students—would be reached within three years.

Publishers, after many years of hesitation, were joining the audio-visual trend in considerable numbers by the end of 1947.



Above: GREGORY PECK AND CELESTE HOLM in a scene from *Gentleman's Agreement,* chosen by the Motion Picture Academy of Arts and Sciences as the best picture of 1947. Miss Holm's performance as a supporting actress was voted the best of the year and Elia Kazan's direction won a third award for the film

Right: RONALD COLMAN was chosen by the Motion Picture Academy of Arts and Sciences as the best actor of 1947 for his role as the Shakespearian actor in *A Double Life.* The musical score for the picture was voted the best of the year

Below: ANTHONY WAGER and Bernard Miles in a scene from *Great Expectations* which won the 1947 Motion Picture Academy of Arts and Sciences awards for the best art direction and best set decoration in black and white





Right: LORETTA YOUNG as the Swedish maid in *The Farmer's Daughter,* for which she won the 1947 Motion Picture Academy of Arts and Sciences award as the best actress of the year



Below, left: SCENE from *The Bachelor and the Bobby-Soxer,* written by Sidney Sheldon and voted the best original screen play of 1947 by the Motion Picture Academy of Arts and Sciences

Below, right: EDMUND GWENN playing Santa Claus in *Miracle on 34th Street.* He was selected by the Motion Picture Academy of Arts and Sciences as the best supporting actor of 1947 and the picture was chosen as the best written screen play and the best original motion picture story of the year





McGraw-Hill announced the completion of 24 films and 22 filmstrips. John Wiley and Sons announced the establishment of a text-film division. Popular Science Publishing company produced 65 filmstrips. Plans for filmstrips were also announced by Silver Burdett and by Macmillan. D. C. Heath and Co. and other firms announced correlations of projected pictures with textbooks. These publishers were wisely not expecting to derive direct profits from film production but were planning to charge their film expense to the promotion of their books and magazines.

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Technical Developments.—For more than 12 years the Academy of Motion Picture Arts and Sciences in Hollywood has had a branch known as the Research council, whose function it was to handle co-operative efforts of the industry in standards, certain equipment developments, and to disseminate technical information. The activity of this Academy Research council was taken over by the Motion Picture Research Council, Inc. This is a nonprofit activity supported by producing companies in Hollywood. In 1947, it was in the process of expanding its staff and its activities to cover all technical phases of the industry. A small camera crane, the design of which was started by the Academy Research council, was completed by the new organization, and a Hollywood manufacturing concern was expected to start delivery of these cranes early in 1948. Set lighting was to be one of the important projects under active consideration by this new group.

Standards.—The American Standards association continued consideration of the special temporary standards adopted during World War II and revised previously existing standards for the motion-picture industry. As a result, 15 new standards were approved which, with those previously approved, brought the total to 40 for this industry. Approximately 20 additional items were proposed for standardization. The A.S.A. also initiated a project on sound recording standards to include magnetic recording techniques.

Camera.—In England, G. B. Kalee successfully introduced the Newall camera, said to be similar to the Mitchell NC. A new colour camera designed for three-colour separation negatives was also introduced in England under the name British Tri-Colour camera.

Varifocal Lens.—A new varifocal or "zoom" lens was announced at the 1946 spring conventions of the Society of Motion Picture Engineers under the trade name of Zoomar. This lens was placed in use during 1947 on television, 16-mm. and 35-mm. newsreel cameras. Some spectacular results were obtained but the quality was believed not to be satisfactory for 35-mm. entertainment films. The manufacturer was reported to be working on further developments. (*American Cinematographer,* March 1947; *S.M.P.E. Journal,* Dec. 1946.)

Photography from a Helicopter.—After experimental work on suitable camera mounts, RKO, Warner Bros. and Universal used a helicopter for production photography. Although results were not entirely satisfactory, further improvements were expected to be made. (*American Cinematographer,* Sept. 1947.)

Photographic Effects.—Paramount in Hollywood developed a complicated but highly precise servomechanism and electronic recorder and repeater to permit recording and repeating the exact pan and tilt movement of a camera. This permits camera motion in certain types of process photography where previously only a stationary camera could be used. (*American Cinematographer,* Dec. 1947.)

Electronic Fire and Gas Light Effect.—Warner Bros. developed an electronic device whereby an actual gas flame being photographed (either an old-fashioned gas light or a gas burning fire) can be used to control, through a photoelectric tube and a thyratron amplifier, incandescent electric lights to produce sufficient intensity for photography while accurately following variations in the gas flame. (*S.M.P.E. Journal,* April 1947.)

Compact Source Lamp.—Two English manufacturing firms, the General Electric company and the British Thompson-Houston company developed a new mercury-cadmium arc lamp called the "compact" source. Tests were successfully made in both black-and-white and colour photography. It was expected that during 1948 these lamps would be in use for production photography. In the U.S. both the General Electric company and Westinghouse Electric and Manufacturing company were actively engaged in the development of a similar light source. This development represented one of the most important in the lighting field in a quarter of a century and was being watched with interest by producing companies. The *Journal of British Kinematograph Society* for Oct. 1947 carried an article on this new light source.

Flashtubes.—The flashtube is basically a gas-filled glass or quartz tube with two electrodes operated by the discharge from a suitable electrical condenser. While it is not new, it was considerably improved during the previous six or seven years with the result that some interest was shown in the U.S. in the possibilities of using such lamps for motion-picture photography. Reasonably successful tests were made with these lamps flashing at the rate of 72 times per second, but further development work was required in the lamps and their associated power circuits. (*S.M.P.E. Journal,* May 1947.)

Sound.—New sound recording and reproducing equipment were introduced in various countries, including Visatone and Gaumont-Kalee in England, and Western Electric and RCA in the U.S. In general, this equipment represented refinements over prewar equipment with lower flutter and distortion.

Magnetic Recording.—Before and during World War II, Germany made important strides in improving magnetic recording and reproduction from paper or plastic tapes coated or impregnated with magnetic materials. This work was continued in several countries, and in the U.S. was considered for motion-picture as well as other activities. RCA had equipment designs available for application to its photographic recording and reproducing equipment at the end of 1947. These designs permit modification of existing equipment for magnetic recording and reproduction when using a plastic base coated with magnetic material and having dimensions and perforations like 35-mm. photographic film. No commercial use was made of this equipment during the year. Incidental recordings were, however, made on nonsynchronous magnetic recorders and used by various motion-picture producing companies.

Colour.—The Agfa colour process, as developed in Germany, was said to be in use in the U.S.S.R. and Czechoslovakia, but no information on this use was available. It apparently was not used in any other countries. In the U.S. improvements in Ansco colour continued. The first 35-mm. theatrical release was a two-reel travelogue entitled *Climbing the Matterhorn,* filmed in Switzerland and released by Monogram. (*American Cinematographer,* Sept. 1947.) A feature picture entitled *Sixteen Fathoms Deep* was being produced in Hollywood by Arthur Lake Productions. The process in use by Republic Productions, Inc., under the trade name Trucolor, was improved and was reported by Eastman Kodak company to be an application of the Kodacolor principle with dye couplers in the emulsion. This film is processable by the user. Cinecolor, Inc., expanded its Hollywood plant to a capacity three times that available before the war. This company was using a two-colour process but was also working with a three-colour process which was being used for some cartoons and for 35-mm. enlargements made from 16-mm. Kodachrome. Various other colour processes were reported to be in the research laboratories but were not yet ready for commercial use.

Fifty-Millimetre Film.—It was reported that in 1946 20th Century-Fox Film corporation and several equipment and film manufacturing companies were developing a new system of motion-picture entertainment involving a film of 50-mm. width with stereophonic sound recorded and reproduced from three program sound tracks and a control track. Some additional work was done on this and several private demonstrations were made. No decision, however, was reached as to the commercial application of this film.

Sixteen-Millimetre.—The release of entertainment films in 16-mm. versions continued to grow. The importance of this release caused careful consideration in Hollywood of all of the standard equipment and techniques involved in producing 16-mm. releases from 35-mm. originals and in handling and exhibiting such prints. Among other problems being considered were: making two composite prints on a 32-mm. film arranged so that slitting down the middle produces two 16-mm. prints; also, print life as a function of projectors; film handling equipment and shipping practices.

Television.—The development of theatre television equipment was continued. One or more theatre installations were believed to have been made in England, but no such installations were made in the U.S. The possibility of applying television equipment and techniques to the production of motion pictures was also under consideration in various countries. It was believed that preliminary tests had been made in both England and the U.S. The Eastman Kodak company announced a 16-mm. motion-picture camera designed specifically to photograph a television receiving cathode-ray tube. This camera, coupled with high-speed developing processes also developed by the Eastman Kodak company, made possible a demonstration at the fall conventions of the Society of Motion Picture Engineers of the possibilities of photographing a television image on motion-picture film. RCA and Paramount were also known to have developed equipment and methods for such photography in 35-mm.

Mexico.—The industry in Mexico continued to develop with the full facilities of the Churubusco studio, including its laboratory, becoming available. The Tepeyac studios, built during 1946, were found to have structural troubles in their stages which necessitated a major rebuilding program which was completed by the close of the year. This studio, with its laboratory, was expected to be in full operation in 1948.

South America.—Argentina had not overcome the handicaps of the war years, but with the new building program projected for 1948 was expected to produce 60 feature pictures that year, as compared with 58 before World War II. A new branch of the motion-picture industry was growing in Brazil. Activities already under way and projected for the near future indicated the possibility that Brazil might well become an important producer of motion pictures. (W. V. W.)

Canada.—The National Film board was active throughout the year, producing not only commentaries on Canadian life but also special films such as *File 136,* an account of royal Canadian mounted police activities, *Red Runs the Fraser,* the salmon run, and *The Feeling of Rejection,* a study in psychiatry commended by the American Medical association. Organized as the responsibility of one of the cabinet ministers, steps were taken to establish the NFB as a crown company with a budget of its own and make it responsible directly to a parliamentary committee.

The only active large-scale private film producing company was Quebec Productions Corp., Montreal. It took over a mili-

tary camp at St. Hyacinthe and converted barracks into studios and sound stages. One 1947 production was experimentally filmed in two languages simultaneously. There were two sets of actors, one doing a scene as soon as the other had finished. This was *La Forteresse* in French and *Whispering City* in English, a thriller with a Quebec city setting.

In 1946, 227,538,798 Canadians spent nearly $60,000,000 on admissions to 1,477 movie houses. British Columbia had a per capita expenditure of $8.10; Ontario came second with $7.56; and Prince Edward Island was ninth with $3.17. (C. Cy.)

Great Britain and Europe.—There were widespread activities in European film production during 1947, in spite of the economic problems that affected most of the film industries. Most of the leading countries of Europe wished to consolidate their film industries and expand their production. Their problem was the universal one, lack of sufficient raw materials and equipment necessary to the manufacture of high quality motion pictures. The United Nations Educational, Scientific and Cultural organization *Report on the Commission on Technical Needs,* published in Paris, Sept. 1947, examined these deficiencies in ten European industries, especially in the case of France, the most severely pressed of the more important film-producing nations. Nevertheless, culturally and artistically speaking, the European industries were progressing. A number of international film festivals were held during 1947 at Cannes, Prague, Vienna, Locarno, London and Edinburgh, and most notably at Brussels, where many countries received awards for various aspects of their filmcraft at a festival sponsored by the Belgian government. Among the year's international film conferences should be included that at Brussels for film critics, that at Paris for film scriptwriters and that at Prague for film technicians.

The major problem for Britain during 1947 arose when the British government, for long under fire for spending too many of its scarce dollars on film importation from the United States (some $70,000,000 a year as against some $30,000,000 prewar), imposed in August a 75% tax on the potential takings of imported films intended for normal exhibition throughout the country. (The immediate result of this decision in both the U.S. and Great Britain is described in the U.S. section, above.) British producers, also, were faced with a possible falling-off in their overseas market, particularly in the distribution of British films in the United States; there was a general feeling that with rising production costs the less ambitious type of feature film would take the floor in 1948 and that higher-budget pictures would be virtually eliminated once existing commitments were cleared. Documentary film sponsorship (still largely, though not entirely, a governmental affair) was going through a new stage of enquiry to save waste and delays. Nevertheless, some 200 reels of finished documentary subjects were completed for the central office of information.

In spite of these problems of finance and administration, some important productions appeared during 1947. They include: *Great Expectations* (director, David Lean), *Odd Man Out* (Carol Reed), *School for Danger* (Wing-Commander E. Baird), *Hue and Cry* (Charles Crichton), *Black Narcissus* (Michael Powell and Emeric Pressburger), *Take My Life* (Ronald Neame), *They Made Me a Fugitive* (Alberto Cavalcanti), *Frieda* (Basil Dearden), *Holiday Camp* (Kenneth Annakin), *The October Man* (Roy Baker), *Fame Is the Spur* (Roy Boulting), *Captain Boycott* (Frank Launder) and *The End of the River* (directed by Derek Twist, mostly in Brazil). Among production experiments were two feature-length films for children, *The Little Ballerina* (Lewis Gilbert) and *Bush Christmas* (made by Ralph Smart entirely in Australia). British production units worked in several European countries for films to be released in 1948, and some important productions were completed, including among others: *Hamlet, Oliver Twist, Anna Karenina, Brighton Rock, Red Shoes, Scott of the Antarctic* and *Vice Versa.* Documentaries included *The World Is Rich* and *A City Speaks* (Paul Rotha), *A String of Beads* (Ralph Keene), *The Cumberland Story* (Humphrey Jennings) and the excellent series *This Modern Age,* sponsored by the Rank organization.

In France the economic crisis increased the over-all production cost of feature films by 10.7 times, but the average rise in theatre admission prices was only 3.9 times. Attendance at theatres, however, rose 40% above the prewar figure. The industry was further burdened by crippling taxation. The production of feature-length films was estimated at 45 for 1947, as against 94 in 1946 and 113 in 1938. Nevertheless, France was still in the van of production, winning the major award with *Le Silence est d'Or* (René Clair) at the Brussels festival, and releasing a number of important films during the year, including: *Les Portes de la Nuit* (Marcel Carné); *Le Bataillon du Ciel* (Joseph Kessel); *Le Diable au Corps* (Claude Autant-Lara); *Copie Conforme* (Jean Dreville); *Voyage Surprise* (Pierre Prévert); *Les Maudits* (René Clement); and *Antoine et Antoinette* (Jacques Becker). The French producers seemed to share with other European film makers the desire to increase the psychological realism of their films.

Russian production began to revive after the severe reduction in film making occasioned by war and invasion. Undoubtedly the most important event during 1947 was the opening in Moscow in February of the first theatre permanently equipped to project stereoscopic films, the outcome of 12 years' research work by the engineer Semen Ivanov. He replaced his prewar grid screen by one of a new type. The first feature film to be released was *Robinson Crusoe* (director, A. N. Andreevski), and the new screen and its effect was described in this way by Gordon Macleod: "It was only when Crusoe in his shipwreck throws a rope to a drowning sailor that you get the first shock. The rope comes hurtling and curling right out of the screen into the darkness over your head. At you! You duck. We all did. After that we were ready for anything. . . . Sometimes the foreground itself comes alive. As Crusoe advances down a corridor of undergrowth, the camera tracks backwards in front of him. Out in the auditorium about three rows in front of you, leaves and lianas materialize in the air, dangle and dance, and float away into Crusoe's face. Parakeets and small birds sit on them; or fly out at you from the screen and vanish over your head; or form themselves out of nothing into a cluster of wings in the darkness. Their musical chattering is also in the air all round you and there is no need here as in an ordinary cinema to adjust this depth of sound to the flat conventions on the screen several yards away." (From the British Film institute's journal *Sight and Sound,* autumn 1947, p. 118, London.)

Among other soviet films of 1947 were *The Vow* (M. Chiaureli), *Admiral Nakhimov* (V. I. Pudovkin), *The Stone Flower* (A. Ptushko, in Agfacolor), *Glinka* (L. Arnshtam) and *Cruiser Varyag* (V. Eysmont). There was also an increase in the number of feature films intended to popularize science, led by Alexander Dovzhenko's *Mitchurin,* the biography of a well-known Russian scientist.

One of the interesting movements in Europe was the attempt, official and otherwise, to encourage widespread national film production. Portugal, Holland, Belgium, Norway, Hungary, Greece, Rumania, Bulgaria, Yugoslavia and Poland (the two latter with nationalized industries) were among countries developing or planning film making, while Denmark, a pioneer centre for production 40 years ago, was reviving its industry after a temporary boom in production, 1940–45 (90 feature films).

More important were the old-established production centres of Sweden and Czechoslovakia. Film making in Sweden was

based in Stockholm, and pictures were made at an average cost of $80,000; colour films were beginning to be produced both in Cinecolor and Technicolor. In all, Sweden produced as many as 50 feature films in a year. Important films included the comedian Nils Poppe's *The Balloon* and *Mr. Cinders* and the dramatic actor Stig Järrel's production *Wicked Eyes*. The outstanding director in Sweden was probably Alf Sjöberg, famous as the director of *Frenzy* (*Hets*).

Czechoslovakia produced about 40 feature films a year before World War II. During the war the nazis renovated and enlarged the studios at Barrandov near Prague, making them probably the finest in Europe. These studios were used for the production of German films until Czechoslovakia was liberated. The Czechs nationalized their film industry in Aug. 1945, produced 12 feature films in 1946 and planned to double this output in 1947. They were also concentrating on the production of admirable puppet and cartoon films (many in Agfacolor) as well as documentary and educational pictures. A film technical institute was founded to train technicians for the studios.

Finally, it is necessary to note the revival of film production in Germany and Italy. Germany's film companies operated under licence from the occupying powers; D.E.F.A. (*Deutsche Film Aktion-gesellschaft*) operated under soviet authority and Studio 1945 under British authority, while Erich Pommer, the celebrated pioneer producer of the German theatre before Hitler and now a U.S. citizen, took charge of production on behalf of the U.S. authorities. The first feature films began to appear during 1947. Production was also reviving in Austria.

One of the most remarkable artistic revivals of 1946–47 took place in Italy, particularly in the films of Roberto Rossellini, *Open City* and *Paisa*. These films, together with Luigi Zampa's *To Live in Peace,* Vittorio de Sica's *Shoe-Shine* and Aldo Vergano's *The Sun Still Rises,* achieved a high place in the European film festivals during the year. U.S., British and French companies also made films in Italy. (R. MAN.)

Motor-Boat Racing. One of the outstanding achievements in motor-boat racing in 1947 was the record piled up by 29-year-old Daniel Foster, from California, driving the Allison-powered, Ventnor-designed Gold cup class hydroplane "Miss Peps V," owned by Walter, Roy and Russell Dossin, brothers, of Detroit, Mich. Foster became the first driver in history to win the President's cup, the national sweepstakes and the Gold cup all in one season.

In the 135-cu.in. hydroplane class, Tommy Caldwell's "Blue Blazes" set a new mile record at 88.782 m.p.h. and Bob Sykes, driving Burney Edwards' "Mighty Chevron," raised the five-mile competition record to 70.588 m.p.h.

Division II of the 225-cu.in. class, with an engine price limit of $600, actually outstripped Division I, with a $900 limit to which no new engines were built. No new racing outboard motors appeared either, but competition was keen.

The racing runabout classes were active, and Frank Foulke, with "Sagana," set several new Class D records, including one of 58.245 m.p.h. in competition, which was two miles over the Class K record made with far more powerful engines.

In England, Sir Malcolm Campbell attempted to better his world's motor-boat speed record of 141.74 m.p.h., with his "Blue Bird," equipped with a jet motor, but the boat proved unstable at high speeds and the tests were postponed pending alterations.

Speedboat racing was revived to a limited extent in France with no outstanding developments. (H. L. ST.)

Motor Transportation. Like all other forms of industry, transportation by bus and truck felt the impact of economic forces in the rising cost of doing business. This was particularly true of bus operations both as regards the upward trend of wages and the price of materials and supplies. In one respect, however, the motor transportation industry was fortunate. The bottlenecks that were retarding the flow of new vehicles and supplies to the industry were eased. This made it possible to further the plans designed by many companies to carry forward their plans for replacements which have made it possible to operate more economically.

Production Figures.—The production of new vehicles was speeded up. In the bus field production of new vehicles gave promise, according to preliminary figures compiled early in December, of reaching a mark of 19,000 for transit or city type buses, 5,000 of the intercity type, 850 trolley buses and about 17,000 school buses. These figures indicate 1947 as the largest bus production year in the history of the industry. Manufacturers also predicted an all-time record in the production of motor trucks. As the year drew to a close truck production for the year was estimated at 1,500,000 vehicles. This compares with 805,260 for 1942, 667,150 for 1943; 749,488 for 1944; 668,570 for 1945; 940,553 for 1946.

New production records were also made in tires. The year's production of tires was estimated in December to be in excess of 101,000,000. Of these it was estimated that 78,000,000 were for passenger cars; 18,000,000 for trucks and buses; 5,000,000 for farm units. The 1,100,000 ton consumption of rubber by the industry in 1947 compares with 1,034,000 in 1946, the previous record. Of the 1947 figure of rubber consumption about 74% went into tires. Consumption in 1947 was about 50–50 natural and synthetic.

City and Intercity Bus Operations.—City bus companies as well as city-suburban and intercity short haul or suburban carriers found it increasingly difficult to keep the cost of service within the limits of operating revenue. Traffic declined to some extent, but even with higher fares the revenue from operation was not enough for comfort, as it was too close to the cost of service. As an offset to these higher costs the tendency among city and city-suburban companies was to seek fare increases. This was particularly true among companies both privately owned and city-operated in the larger cities. Among the first were the municipally-owned carriers in Detroit, San Francisco, Cleveland and Chicago. In all instances the need was paramount to adjust fares and not to discourage riding. In short the companies were called upon to operate as economically as possible, but at the same time to do so in a manner that would keep the service attractive to the consumer. In general the same factors that affected the city companies governed the outlook of the intercity carriers in the problems they faced, but the intercity carriers were in a much better position to fit their service to passenger demand than were the local types of carriers. Moreover, the intercity carriers benefitted in passenger appeal by the spread between their rates and the rates of the competing carriers. Long-haul intercity companies enjoyed a better profit position than either of the two groups of local carriers that were asking for fare increases. During the year the Interstate Commerce commission initiated an inquiry on its own motion into the basis of rates charged by the interstate motor bus carriers. Regional hearings were held in Boston, Seattle, San Francisco and Atlanta. Other hearings were to be held in the early part of 1948.

Truck Facts.—Like the bus industry, the truck industry felt the impact of higher costs and higher wages with the result that the operating ratio and the expenditure relationship of expenses to gross revenue of Class I motor carriers of property, all types, for the year 1946, based on Interstate Commerce commission figures, was 96.1% and only three and nine-tenths cents of net revenue out of every dollar of gross revenue was left. After

1938 the operating ratios were 95.1 for 1939; 95.6 for 1940; 95.1 for 1941; 94.2 for 1942; 96.2 for 1943; 97.2 for 1944; 99.3 for 1945. The figures of truck registration by states, including private and for-hire trucks for three years, were 1943, 4,480,176; 1944, 4,513,340; and 1946, 4,834,742. It was estimated that during 1947 trucks were giving employment to 5,500,000 men and that there were then 24,000 commercial fleets of 8 trucks or more, with some 4,000 companies hauling furniture alone. Farmers owned more than 2,000,000 trucks whereas at the beginning of World War I there were fewer than 350,000 trucks in the United States. The American Trucking association reporting in Nov. 1947 pointed out that truck loadings had reached a record high in the first nine months. The increased pressure of mounting costs led to a consideration of rate boost proposals by motor carrier members of at least nine motor tariff bureaus.

School Bus Service.—Approximately 82,000 buses were used daily to transport children to and from their schools during the year 1947. Research revealed that all states had adopted in some measure the standards recommended by the National School Bus conference and incorporated them into the state law. As the nation-wide automobile accident toll rose throughout the year, greater emphasis was placed on the training of school bus drivers and the necessity for correct maintenance procedure of existing vehicles. Several states continued experiments with school children as drivers and, on the whole, found them to be safer than adult drivers. Almost all states were in need of new school buses and if the demand were fulfilled, the nation should see a complete replacement fleet of school buses within the next five years.

Taxes and Road Building.—Eighteen states adopted constitutional amendments to assure that motor vehicle user taxes are applied exclusively for road purposes and a number of other states took initial steps toward this same end. In still other states these funds were dedicated to highways by statute. The fact remained, however, that many states still practiced what was generally known as diversion of their motor vehicle tax revenue. As for road building 32% of postwar federal-aid highway funds, apportioned to the states under the 1944 federal-aid act, were under contract as of Oct. 1, 1947—24 months after the time the first funds were made available to the states. The dollar amount of contracts awarded was $471,000,000 federal funds for a total cost of $942,000,000 of construction after dollar matching by the states. Of this amount, projects completed accounted for $118,000,000 in federal funds, or 8% of the apportionment to the states. The total construction cost was $236,000,000. Also included in the total contracts awarded for projects actually under construction was $304,000,000 in federal funds with a total cost of $611,000,000. To counteract spiralling prices, the state highway departments and Public Roads administration adopted a policy which resulted in the rejection during 1946 of bids for work estimated to cost $141,000,000, or about 22% of all bids taken. During 1947 an attempt was made to hold the price level and highway costs did not advance much beyond the 1946 level.

Except for gasoline tax increases in 8 states the industry fared well at the hands of the 44 state legislatures in session early in the year. Size and weight limitations were increased in a number of states. In others new legislation provided broader authority in the making of reciprocal agreements, while changes, mostly of a minor or clarifying nature, were made in the regulatory laws of several other states. Encouragement for the future of transportation by truck and bus was found in the co-operative efforts being made jointly by groups of highway users and public officials. A constructive move was the appointment of a joint Committee on Sizes and Weights of Motor Vehicles by the Motor Transportation committee of the American Association of State Highway Officials and several national organizations representing the users and manufacturers of motor vehicles and motor vehicle equipment.

Substitutions of Service.—One of the questions asked frequently is the extent to which buses and the trolley buses have replaced streetcars, particularly in city service. The vast system of interurban electric railway lines has passed out of the picture, supplanted by buses. Even in the large cities buses continued to make inroads on the streetcar. Streetcars of the so-called P.C.C. (Presidents' Conference Committee) type, the latest word in vehicles of this kind, were being operated in Brooklyn, Chicago, Pittsburgh, Boston, Philadelphia, Washington and Baltimore to mention a few cities, but in each of them the programs for improvements in the future contemplated a greater and ever greater use of buses. Among the largest cities that were either all-bus or all-bus and trolley bus were Houston, Seattle, San Antonio, Rochester, Akron, Memphis, Syracuse, Worcester, Fort Worth, Jacksonville, Nashville and Hartford. A significant development of the year was the full conversion of the Third Avenue system in the borough of Manhattan, N.Y., to bus operation, thus completing the elimination of streetcars from the streets of that borough. In the period from 1931–40, 14 buses or trolley buses were purchased for city service for every streetcar.

(*See* also AUTOMOBILE INDUSTRY; MUNITIONS OF WAR.)

(C. W. S.)

Canada.—The value of road building and highway maintenance projects totalled about $187,000,000 during 1947. The nine provincial highway departments spent about $150,000,000 while the federal government and various municipal governments made up the balance. An interesting precedent in highway construction were the negotiations for Canada to have a 99-year lease on 15 mi. of U.S. territory in the state of Washington to enable British Columbia to eliminate 53 mi. of mountain-climbing roads over two summits and save $2,000,000 in construction costs. The by-pass was to be part of the southern B.C. transprovincial highway system. The provinces continued to urge federal aid for the improvement of the various provincial sections of the so-called Trans-Canada highway.

Trucking companies faced increasing costs during 1947. An arbitration board granted highway transport employees in the area between Windsor, Ottawa and Montreal, wage increases averaging 27%. The 1,050-member Automotive Transport association of Ontario thereupon applied to the prices board for a 20% increase in the highway freight rate on less-than-truckload traffic. Competition between Canadian railways and the trucking industry continued, and the annual meeting of the A.T.A. charged that "railway labor is making common cause with railway management in a mass attack on the trucking industry."

Year-end boosts in the cost of gasoline further increased the difficulties of the truckers. (C. Cy.)

Great Britain.—Throughout 1947 nationalization was the major issue for the British road transport industry and coloured all developments. The Transport bill, which became an act in August and would come into operation on Jan. 1, 1948, provided for eventual nationalization of trucking businesses which operated more than 50% of traffic over a radius of more than 25 mi. from their depot. The industry protested that compensation terms had been fixed at a low figure.

On the passenger side, operators of regular bus lines also had difficulties to face. They were not to be nationalized out of hand, but in areas where the minister of transport might consider it necessary, a co-ordination scheme could be put into force. The clauses in the act were vague and it was by no means certain how they would be applied. The government contended that there could be a great deal more co-ordination between one

bus undertaking and another and also between bus services and the railways. Those face to face with the practical difficulties of operation were less sure. They contended that co-ordination, as far as practicable, between the owners of about one-half the buses in Britain and the railways had been assured by the close liaison existing between the railways and the bus companies in which they were financially interested.

Co-ordination between rival operators on the road had been assured in the past by self-interest or by rulings of the area traffic commissioners established under the Road Traffic act, 1930; no doubt more effective measures could be evolved in the course of time, but here again there were many instances where apparent anomalies worked to the public benefit. Thus, to and from the outskirts of many large cities the company-operated services charged a minimum fare higher than that on the vehicles of the municipal bus service running over the same road. For the passenger this had the advantage of keeping the short riders off the long-distance buses and of increasing their speed to the perimeter of the urban area. As indicated, a financial interest was held in many bus companies by the railways, with from 33% to 49% of the ordinary share capital and this would, on Jan. 1, 1948, automatically give the nationalized railway executive of the British transport commission considerable power in the bus business.

For some time in the early part of 1947 some of the bus-owning groups conducted a considerable advertising campaign against nationalization.

Haulers had everything to gain by postponement of nationalization and through the employers' organization, the Road Haulage association, conducted a vigorous campaign—"Hands Off Road Transport." When the act became an accomplished fact, however, they were inclined to accept the situation and to try and make as good a job as possible of the nation's long-distance road transport under the new order. In the case of haulage concerns, it was not certain that, except for the railway-owned haulers, which included the world-famous firms of Pickford and Carter Paterson, the vesting date would be Jan. 1, 1948, since the government concern would have to examine the activities of some 48,000 haulers with 141,000 vehicles. The road transport executive was not yet appointed at the end of December. It was roughly estimated that perhaps not more than 30,000 vehicles would be involved in nationalization, just over the number in the 60-mi. radius wartime scheme. In addition, there were 306,000 goods-carrying vehicles (according to a government return issued in 1946) in Great Britain owned by 149,192 traders and used for the conveyance of the traders' own goods. These were unaffected by the act.

All owners of motor vehicles continued to experience difficulty in obtaining spare parts, tires, and, of course, new vehicles. These difficulties were accentuated by the fuel crisis early in the year, which held up spares production; by the shortage of dollars for carbon black used in rubber tire manufacture; and by the increasing volume of British-built commercial vehicles allocated to export markets. Bus owners, with 55,000 buses and coaches, many more than ten years old, were also affected by the bottlenecks in the body-building industry, induced by shortages of material and labour, and by the lack, from time to time, of window glass and paint, which were largely devoted to housing purposes. Of 3,000 buses of postwar design on order by the London Passenger Transport board, only 80 had been delivered by Oct. 1947, and another 80 were expected at the end of the year. By mass production methods output would be stepped up to 100 a month by the end of 1948. Shortage of buses did not prevent abandonment of further street railway undertakings, the most notable being those of Bolton and Salford. There were in 1947 under 6,000 tramcars on British street railways. Fewer than a dozen British cities would retain streetcars in the future and some of those that two years ago intended to continue this means of transport decided on conversion to the bus or trolley coach.

With 2,622,521 motor vehicles in 1939 running on 180,527 mi. of road Great Britain had 14.5 vehicles per mi. of road—the greatest density in the world. Big schemes for road improvements, motorways and the alleviation of traffic congestion by such projects as the Severn bridge were halted by the intensification of the austerity drive announced in Oct. 1947. The British road motor transport industry, together with that of road maintenance, continued to employ something like 1,250,000 people.

(*See* also ACCIDENTS; RAILROADS.) (C. F. KR.)

Motor Vehicles: *see* ACCIDENTS; AUTOMOBILE INDUSTRY; ELECTRIC TRANSPORTATION; FEDERAL BUREAU OF INVESTIGATION; MOTOR TRANSPORTATION.

Mountbatten, Philip: *see* EDINBURGH, DUKE OF.

Mountbatten of Burma, Louis (Francis Albert Victor Nicholas) Mountbatten,

1ST EARL (1900–), the second son of admiral of the fleet the marquess of Milford Haven, was born at Frogmore House, Windsor, on June 25, 1900, and educated at Osborne, Dartmouth and Christ's college, Cambridge. He entered the royal navy in 1913, served in World War I in H.M.S. "Lion" and H.M.S. "Queen Elizabeth," and at the outbreak of World War II commanded the 5th destroyer flotilla. Appointed to H.M.S. "Illustrious" 1941; chief of combined operations, with the acting ranks of vice-admiral, lieutenant general and air marshal, 1942; supreme allied commander Southeast Asia, 1943; he successfully conducted the campaign against the Japanese which culminated in the recapture of Burma.

In Dec. 1946 it was announced that he had been appointed rear admiral commanding first cruiser squadron, Mediterranean fleet. In the house of commons on Feb. 20, 1947, Clement Attlee stated that the king approved his appointment as viceroy of India to succeed Viscount Wavell. The terms of his appointment stated that Lord Mountbatten of Burma was "entrusted with the task of transferring to Indian hands the responsibility for the government of British India in a manner that will best ensure the future happiness and prosperity of India." The transfer of power to the two new dominions of India and Pakistan took place on Aug. 15, and Viscount Mountbatten of Burma became governor-general of the dominion of India.

For his service in World War II he was created a viscount in 1946, and in Aug. 1947 was created an earl in recognition of his viceroyalty.

He was known as Prince Louis Francis of Battenberg until 1917, when his father relinquished his title and assumed the surname of Mountbatten.

Mount Holyoke College.

This institution for the higher education of women in liberal arts, founded in 1837 by Mary Lyon, is situated at South Hadley, Mass. The campus covers nearly 600 ac. with more than 70 buildings. Registration figures for the 1946–47 session included 1,133 undergraduates and 58 graduate students, representing 42 states and territories and 12 foreign countries. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (R. G. HA.)

Mozambique: *see* PORTUGUESE COLONIAL EMPIRE.

Mules: *see* HORSES.

Municipal Government.

Federal activities touched municipal interests at many points during 1947. The cities continued to resist efforts at the state level to channel all federal-aid airport construction funds through the states. The problem of intergovernmental fiscal relations was much to the fore, with a senate subcommittee designated to study the situation and work out an equitable reallocation of tax resources between the respective governmental levels. A committee of state governors conferred with subcommittees of the congressional revenue committees on the same question. The American Municipal association in turn urged the development of a federal-state-local intergovernmental fiscal policy, as well as the removal of state restrictions on local revenue programs, and the balancing of state grants-in-aid with increased local taxing powers. A major disappointment in the federal-local picture was the failure of congress to grant a proposed additional $50,000,000 for postwar planning advances to local governments, although inflationary prices in any event presented a major obstacle to public works planning and construction.

Unified Municipal Policy.—An important step toward development of a genuine national municipal policy was taken at the annual convention of the American Municipal association, which broadened its constitution so as to make it an association of cities and city officials instead of a federation of state leagues of municipalities, as it had formerly been. A new research and information service, the American Municipal service, was provided within the A.M.A. framework; and the American Association of Municipal Legislators, consisting of elected mayors, councilmen, aldermen, and commissioners was organized as a component part of the A.M.A.

Personnel.—The number of nonschool city employees continued the upward trend which was resumed in 1945, the last year of World War II, and the totals in 1946–47 were well above the prewar years of 1940–41. Nonschool city pay rolls continued the rapid rise which was evidenced particularly in 1946. Totals for nonschool city employees and pay rolls for the previous eight years were as follows:

Table I.—*Total Nonschool City Employees and Pay Rolls, 1940–47*

Year and Month		Employees (In Thousands)	Pay rolls (In Millions)
1940	July	923	$108.2
1941	July	934	110.6
1942	July	911	113.5
1943	July	882	119.4
1944	July	882	123.9
1945	July	890	131.0
1946	July	968	153.6
1947	April*	987	170.0

*Latest Available

In 1946, 85 cities shortened the work week of some or all of their employees, and this trend continued in 1947, adding large sums to municipal budgets for the hiring of additional employees. Pay increases to city employees in keeping with rising living costs were a major element of most city budgets; 17 cities automatically provide such rises on the basis of the bureau of labour statistics' consumers' price index or comparable indexes.

As a result of the nation-wide epidemic of strikes of municipal employees in 1946, 12 states enacted legislation in 1947 outlawing or restricting strikes by some or all public employees. A new labour-management committee was set up by Boston, while St. Louis temporarily discontinued its committee. Louisville, Toledo and New York also had active labour-management organizations, and several other cities were considering establishing such groups.

A major development in the field of public personnel training was the New York city program initiated by Mayor William O'Dwyer, under which members of the city's new bureau of analysis were being given an intensive 12 weeks' training course in administrative management under the supervision of City college as a first step in the complete modernization of the city's administrative structure.

Municipal Finance.—The pattern of postwar municipal finances which emerged in 1946 continued largely unchanged throughout 1947. Inflationary prices intensified the struggle to adjust municipal budgets to conditions that were getting rapidly out-of-hand. Rising relief rolls and the greatly increased cost of running public institutions such as hospitals, with their special food requirements, were new factors to be considered, along with the phenomenal rises in city pay roll, general commodity, and construction costs. In New York an additional $161,000,000 was being sought for the city's 1948 budget, which had passed the $1,000,000,000 mark by $31,000,000 in fiscal 1947. Baltimore's proposed 1948 budget of $83,000,000 represented an increase of almost $13,000,000 over 1947. San Francisco's city, county and school costs, exclusive of public service enterprises, in the 4 year period 1943–44 to 1947–48 increased over $31,000,000.

Choice of a remedy lay between increased state aid, in the form either of direct grants or shared taxes, or a grant of new taxing power to local governments to supplement the relatively declining local property tax. According to the Tax institute, New York city, the trend in the direction of greatly increased state aid was tending to slow up, and a new trend in the form of new local taxes authorized by state legislatures was distinctly discernible in 1946–47. Outstanding among these new state grants of local taxing powers were the Pennsylvania legislation, conferring on local taxing bodies the right to adopt practically any tax or licence fee not levied by the state, and the New York state provisions empowering counties, outside New York city, to impose any of a list of six nonproperty taxes, the proceeds to be used for educational purposes only, and empowering cities of 100,000 population or over, other than New York, to impose any of the taxes granted to the counties but not used by them, plus two additional taxes, the proceeds in both cases to be used for any municipal purpose whatever. New York city was additionally empowered to increase its local revenues an estimated $24,300,000 annually through the imposition of 5 specified new taxes.

Service charges for municipal services, both within and beyond the city limits, were increasingly utilized by the cities in 1947. With the addition of Nevada, the number of states sharing some portion of their tax revenues with the local governments reached 44; New York returned over $87,000,000, Massachusetts about $45,000,000, Ohio $41,500,000, and New Jersey $41,100,000.

Year-end median tax delinquencies of selected cities with populations of 50,000 or more reached a low of 3.2% of the year's levy for 1946—the latest data available—compared with 3.3% for 1945 and a high of 26.35% in 1933. Total tax collections however appeared to have reached their peak, with median ratios to the year's levy of current plus back tax collections of 101.2% in 1943, 100.8% in 1945 and 100.3% in 1946. Property tax rates showed a slight decline of $.05 per $1,000 of assessed valuation. Assessed valuations, on the other hand, increased on an average per capita basis an unprecedented 15.7% over the preceding year. A survey of over 49 major population centres showed increased assessed valuations in every one, and a total increase of over $3,000,000,000, attributable 57% to new construction and 43% to a higher level of value.

According to the *Bond Buyer,* new state and municipal financing for the year amounted to the unprecedented total of $2,351,181,262, compared with $1,203,557,909 in 1946, and the previous all-time high of $1,500,000,000 for 1940. In November a total of $1,115,740,121 of new bond issues, submitted chiefly at the general election, was approved, the highest for any month since

the record was first compiled in 1926; approvals for the previous November (1946) totalled $1,043,376,000, and for October 1947, $59,533,000. Rejected proposals totalled $43,000,000, compared with $89,000,000 rejected in Nov. 1946. State funds, mostly for veterans' aid, accounted for $835,000,000 of the approved total, while local approvals amounted to about $280,000,000, an increase of more than 35% over the $206,000,000 approved in 1946. This marked a resumption in local public works construction which had been deferred in accordance with official and unofficial requests earlier in the year. Municipal bond interest costs, according to the *Bond Buyer's* index for 20 municipal bonds, rose to 2.35% on Dec. 31, 1947, the highest since April 1942, when the average was 2.38%. For the first time after 1941, there was a slight increase in the total volume of local debt. Gross local debt outstanding as of June 30, 1947, amounted to $13,847,000,000, compared with $13,564,000,000 in 1946, an increase of 2%. On an index basis of 1940=100, the annual volume of local debt for each year from 1941 through 1947 was: 100.6, 98.6, 94.4, 87.9, 84.7, 81.1, 82.8. The indebtedness of cities, as distinguished from other local governmental units, constitutes roughly about 60% of all local debt; in 1946, for instance, it amounted to $8,101,000,000 out of a total of $13,564,000,000 for all local governments.

Council-Manager Cities.—A total of approximately 70 cities in the U.S. adopted council-manager government in 1947, compared with the record high of 75 in 1946, bringing the grand total—exclusive of counties—to 747. Hartford, Conn.; Worcester, Mass.; and Richmond, Va., were among the larger cities voting adoptions, subject in the case of Richmond to approval by the state legislature. Houston, Tex. and three other cities voted to abandon the plan.

Proportional Representation.—Ten referenda on proportional representation were voted on at the Nov. 1947 elections. Proportional representation was reaffirmed for the third time in Cincinnati—though for the first time at a general election—and rejected in Pittsfield and Fitchburg, Mass. Four Massachusetts cities—Worcester, Quincy, Medford and Revere—adopted proportional representation along with the council-manager plan, while Boulder, Colo., New York city and Long Beach, N.Y., repealed it. The major defeat in New York city by a vote of 935,276 to 586,151 was attributed largely to the election to the city council of two representatives each of the Communist and American Labor parties at the last city election in 1945.

(A. M. Ds.; L. Gu.)

Great Britain.—The Town and Country Planning act which passed into law on Aug. 6, 1947, provided for the transfer of planning powers from county district councils to county councils who, with the county borough councils, were to be the future planning authorities. Under the Police act of 1946 all separate noncounty borough police forces merged into the county forces on April 1, 1947, so that county and county borough councils became the future police authorities. Fire brigades, which were, throughout the country, amalgamated in the national fire service in 1941 were, under the Fire Services act, 1947, to go back to local authority administration, not, as before the war, to the county district and borough councils, but to county and county borough councils. The trend of the year was, therefore, to enlarge the functions of county councils at the expense of the district councils and noncounty borough councils; and preparatory work was done on questions of management, finance and transfers of personnel.

A departmental committee on greater London water supply was appointed before which the Metropolitan Water board urged that the area of administration for London water supply (about 570 sq.mi.) should be enlarged to 2,700 sq.mi., for technical efficiency.

An outstanding event was the publication of the first annual report of the Local Government Boundary commission (for 1946). The commission investigated a number of areas with a view to possible adjustment of boundaries, amalgamation of areas, or alterations in the status of local authorities. The report made no definite suggestions for adjustments, but a number of interesting preliminary considerations were outlined. The proposals of the commission caused considerable stir in the areas most likely to be affected, particularly in south Lancashire —a densely populated area with a number of inter-related problems somewhat akin to those of Greater London. The commission's report contained the suggestion that a Greater Manchester authority, or county council, might be formed. No local authority ever consents willingly to surrender its power to another local authority, which explains why south Lancashire was so stirred.

The impending transfer of hospital services to the state brought into question the financial relations between central and local government. The Local Government act, 1929, contained a formula for the distribution of government block grants to local authorities. This formula was never satisfactory, but an alternative was difficult to devise. The relief of local authorities from the cost of hospital services called for revision of the amounts and distribution of government grants. Rateable value was traditionally used as one of the factors in settling the shares of respective local authorities, but this factor was found unsatisfactory by reason of the varying standards of valuation in local areas. Accordingly, the government proposed that the work of making valuations for rating should be performed by the government itself over the whole country. The Local Government bill was introduced in October to deal with these various matters. It also contained provisions to authorize payment to members of local authorities for travelling, subsistence and loss of earnings while on official business, and to empower local authorities to develop their public relations work.

Throughout 1947, shortage of administrative staff, hospital staff, manual workers and materials caused difficulties. Fuel cuts in the early part of the year and increasing demands for the diversion of man-power to productive industry occasioned exhaustive and trenchant investigations by each local authority into its own staff needs. The pre-existing shortage of staff did not however make possible any spectacular saving of man-power units.

The important work of housing which was gathering momentum during 1946 suffered a severe set-back in the unusually inclement conditions of the winter of 1946–47. The economic crisis which became clearly apparent in the summer of 1947 led the minister of health to announce that no new contracts for housing work could be approved for the time being.

Much thought was given to the recommendations of the Curtis committee on the care of children deprived of a normal home life, and to the problem of the care of the aged. The National Assistance bill was introduced at the end of October to abolish the poor law, and to make the central government responsible for "out-relief," leaving local authorities the duty of providing institutional relief and a general welfare service for the aged and incapacitated.

The National Association of Parish Councils was formed in April. Parish councils were at one time regarded as an experiment which had failed. They gradually emerged after 1918 into prominence with the growing interest taken by the country-dweller in local government affairs. Associations had long been in existence for other types of local authorities. That for parish councils completed the series.

For the municipal elections in England and Wales held on Nov. 1, in which one-third of the members is elected each year

Table II.—*Municipal Elections, England and Wales, Nov. 1947*

	Total candidates	Elected	Not elected	Gains	Losses
Conservatives	1,737	1,269	468	643	18
Labour	2,600	824	1,776	43	695
Liberals	458	140	318	46	47
Communists	194	—	194	nil	9
Independents	1,675	1,059	616	172	135

(whereas in the metropolitan boroughs the entire council is elected every three years), the analysis of results in 388 boroughs is given in Table II.

The striking features were a trend of local politics away from Labour, which lost heavily, and the exceptionally heavy poll, everywhere 40% to 50%, in some places higher. Labour lost control of 24 councils, gained 1; several were now equally divided. (*See* also AIRPORTS AND FLYING FIELDS; HOUSING.)

(W. E. J.)

Munitions of War.

Army.—The year 1947 was one of research and experimentation in munitions. This extended into many lines—planes were developed, remodeled, or redesigned to attain greater speed and manoeuvrability; rocket testing was carried on extensively at White Sands, N.M.; chemical warfare agents were tested at Edgewood arsenal in Maryland; signal corps apparatus was subjected to field trials in New Jersey and elsewhere.

Explosives.—A new method was found to manufacture nitromethane, an explosive more powerful than T.N.T., yet safer to handle; it involved reacting methane, commonly known as marsh gas, with nitric acid under a pressure of 100 pounds per square inch.

Liquid Oxygen.—Through the combined efforts of the army air forces, the national bureau of standards, and the Bendix Aviation corporation, a simplified and practical liquid oxygen converter was developed. Known as a heat-transfer type, this converter met all requirements for breathing purposes during flying operations.

Lubricants.—A new type of synthetic nonpetroleum motor oil to last the lifetime of an automobile or aeroplane engine without having to be changed was developed. Made from natural gas and carbon and hydrogen compounds, it resembled ordinary motor oil in appearance and feel, was wax-free, flowed freely at −30° F. and did not thin out at high temperatures.

Mortars.—Two new types were tested, an 81-mm. with a special mount and an old type 16-mm. which was adapted as a one-man weapon.

Optiphone.—A new device to provide telephonic communication over a narrow beam of white or dark red light made possible single-channel, two-way break-in speech communication. The complete unit weighed 145 lb. and had an optical range up to 4 mi. during daylight and up to 7 mi. at night with dark red filter.

Production.—To be prepared to meet a possible production emergency, Operation "Janmat" (joint army and navy machine tools) rounded up tools from surpluses and from production lines where they were least needed. The corps of engineers investigated extensively to determine the feasibility and cost of constructing and operating underground plants and storage sites. Two types of underground plant sites were considered: first, existing mines, such as gypsum, copper, lead, zinc, limestone, marble, sandstone, salt; and, secondly, underground chambers excavated to suit the requirements of particular plant or storage facilities involved.

Quartermaster Items.—Troxane, a new heat tablet, was thoroughly tested in Alaska and in the Aleutians. It burns without odour or poisonous gases and produces a steady, blue flame not easily blown out by the wind. A new water-purifying tablet, using iodine instead of chlorine, made drinking water safe and was less objectionable in taste and colour. A new ration, increasing calories from 3,331 to 3,800, replaced C and K rations. A new type of suit with fabric of 3-oz. nylon rather than the former 8-oz. twill was manufactured for Task Force "Furnace," operating in the Arizona desert.

Radar.—The signal corps brought out a lightweight radar set, capable of being transported by plane and set up in forward areas inaccessible to larger detector equipment. It was officially designated as AN/TPS-3. Packed, the set weighed 1,340 lb., required one operator and one maintenance man, withstood temperatures between −40° F. and 140° F., and was unaffected by humidity up to 100%. With auxiliary equipment, it could identify aircraft within its range as friend or foe. A microwave spectroscope was also developed for the analysis of chemical substances, using radar waves from 1.2 cm. to 1.6 cm. in length. This device could identify the more complicated molecules, such as hydrocarbons, without the laborious chemical processes involved in breaking them down and analyzing their various components.

Through collaborative effort with the national bureau of standards there was developed a microtube only a trifle larger than a grain of rice.

Ribbon Parachute.—A double ribbon parachute, one acting as a pilot, successfully lowered a 75-mm. howitzer weighing 2,240 lb. from a Fairchild C-82 Packet plane.

Rifle.—The M 1 rifle was modified to fire either 8 shots fully automatic or 20 shots in rounds.

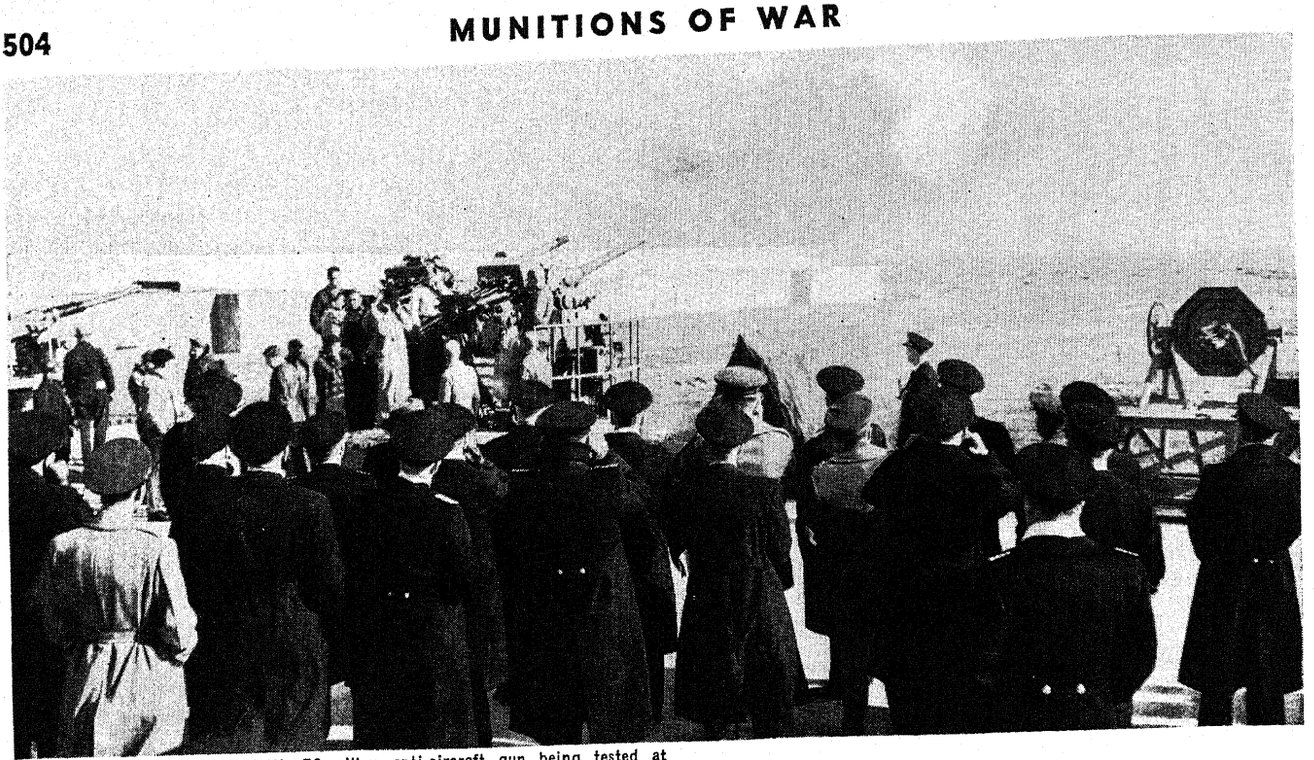
Teleran.—The Radio Corporation of America and the army air forces co-operated in important laboratory advances in teleran, the revolutionary system of television-radar air navigation and traffic control. Using principles and equipment developed during World War II for radar and airborne television, teleran was devised to provide the pilot with an aerial road map which combined in a single clear picture on his instrument panel all the traffic, route, weather and special information needed. In this development, four new technical advances were demonstrated: (1) a storage orthicon television pick-up tube, (2) a picture tube employing high intensity phosphors for greater image brilliance, (3) an optical map-mixing technique which improved teleran image and simplified insertion of additional information when required and (4) a time multiplexing system which provided for simultaneous transmission of images representing different altitude layers and selective reception of the proper image by planes in any of these layers.

Trucks.—A mammoth 60-ton, 1,000-h.p., 45-m.p.h. combination truck dynamometer was manufactured to test the tractive effort of large U.S. army wheeled and tracked combat vehicles over various types of terrain. It rated a maximum drawbar pull of 60,000 lb. at a speed as low as 2 m.p.h. (R. S. T.)

Navy.—Production of new U.S. navy munitions was held to small quantities for experimental purposes or for equipping the few new ships under construction. The new 6-in. and 8-in. mounts were installed in new light and heavy cruisers, although none of these ships reached completion during 1947.

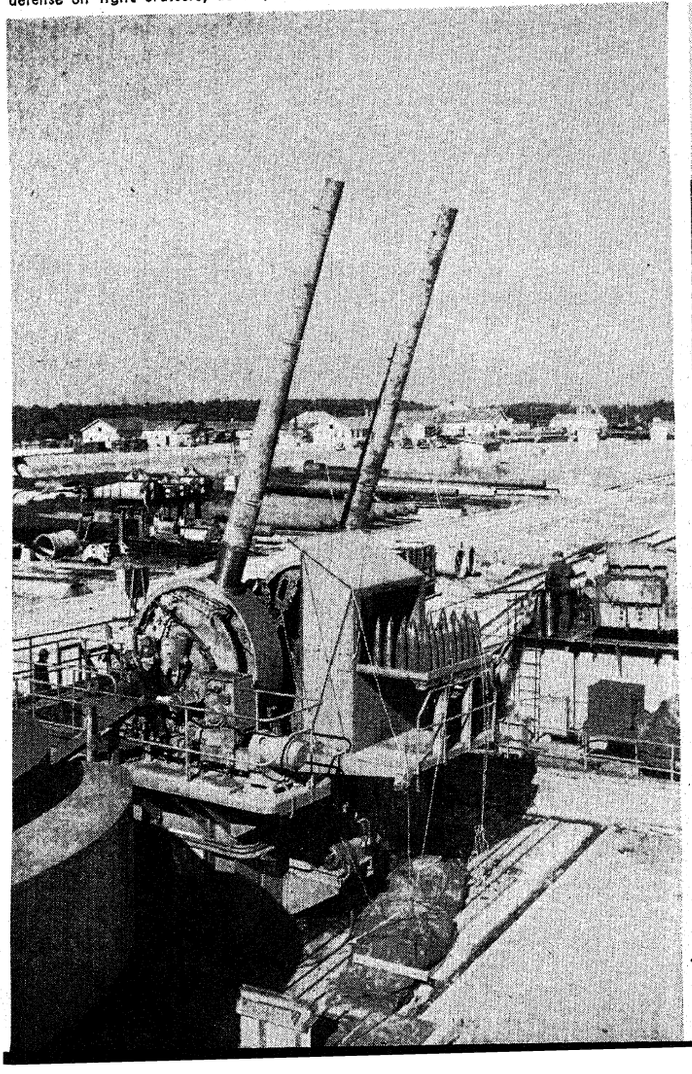
The greatest stress was laid on research and development under programs carefully co-ordinated by the Joint Research and Development board with Vannevar Bush as chairman.

Great progress was made in the field of guided missiles (*see* below). A number of programs showing some duplication of end results were pursued in recognition of the need for parallel attack on the exceedingly complex problems. Among subsonic missiles there were actual tests under conditions approximating service of the more successful developments. One test of a supersonic missile involved the launching of a German V-2 rocket from the flight deck of the large aircraft carrier "Midway." Although the launching was successful, the subsequent

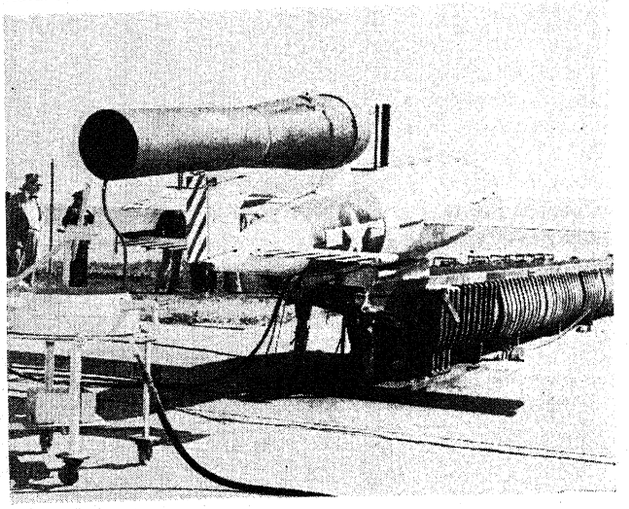


Above: NEW AUTOMATIC 3-IN. 50-calibre anti-aircraft gun being tested at Dahlgren, Va., in the presence of Secretary of the Navy Forrestal in March 1947

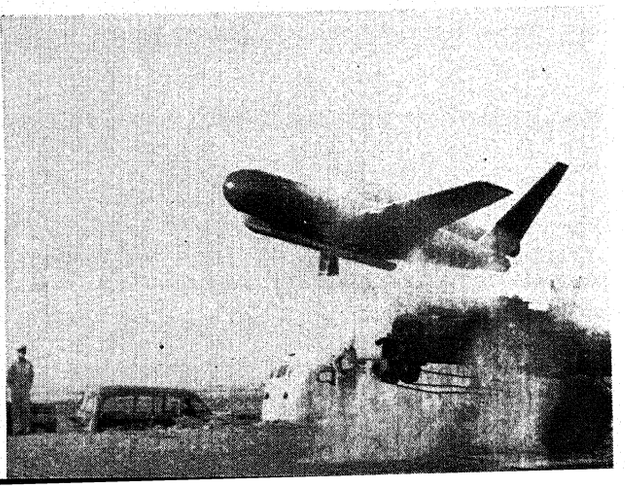
Below: SIX-INCH dual-purpose anti-aircraft guns, designed for rapid fire close-in defense on light cruisers, developed for the U.S. navy at Dahlgren, Va., in 1947



Below, IMPROVED VERSION of the German V-1 buzz bomb, ready for launching at a press demonstration staged in March 1947 at the U.S. Naval Air Missile Test centre, Point Mugu, Calif.



Below: THE KDD-1, a jet-powered aircraft target drone being catapulted during demonstration tests in April 1947, at the U.S. navy's guided missile centre, Point Mugu, Calif.



flight of the missile was not satisfactory, for reasons not connected with the launching conditions.

The close co-operation of the U.S. navy with science and industry was continued, showing its most striking results in the Bumblebee supersonic guided missile program undertaken by the Applied Physics laboratory of Johns Hopkins university, of Baltimore, Md., for the bureau of ordnance. Building on the work of the previous years, test flights were made with most encouraging results in the flight of ram-jets and in the guided flight of subsonic test vehicles.

Recognizing the problems posed by increased speeds of airborne targets, special emphasis was placed on automatic or nearly automatic fire-control devices for both aircraft and anti-aircraft uses. Predominately electronic in character, these equipments—even with the rigorous application of the techniques of miniature tubes and circuits—became enormously complicated and difficult to mount in available spaces in planes or ships and to maintain operable with service personnel.

Investigations in underwater weapons, notably torpedoes, were pointed at increasing range, speed and accuracy, as well as improving wakeless characteristics of submarine-launched torpedoes, and the water-entry abilities of aircraft torpedoes. The facilities at Morris dam in the Los Angeles metropolitan water system were operated as a branch of the Naval Ordnance Test station, Inyokern, Calif., to conduct tests of water entry—for both torpedoes and bombs—under controlled conditions with a maximum of recorded data. (G. F. Hy.)

Air.—Reliable experts on technical developments in weapons believed that at least 10 years, and possibly 15 or 20, would be required to develop and perfect weapons for "push-button" warfare. Not only would it be necessary to spend vast amounts of money for research and development, but such branches of applied science as aerodynamics, radar, electronics, telemetering, servomechanisms, gyros, computers, thermodynamics, combustion, metallurgy, propulsion, hydraulics, ballistics, meteorology, atmospherics and chemistry all would have to contribute to a successful long-range guided missile.

In the United States a team under the over-all direction of the National Defense council pressed ahead in the solution of these numerous problems during 1947. Contracts were awarded to dozens of university and industrial laboratories and to many aircraft, engine and electronics companies.

Indicative of the program's importance was the fact that "Guided Missiles" had become Division 1 of the Standard Aeronautical Index being compiled by the Institute of the Aeronautical Sciences, under air force contract, with full navy co-operation. By the fall of 1947 the second phase of the program was well under way, and the division was being broken down into a number of sections such as guidance and control, launching, propulsion, etc., with dozens of sub-sections within each.

At least three major lines of activity were being pursued: (1) the program for development of a 4,000-mi. intercontinental missile to be powered by a rocket engine or atomic energy at supersonic speeds; (2) shorter-range guided missiles for use from carriers or converted battleships, or for release from aircraft; (3) improvements in the weapons actually used in World War II, including faster and more powerful fighters and bombers, improved aircraft armament (guns and rockets), better airborne radio and radar equipment (including proximity fuses and various homing devices) and more deadly bombs.

During 1947 some progress was made on the long-range objectives, despite the lack of adequate funds. The Joint Research and Development board instituted a "panel on the upper atmosphere" under the committee of geographical sciences, to survey programs and eliminate duplication of effort, and to recommend addition or deletion of special projects. Cosmic rays were studied with balloon-borne instruments, with captured V-2 rockets equipped with intricate scientific apparatus recovered by parachute; and with specially equipped B-29s, which made a series of flights between the northern part of the U.S. and the magnetic equator. The navy also announced the development of the Neptune (Glenn Martin Co.), a giant supersonic rocket 45 ft. long, capable of reaching a height of 38 mi. within 75 sec. in its thrust-borne phase, after which it "coasts" straight up for another 197 mi. to a total height of 235 mi., more than twice the height reached by the German V-2s, besides weighing only one-third as much as these war-developed weapons; its alcohol-and-oxygen-burning engine developed 200,000 lb. of thrust. Its first flight was scheduled for mid-summer 1948.

Developments of the shorter-range guided missiles included several ram-jet and rocket-powered supersonic missiles, and the following navy projects: the Lark, with vertical wings for better stability; the Loon, an improved pulse-jet-powered version of the V-1 buzz-bomb, with a speed of 400 m.p.h. and range of better than 200 mi.; Little Joe, a shipboard-launched and Jato (jet-assisted take-off)-rocket-propelled short-range missile, guided by radio against enemy aircraft, with a proximity fuse for automatic explosion in case of near misses; and Kingfisher, a new jet-propelled version of the Bat (used in the late Pacific phase of World War II), which transmitted radar signals to the target, and homed on the radar echoes.

The air force had two very promising projects under development in 1947, a Fairchild XBQ pilotless aircraft missile, and a guided missile at the Ryan factory, described as one of the most compact weapons of its type ever designed, with a built-in "brain." Flight testing of these and similar projects, including advanced tests on the Boeing needle-nosed GAPA (ground-to-air-pilotless-aircraft), was carried on at the Alamogordo Air base, N.M., centre of air force guided missile testing. The most important over-water testing facilities were located at the Naval Air Missile Test centre, Point Mugu, Calif.

In the category of immediate improved weapons the following may be mentioned: New, more powerful and lighter-weight versions of the atom bomb; nonnuclear fission high explosive deeply penetrating bombs tested by B-29s on submarine pens in Europe; the M-3 .50-cal. machine gun for fighters and bombers, firing 1,250 rounds per minute; operational development of the navy's powerful attack planes by Douglas and Martin; increased range of both air force and navy jet fighters; production of the Boeing B-50 fast heavy bomber and the Consolidated Vultee extra long range B-36.

Without neglecting the program for rapid development of turbine-powered commercial transport planes, Britain devoted much effort to advanced military development of guided missiles and rockets, as well as sharply improved interim weapons. The U.S.S.R. developed, with the help of German technicians, jet-propelled fighters, one or two long range bombers, and a greatly improved V-1 type buzz-bomb. (*See* AVIATION, MILITARY.) (N. F. S.)

A significant development during 1947 was the crystallization of plans by the British and Australian governments for the new rocket testing range in Australia, and the initiation of large scale civil engineering works in furtherance of the project. Estimates published in Canberra during September forecast an expenditure of £(A)23,000,000 over the next five years.

In Britain a considerable degree of secrecy was maintained regarding progress at the rocket research station at Westcott in Buckinghamshire, but details of a guided projectile designated "Stooge," originally designed as an anti-aircraft weapon, were published. Trials of this weapon were completed at the guided missiles range at Aberporth on Cardigan bay. A series of tests with rocket-propelled model supersonic aircraft was started in

October, aimed at solving the problems anticipated in controlled flight at trans-sonic and supersonic speeds. (*See* also ATOMIC ENERGY; JET PROPULSION; NAVIES OF THE WORLD.)

Murphy, Robert Daniel (1894–), U.S. diplomat, was born on Oct. 28 in Milwaukee, Wis. Entering the foreign service in 1917, he became consul in Paris in 1930 and later counsellor of the embassy. After the collapse of France in 1940, he was assigned to the Pétain government as U.S. chargé d'affaires in Vichy and chief U.S. representative in French North Africa.

Murphy was given a large part of the credit for preparing the groundwork of the Allied invasion of North Africa in Nov. 1942 and for his services in this connection, he was awarded the D.S.M. and raised to the rank of minister to French North Africa.

Although beset by a storm of criticism, Murphy worked steadfastly in early 1943 toward settling the De Gaulle-Giraud dispute, his aim being establishment of a French government that the U.S. would recognize. Later that year Murphy was appointed delegate to the Mediterranean Advisory commission with rank of ambassador.

In Aug. 1944, he became political adviser to Gen. Dwight D. Eisenhower with the task of helping to set up the machinery for Allied military government of the reich.

In 1946–47, Murphy was deputy secretary of state to both James F. Byrnes and George C. Marshall, in which post he conferred with the deputies of the other Big Four powers to handle the preparatory work for the quarterly conferences of the foreign ministers. On Feb. 21, 1947, he was also appointed political adviser to Gen. Lucius D. Clay, military governor of the U.S. zone of the reich.

Murray, Philip (1886–), U.S. labour leader. A native of Scotland, he was born in Blantyre on May 25 and emigrated to the United States in 1902. Naturalized in 1911, he became a member of the international board of the United Mine Workers of America the next year, president of the union's fifth district in 1916, and international vice-president in 1920. Murray succeeded John L. Lewis as president of the Congress of Industrial Organizations (C.I.O.) on Nov. 22, 1940, when Lewis fulfilled his pledge to quit if Roosevelt were re-elected. But Murray did not follow Lewis in his bitter opposition to Roosevelt's foreign policy. A split developed in May 1942, when Lewis ousted Murray as U.M.W.A. vice-president. Murray fought back, and the C.I.O. went along with him; Lewis and the mine workers walked out. During World War II Murray fought to maintain the no-strike policy, to use manpower more efficiently, to streamline the War Labor board, to stabilize prices, etc. Immediately following conclusion of World War II, the C.I.O., under Murray's guidance, launched its campaign for continued high wages and better working conditions. On Jan. 23, 1946, two days after the steelworkers went out on strike, Murray launched a sharp attack on corporation tax laws, charging that if the steel industry did not operate another day in 1946, it would regain $149,000,000 in tax rebates, representing a sum 29% above the level of the industry's prewar earnings.

In 1947, Murray continued his attacks on "big business," but sternly forbade his steelworkers union to strike during the life of the two-year agreements reached with the steel industry in April. He urged the A.F. of L. on Oct. 13 to join the C.I.O. in a united political front to defeat supporters of the Taft-Hartley law in the 1948 national elections, but his appeal was rejected by Pres. William Green. On Dec. 18, Murray was named by Pres. Harry S. Truman to membership on the 12-man national labour-management panel.

Museums. For the museums of the United States, 1947 was marked by important co-operative projects and preparations for expansion as well as by significant activities in their normal programs of research and exhibition.

In New York the Metropolitan Museum of Art, the Museum of Modern Art and the Whitney Museum of American Art agreed to co-ordinate their work for ten years. The Metropolitan museum, for example, undertook to purchase for future transfer selected older paintings and sculptures from the Museum of Modern Art, providing the latter with greater means and freedom for buying current art. The American Museum of Natural History and the Sperry Gyroscope company co-operated in a study of the balancing action in the halteres of the drone fly for possible application in aviation. Museums joined with other groups to organize the National Council for Historic Sites and Buildings which would channel resources and opinion for saving important historical remains in the U.S. At the international level, exhibitions were borrowed and lent across the Atlantic, and American committees of the International Council of Museums were working to lay the factual basis for mutual help within the framework of the United Nations Educational, Scientific and Cultural organization.

Most museum construction projects were postponed by high costs, but preparations were made for erecting, enlarging or renovating many museum buildings. Denver voted a $350,000 bond issue to provide an addition for the Colorado Museum of Natural History. In Texas, the Fort Worth Children's museum received a $300,000 building fund, also through a municipal bond issue. Selling its old building in downtown Boston, the New England Museum of Natural History moved to temporary quarters until a new plant could be built. In Detroit the Historical society raised funds to construct the first unit of its museum building. The Museum of Modern Art was given property worth $1,000,000 adjacent to its present home and planned an addition.

Scientific expeditions from U.S. museums were working in Africa, Latin America, the Pacific and particularly within the U.S. Among the most significant discoveries were rich beds of fossil mammals and primitive dinosaurs in New Mexico found by the American Museum of Natural History.

Visitors to the newly installed mediaeval and renaissance galleries of the Joslyn Memorial Art museum at Omaha, Neb., found the paintings displayed in association with furniture, pottery and other arts to present a rounded picture of the culture. This was characteristic of the effort by museums to give the public greater understanding and enjoyment of their collections. The Chicago Natural History museum continued work on its outstanding Hall of American Archeology with new miniature groups on the customs of the moundbuilders and of the late Savannah river Indians. The Civil War room of the Chicago Historical society was reinstalled using modern methods. In New York the new Jewish museum was opened.

Special temporary exhibitions are an educational medium bringing people to the museums for repeated visits. Three of the most important during 1947 concerned textiles. The Metropolitan museum borrowed from the French government 200 tapestries comprising a unique and comprehensive summary of this art form. In Chicago the Art institute arranged a major display of Oriental rugs. The Museum of Modern Art not only exhibited the winning designs in its competition, "Textiles for the Home," but also had them displayed by selected retail stores across the country to help bring good art to U.S. homes.

(R. H. Ls.)

Accessions to Art Galleries and Art Museums.—Notable additions were made to museum collections throughout the United States during 1947. Claude Lorrain's "Roman Cam-

pagna near Tivoli," a painting signed and dated 1636, was acquired for the Cleveland museum through the William H. Marlatt fund. A most important canvas by El Greco entitled "St. John the Baptist," was purchased for the M. H. de Young museum in San Francisco. A rare hellenistic bronze statuette of Emperor Selencis IV was acquired by the William Rockhill Nelson gallery in Kansas City, Mo. This remarkable 2nd century bronze was found near Naples where the emperor was held captive by the Romans.

Boston's Museum of Fine Arts acquired a fine late work by Nicholas Poussin called "Achilles on Skyros," two paintings "Peasant Boy" and "Peasant Girl" by Giovanni Battista Piazzetta, the 18th century Italian, and the "Portrait of Victorine Meurend," dated 1862, by Edouard Manet.

The Art institute of Chicago received as a gift the important Charles H. and Mary F. S. Worcester collection comprising 70 items. These include "Two Orientals" by Gentile Bellini, "Adam and Eve" by Lucas Cranach and "The Chastisement of Love" by a close follower of Polidoro Caldara Caravaggio. Chicago was also given the Winterbotham collection, 35 modern European and Mexican paintings purchased over the past 25 years. Outstanding in the group are the "Circus Fernando" by Henri de Toulouse-Lautrec, "By the Window" by Henri Matisse and "The Philosopher" by Giorgio de Chirico. According to the Winterbotham plan, pictures which have not stood up over the years may be sold.

Three paintings of unusual interest were acquired by the Detroit Institute of Arts. Earliest in the group is Jacob Jordaen's "Holy Family with St. Anne," painted about 1617. Next is Peter Paul Ruben's "Archduke Ferdinand," done in 1635, a study for the large picture in the Prado, Madrid. The third picture is James McNeill Whistler's famous "Nocturne in Black and Gold: The Falling Rocket," which featured in the libel suit against John Ruskin in 1875.

Buffalo's Albright Art gallery added the "Yellow Christ," a notable painting by Paul Gauguin dated 1889, and the Springfield (Mass.) Art museum also purchased two important French pictures, Théodore Gericault's "Madman, Kidnapper," and Jean François Millet's intense "Portrait of Virgine Roumy."

A superb El Greco, "The Agony in the Garden," passed from the Arthur Sachs collection to the Toledo museum.

A full-length portrait of George Washington (one of the three versions of the so-called Landsdowne type) by Gilbert Stuart, was purchased from the Pierrepont family for the Brooklyn museum. (*See* also ART EXHIBITIONS; ART SALES.)

(F. A. Sw.)

Great Britain.—Because of continued shortage of labour and materials, few of the London museums and galleries were fully open by the end of 1947: the Wallace collection, which had opened its main gallery on the first floor by the middle of the year, and the Soane museum, which reopened in the autumn, were exceptions. The National gallery, with 18 of its larger rooms open, could exhibit a good part of the permanent collection; various special exhibitions were also held: one of Spanish painting (in conjunction with the Arts council), a selection from the Dulwich gallery pictures, and one of cleaned pictures, arranged by the authorities of the gallery as a reply to criticisms which had been made of their habit of cleaning their pictures. The Victoria and Albert museum could not show more than a fraction of its treasures, but several special exhibitions of great importance were held: one of French tapestries (in conjunction with the French government), one of Nicholas Hilliard (the most comprehensive exhibition of early English portrait miniatures), and one of the pictures, plate, and other relics collected by the first duke of Wellington, and presented by the present duke to the nation, together with Apsley house, as a permanent Wellington museum. The Tate gallery, with only a few of its rooms open, tried not so much to exhibit a representative selection of the whole collection as to arrange exhibitions illustrating one particular artist or movement, supplementing these, when necessary, by loans: thus during the year exhibitions were held of Alexander Cozens, William Hogarth, John Constable and William Blake; while the gallery, in conjunction with the British council, circulated exhibitions on the continent of modern British painting and (in conjunction with the National gallery and the British museum) of J. M. W. Turner. The British museum still had many departments closed, but the print room reopened in September, with an exhibition of the finest drawings of the collection, together with one of Indian miniatures, arranged in connection with the winter exhibition of Indian art which opened at Burlington house in November. The Victoria and Albert museum also arranged, in connection with the same exhibition, one of the human figure in Indian sculpture. Neither the Fitzwilliam museum, Cambridge, nor the Ashmolean museum, Oxford, had been able to reopen to their full extent. The Birmingham art gallery had an important exhibition in the summer illustrating the Pre-Raphaelite movement, the centenary of which would fall in 1948. (J. GE.)

Music. Soviet Russia's ideology apparently did not permit compromise in 1947 with the nations that fought and conquered common enemies, yet Russian music was still much akin to that which creative men in other parts of the globe produced. The world première of Sergei Prokofiev's *Sixth Symphony* took place in Leningrad, Russia, under the direction of Mavrinsky on Christmas day. The *Tenth Symphony* of Dmitri Shostakovich was awaited with great curiosity. To celebrate the 30th anniversary of the Bolshevik revolution, 1,000 special compositions were written. Dmitri Kabalevsky's new opera, *The Indomitable* and Aram Khachaturian's new *Overture* must be mentioned first. The latter work needed the assistance of 110 men, including 18 trumpeters. Prokofiev also offered *Holiday Overture* and the second part of his opera, *War and Peace*. Little was heard about the music life in the Russian satellite countries, although it was known that symphony orchestras were functioning in Belgrade, Yugoslavia; Budapest, Hungary; Sofia, Bulgaria; and Bucharest, Rumania. In Warsaw, Poland, the local Philharmonic orchestra under composer-conductor Maklakiewicz scheduled a season of 25 concerts with several guest conductors. Franco Autori (Buffalo Symphony) offered contemporary U.S. symphonic works both in Warsaw and Cracow, Poland.

The Philharmonic orchestra in Ankara, Turkey, vied with European concert activity by asking Herman Scherchen to conduct the nine symphonies of Beethoven early in 1947.

Seventy thousand dollars was raised at a dinner in New York city for the support of the Palestine Philharmonic Symphony. Eleven guest conductors representing nine countries were to lead the organization. Gruenthal's *Exodus* was outstanding among new works by Palestine composers.

News from the opposite side of the Asiatic continent revealed the existence of a Korea Symphony orchestra under the conductorship of a young Manchurian refugee. Music in Australia received a forceful impetus when Eugene Goossens forsook Cincinnati, Ohio, for Sydney, to assume leadership of a newly formed symphony orchestra and a large conservatory of music.

South America enjoyed an immensely rich concert season both in opera and the symphonic field. Desiré Defauw was asked to go to Johannesburg, Union of South Africa, and launch a symphony orchestra.

Italy returned slowly to its normal state of music making during 1947. The Rome opera started its new season with Weber's *Oberon*. La Scala in Milan, Italy, featured [Ildebrando] Piz-

zetti's new opera, *Gold.* Vienna, Austria, invited seven nations to an international music festival devoted mostly to works of living composers: Arthur Honegger, Paul Hindemith, Arnold Schoenberg, etc. News of the revival of the once powerful Universal Edition was welcomed. The State opera as well as five or six symphonic organizations seemed to flourish despite the disturbed political situation. The 25th Salzburg festival had sold-out houses. A new opera, *Danton's Death,* by Gottfried von Einem, was the chief offering among the larger works performed.

The Prague festival was greatly enhanced by the presence of Shostakovich. Bohuslav Martinu's *5th Symphony* and Alois Hába's quarter-tone opera, *The Mother,* received their first performances. The programs also honoured the Turkish composer, Erkin. The usual array of international guest-conductors featured works of their respective countries.

Music in Germany was recovering slowly from the chaos of fifteen years of totalitarian reign. The Chamber Music festival in Frankfurt as well as the one held in Darmstadt, gave German musicians a chance to meet in peaceful and constructive sessions. Radio Frankfurt and Radio Munich broadcast symphonic, operatic and chamber music for German audiences. Two new German operas were presented—Orff's *Agnes Bernauer,* (Stuttgart) and Kauffmann's *Das Perlenhemd,* (Munich). The State Opera in Berlin produced Rimsky-Korsakov's *Sadko* with Russian talent, and premièred the Russo-German composer Boris Blacher's oratorio *Der Grossinquisitor.* The latter's opera, *The Flood,* was given by the Heidelberg Opera house. The spasmodic music life of Berlin reached a climax in the unusual teamwork concert of Wilhelm Furtwaengler and Yehudi Menuhin, tickets for which were sold in the black market. Walter Giesseking's re-entry into Berlin with the Berlin Philharmonic under a Rumanian conductor in a program featuring Brahm's *Second Piano Concerto* and Mahler's *2nd Symphony* was an outstanding event. Berlin's most important broadcasting station was situated in the U.S. zone, permitting the programming of contemporary U.S. music.

The Ninth International festival in Lucerne, Switzerland, offered Benjamin Britten's *Rape of Lucretia* and *Albert Herring,* with the original Glyndebourne, England, cast. The Zurich Municipal opera bracketed Belá Bartók's *Duke Bluebeard's Castle* with Zoltán Kodály's *Spinning Room,* during the summer festival weeks. First performances of operas by Swiss composers took place in Bern: *The Faun* by Walter Furrer; in Basle: the *Raskolnikoff* by Heinrich Sutermeister; and in Zurich: *Le malade imaginaire* by Hans Haug. The intrepid Basle conductor, Paul Sacher, brought two works to the attention of the music world: Honegger's *Fourth Symphony* (*Deliciae Basilensis*) and Igor Stravinsky's *Concerto for Strings in D.* New symphonies by Willy Burkhard, Paul Mueller and Walter Lang as well as a *Cello Concerto* by Othmar Schoeck, found favour with audiences. Frank Martin's *Petite Symphonie Concertante* was heard at many of the continental festivals.

Geneva held another international competition for musical performers during September and October in which 428 candidates from all European countries, the U.S., Canada, South America, Egypt, Turkey, Lebanon, Armenia and Cuba took part.

Paris enjoyed a year of musical offerings of prewar magnitude. Festivals of Bach, Beethoven, Wagner, Ravel and modern Polish music, as well as concerts by the Amsterdam Concert-Gebouw and the Prague Symphony orchestras were heard by large audiences. Five Paris orchestras competed on Sunday afternoons. Symphonic contributions were made by Guy Ropartz (*Fifth Symphony*), Arrieu (*Violin Concerto*), Grunenwald (*Bethsebée*), Martinet (*Orpheus*) and many newcomers. The outstanding sensation however, was Francis Poulenc's opera-bouffe, *Les Mamelles de Tirésias.* The Orchestra National featured three oratorios by Françaix, Alexander Tcherepnine and Ahmed Adnan Saygun. A Bach festival in Strasbourg and the 21st festival of the International Society for Contemporary Music in Copenhagen, Denmark, as well as the International Week for Modern Music in Venice, must be recorded.

Belgium and the Netherlands reported a great renascence of extensive music activity by native composers and symphonic organizations.

London was the host to many continental orchestras (Amsterdam, Vienna and Radio Turin) and offered a Richard Strauss festival in the presence of the 83-year-old German master. A summer festival engaged the services of three English orchestras and one French orchestra, and provided opera, concerts, ballets and recitals; it succeeded despite the difficulties of the economic situation. The première of Britten's latest opera, *Albert Herring* took place in Glyndebourne. During the International Festival of Music and Drama in Edinburgh, Bruno Walter and the Vienna Philharmonic celebrated their reunion by giving seven concerts. Other orchestras heard were the Liverpool, the Scottish, the Halle and the British Broadcasting orchestras. There were opera performances, ballets, dramatic productions, exhibitions of paintings, solo recitals and chamber music evenings by Joseph Szigeti, Artur Schnabel, William Primrose and Émile Fournier.

The Canadian Broadcasting corporation honoured 13 native composers in a series of weekly broadcasts. Winnipeg sponsored a new symphony orchestra.

In the United States the Metropolitan Opera company gave 57 performances in 14 cities, and the New York Philharmonic presented 28 concerts in 24 cities in 28 days. An entirely new and immensely successful undertaking was launched by the San Francisco Symphony orchestra, giving 56 concerts covering most of the states of the Union. Aaron Copland's South American tour of good will brought him into contact with most of the Brazilian and Argentinian colleagues.

Tanglewood (in the Berkshire hills of Massachusetts) introduced Mozart's *Idomeneo, Rè di Creta* (written in 1780) and played host to many composers, among them Honegger, who had just arrived from Buenos Aires, where he conducted his *Jeanne d'Arc au bûcher.* Carmel, Calif., held its 19th Annual Bach festival, competing successfully with the older one in Bethlehem, Pa. Central City, Colo., in the Rockies gave 12 *Fidelio* and 13 *Martha* performances to capacity audiences. Columbia university, New York city, N.Y., had a summer festival of contemporary music. Howard Hanson and the Eastman school, Rochester, N.Y., featured 44 works by U.S. composers in its annual Festival of American Music; 13 received their first performance. Harvard University was the site of an unusual gathering of 100 music critics. The National Gallery of Art in Washington, D.C., programmed 33 works by living U.S. composers. The University of Michigan, Ann Arbor, Mich., started to publish the U.S. edition of 47 volumes containing the complete works of Bach as collected by the German Bach society.

The following opera premières took place during 1947: Virgil Thomson's *The Mother of Us All,* Bernard Rogers' *The Warrior,* Kurt Weill's *Street Scene,* Sessions' *Lucullus* and Gian-Carlo Menotti's *The Telephone.* The latter one-act opera, bracketed with the same composer's *The Medium* (1946), enjoyed a long run on Broadway and went on tour. Marc Blitzstein's *The Cradle Will Rock* had its first complete full orchestra performance. A large number of symphonies appeared on programs of major symphony orchestras: Elie Siegmeister's *First,* Persichetti's *Third,* Alexander Tansman's *Seventh,* Ernst Křenek's *Fourth,* Sessions' *Second,* Hindemith's *Sinfonia Serena,* Mark Brunswick's *First,* Broeckman's *Second,* Randolph Jones' *First,* Cecil Effinger's *First,* Douglas Moore's *Second,* Morton



MASSED CHOIRS AND ORCHESTRAS at the International Festival of School Music held in April 1947 at Montreal, Que., where 12,000 Canadian and U.S. students took part in a 3-day program

Gould's *Third,* John Powell's *First,* Don Gilles' *Symphony 5½* or *Symphony for Fun* (Toscanini) and Peter Mennin's *Third.* Violin concertos by Erich Korngold, George Antheil and Efrem Zimbalist, and piano concertos by Hindemith, W. S. Huffman, Jr., Jacques de Menasce, Robert Casadesus and Roy Harris (for two pianos and orchestra) had their world premières. Biblical cantatas by Copland (*In the Beginning*) and Lukas Foss (*The Song of Songs*) as well as Jaromir Weinberger's cantata *Ecclesiastes* were also heard in first performance. Paul Creston's *Fantasy for Trombone and Orchestra,* Copland's *Concerto for Clarinet* and *Letter from Home,* Ernest Bloch's *Second Quartet,* Marion Bauer's *Sun Splendor,* Gardner Read's *Pennsylvania Suite,* Samuel Barber's ballet-suite *Medea* and Herbert Elwell's *Lincoln: Requiem Aeternam* as well as shorter works by David Sheinfeld, Dai-Kong Lee, Jack Kilpatrick, Alan Schulman, Elliot Carter, Otis Clement and Robert R. Bennett were premièred in the different cities. Among important first U.S. performances were: Britten's *Rape of Lucretia* performed by Cardelli's new Opera theatre, Mahler's *Sixth Symphony,* Stravinsky's *Concerto for Strings,* Bartók's *Second Piano Concerto,* Honegger's *Third Symphony* (*Liturgique*), Strauss' *Metamorphosen,* G. Francesco Malipiero's *Third Symphony The Bells,* Olivier Messiaen's *The Ascension* and *Hymne pour grand orchestre,* Ralph Vaughan William's *Concerto for Two Pianos,* John Barbirolli's *Concerto for Oboe,* Henri Barraud's *Offrande a une ombre* and Vauclain's *Symphony in One Movement.* The young Brazilian conductor Eleazar de Carvalho made Boston audiences familiar with two works by his compatriots: Camargo Guarnieri's *Prologo e Fuga* and Heitor Villa-Lobos' *Madona.* Leroy J. Robertson of Provo, Utah, won $25,000 in a contest of composers sponsored by Henry Reichhold of Detroit, with a symphonic work, *Trilogy,* in three movements. Stravinsky permitted the "democratization" of one of his lyrical ideas from the *Firebird,* under the name of "Summer Moon." (R. Gz.)

Popular Music.—The three leading tunes of 1947 were probably "Near You," "That's My Desire" and "Peg o' My Heart," and each of them won the attention of the public through a single phonograph record of comparatively obscure origin.

"Near You," which headed radio's Hit Parade six times, made its first impression in a band recording conducted by its composer Francis Craig whose name, like that of the lyricist Kermit Goell, was about as unfamiliar as that of the record-maker, "Bullet" or the publisher, "Supreme."

"That's My Desire," by Carroll Loveday and Helmy Kresa, had been obscurely published 16 years before, with the copyright later assigned to Mills Music, Inc. A Mercury record by Frankie Laine catapulted it to a prosperity, which was shared by Laine and the manufacturer.

The real "old-timer" of the top trio, however, was "Peg o' My Heart," which was first heard in 1913 when Alfred Bryan's words and Fred Fisher's music capitalized on Hartley Manners' play of the same name. It was a Vitacoustic record by the Harmonicats (three harmonicas and a guitar) that brought back this charmingly unpretentious ballad of the past. The song was on the Hit Parade for 20 weeks, 10 times at the top.

Perhaps the most significant triumph of nostalgic material was achieved by the "Anniversary Song," appearing in the motion picture, *The Jolson Story.* It was generally credited to Jolson himself and to an industrious adapter, Saul Chaplin, but the actual composer was a Rumanian named Ivanovici, and it may be dated as far back as the early 1880s.

Other successful revivals of 1947 included "Heartaches," by Al Hoffman and Al Klenner, Joe Howard's "I Wonder Who's Kissing Her Now" (by way of another biographical film), James Thornton's "When You Were Sweet Sixteen" (a permanent favourite with barber shop quartets) and the mawkish "Guilty" of Gus Kahn, Harry Akst and Richard Whiting.

There were several successful novelties, with the honestly nonsensical school represented by "Chi-Baba, Chi-Baba" and the exhilarating "Zip-a-Dee-Doo-Dah" of Walt Disney's juvenile picture *Song of the South.* A strange piece of whimsy called "Open the Door, Richard" drove the country mad for a time, and there was a doggedly rural atmosphere in such songs as "Feudin' and Fightin'," "Huggin' and Chalkin'," "A Gal in Calico," etc. Radio's Arthur Godfrey recorded a "Too Fat Polka" which was generally accepted as funny.

Hoagy Carmichael's "Ole Buttermilk Sky" held its own through the early months of 1947, as did "The Old Lamplighter," "For Sentimental Reasons" and the melodious "Oh, But I Do" of Leo Robin and Arthur Schwartz. Jack Lawrence's "Linda" was a spring and midsummer hit, as was "Mam'selle," whose music was credited to the motion picture director, Edmund Goulding, with words by Mack Gordon. Other titles appearing frequently in the Hit Parade were "I'll Close My Eyes," "I Wonder, I Wonder, I Wonder," "Managua, Nicaragua," "My Adobe Hacienda," Frank Loesser's "I Wish I Didn't Love You So," "You Do," "How Soon?," "The Lady from 29 Palms," "It's a Good Day," "And Mimi" and "An Apple Blossom Wedding." Late in the year Carl Sigman emerged as the composer of two hits, "Civilization," with words by Bob Hilliard, featured in the Hartmans' musical show, *Angel in the Wings,* and "Ballerina," with lyrics by Bob Russell. Both were complete surprises to Tin Pan Alley. A recording by Robert Merrill gave new and unexpected life to Yale's "Whiffenpoof Song."

In the field of musical comedy there were two solid successes, *Brigadoon,* selected by the New York critics as the best of the year, and *Finian's Rainbow,* which was actually the more popular, with a reminiscent but delightful score by Burton Lane and some fascinating words by E. Y. Harburg. The hit song of this show was "How Are Things in Glocca Morra?" (echoing an old German tune). Richard Rodgers and Oscar Hammerstein II offered their most advanced piece of work in *Allegro,* which contained "So Far" and other moderate hits. The conventional *High Button Shoes,* glorified by an outstanding ballet, won general favour.

Popular singers of the year, on records and radio, were led by Dinah Shore and Jo Stafford on the feminine side, with Perry Como, Buddy Clark and Art Lund the outstanding male vocalists. Top ranking bands were those conducted by Ted Weems, Eddy Howard and Francis Craig; smaller combinations such as the Harmonicats, the Three Suns and the King Cole Trio were also prominent. (S. Sp.)

Music in Industry.—During 1947 the benefits of music for industrial and office workers earned increasing recognition and acceptance from management, labour and union officials. This widespread endorsement could be attributed directly to the type of music specifically planned for work purposes. Chiefly through the expansion of wired music services, functional music became available and was rapidly utilized in more and more industrial areas of the United States.

Continuing research, field study and occupational analysis emphasized the importance of authoritative instead of haphazard programming and scheduling of work music. Workers at monotonous, repetitive tasks benefit from musical patterns quite different from those used for workers subject to physical exertion. The objective in the first instance is relief from boredom; in the second case, relief from muscular fatigue. Still another type of program is required for office workers whose tasks are tediously routine yet demand concentration.

Banking institutions made more and more use of specialized music to create an air of friendliness and cordiality. In ever-increasing numbers, retail establishments such as department stores, specialty shops and beauty parlors realized that the specialized programs of wired music resulted in more amicable relations between clerk and customer. (*See* also Radio.) (X.)

Recordings.—The demand for records of all kinds in 1947 was greater by far than it had been during the previous year when the various companies, slowly getting back into production after the war, were scarcely able to meet the public's clamouring needs.

In the United States a dispute between the American Federation of Musicians and the National Associations of Broadcasters, regarding the payment of increased monies for the playing of disks on the radio, ended in the expiration of their contract on Dec. 31, without hopes for an immediate renewal. This entailed a stoppage of all new recordings in 1948 or, at least, until the interested parties could come to terms. In the meantime, since the subject of the dispute did not cover the broadcasting of disks already made, most of the manufacturers bolstered themselves against the coming lean period with a back-log of pressings from existing disk masters.

The record manufacturers in England, France, Italy and other countries, all of them faced with a greater demand in the U.S., redoubled their efforts to supply their export trade, as well their domestic needs, by going into greater production.

With respect to new developments in recording techniques, there was not much that had not been already initiated in the year before. Most of it, at any rate, was concerned with further experimentation in the field of tape or wire recordings for either home or industrial use. (R. Br.)

Music Library Association: *see* Societies and Associations.

Mustard Seed: *see* Spices.

Mutton: *see* Meat.

Nagy, Ferenc (1903–), former Hungarian prime minister, was born in 1903 in Baranya county, of a Protestant peasant family. A farmer by profession, he began his public career as a local agrarian politician and an active member of the Calvinist community. Elected to parliament in 1939 as an Independent Smallholder, he played a part in opposing German designs on Hungary, and went into hiding in 1944 when Germany had established control. The first provisional government formed in Dec. 1944 in Debreczen appointed Nagy minister of reconstruction and the national assembly elected in Nov. 1945 made him its speaker. In this capacity he addressed a memorable appeal in Jan. 1946 to the western powers to relieve Hungary's grave postwar needs. Shortly after his election to the presidency of the republic, Zoltan Tildy appointed Nagy as his successor as prime minister on Feb. 4, 1946. The latter's term of office was an uneasy one. His attempts to collaborate with the communists failed. Under communist pressure Ferenc Nagy consented to the expulsion from his party of several eminent politicians alleged to be antidemocratic elements, in the hope that there would be a decrease in tension after the coming into force of the peace treaty in 1947. The political consequences of the trial of Gen. Lajos Dalniki Veress and his fellow prisoners and of the arrest by the soviet authorities of deputy Béla Kovács led to Nagy's resignation in dramatic circumstances (*see* Hungary). In the United States Nagy published the story of his resignation in the *Saturday Evening Post* and signed a joint declaration of east European agrarian leaders against soviet interference, in company with Vlatko Mačhek for the Croat, Milan Gavrilovich for the Serb and Georgi M. Dimitrov for the Bulgarian Peasant parties. (B. Me.)

Narcotics and Narcotic Traffic. The second session of the Commission on Narcotic Drugs of the Economic and Social council of the United Nations, meeting in July 1947 at Lake Success, N.Y., considered the situation created by development of new synthetic drugs with possible habit-forming characteristics, particularly the drug Amidone (*see* below). This drug, like morphine, is dangerous from the standpoint of habituation. The commission agreed to recommend a protocol for limiting the manufacture of synthetic narcotic drugs to the estimated medical needs of the world, in accordance with the terms of the 1931 convention, and for controlling the international trade in these drugs by a system of import and export certificates, as provided by the Geneva convention of 1925.

Coca Leaf.—At the request of the government of Peru for a survey of the effects of the chewing of coca leaf by a large part of the population in Peru, Bolivia, Colombia, Chile and Argentina, the Commission on Narcotic Drugs recommended to the Economic and Social council that a commission of inquiry should be sent to these countries to study the social and economic aspects of the problem. The commission agreed to include a psychiatrist and an expert in industrial hygiene on this commission of inquiry.

It was also recommended that the study should include the possibilities of limiting the production and regulating the distribution of coca leaves.

Illicit Traffic.—The Commission on Narcotic Drugs studied the reports of governments on the illicit traffic in narcotic drugs and noted that Mexico, Iran, India and Turkey were the sources of illicit traffic in opium.

The commission requested the Economic and Social council to recommend to the government of Mexico that it take appropriate measures in fulfilment of its international obligations to suppress the illicit cultivation of opium poppies. Evidence was presented of many thousands of acres of opium poppies under cultivation, and the existence of 20 to 30 secret landing strips in Mexico for the use of planes in smuggling opium to the United States. An outgrowth of this illicit traffic was a shooting affray at Woodbine Check, near Mexicali, between U.S. narcotic and customs officers and Mexican smugglers; several of the latter were reported to have been killed.

War Stocks; Limitation of Production.—The Commission on Narcotic Drugs recommended that any narcotic drugs not covered by import or export certificates, as required by the international narcotic conventions, which might come to light from surplus military supplies should be treated as seizures of illicit drugs and dealt with accordingly. This recommendation was made because of a number of large sales of such stocks which had been brought to the commission's attention.

The commission also requested the Secretariat of the United Nations to prepare an appraisal of world medical needs in terms of raw opium, and approved a draft questionnaire on the limitation and control of the cultivation and harvesting of the coca leaf.

Opium.—The commission noted with gratification the results of the prohibition of smoking opium in the far east. Opium smoking had been declared illegal in all parts of the world except in certain Indian states and in Siam. In Iran, the parliament was considering a law to prohibit the production of opium. This law would provide the death penalty for any person found smoking the narcotic.

The commission agreed that strict wording should be inserted in the treaty with Japan for narcotic control; that import certificates issued by the Japanese government should require indorsement by the Permanent Central Opium board before being acted upon by another country; and that there should be no exports, manufacture, or production of narcotic drugs in Japan.

Amidone and Metopon.—The new synthetic narcotic drug Amidone was brought under the provisions of the U.S. federal narcotic laws as an opiate by a finding of the secretary of the treasury and a proclamation of the president. This action placed Amidone under the same federal control as morphine. Considerable research was conducted on a number of Amidone-like substances.

The new morphine derivative known as Metopon, produced under a government-owned patent, was made available to physicians for the relief of pain in terminal cancer cases. With a limited supply, distribution was being carefully controlled through a few channels in order that the U.S. public health service could obtain a clear picture of the effects of this drug throughout the United States.

Addiction.—There had been no marked increase in addiction since the end of World War II, in sharp contrast to conditions prevailing after World War I. Relatively few former soldiers had been found to be addicted. With limitation of opium production and international control of synthetic narcotic drugs in the offing, it was quite possible that large-scale addiction would be prevented. Reports from territories in the far east formerly under Japanese occupation indicated enormous decreases in drug addiction. Another great decrease had resulted from the closing of government-owned smoking opium shops throughout the far east. (*See* also DRUG ADMINISTRATION, U.S.)

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National Academy of Sciences: *see* SOCIETIES AND ASSOCIATIONS.

National Archives: *see* ARCHIVES, NATIONAL.

National Association of Evangelicals.

This is an interchurch organization in the United States, having in its membership 29 denominations. It gained about 78,000 additional members in 1947. During the year its national office was moved from Boston to Chicago. Regional offices were maintained in Boston, New York, Newark, N.J., Philadelphia, Washington, Cincinnati, Chicago, Minneapolis, Los Angeles and Portland, Ore. It represents the conservative wing of Protestantism. Among its principal commissions are war relief, with operations in 15 countries; missions, serving 81 boards with passport, visa, purchasing and transportation service; publications, *United Evangelical Action* and *Sunday Schools,* devoted to the preparation of lesson outlines and the revival of the Sunday school convention; radio, acting as a clearinghouse for numerous programs; chaplain counsellors for industry, and for youth, devoted to the correlation of various denominational and interdenominational organizations. Officers elected at Omaha, Neb., in May, 1947, were Dr. R. L. Decker of Kansas City, Mo., president; Dr. Stephen W. Paine of Houghton, N.Y., first vice-president; Dr. William H. Rutgers of Grand Rapids, Mich., second vice-president; H. J. Taylor of Chicago, Ill., treasurer; Seth A. Rohrer of Elkhart, Ind., secretary; Dr. J. Elwin Wright of Boston, Mass., assistant to the president. (J. E. WT.)

National Association of Manufacturers: *see* SOCIETIES AND ASSOCIATIONS.

National Association of State Libraries: *see* SOCIETIES AND ASSOCIATIONS.

National Budget: *see* BUDGET, NATIONAL.

National Catholic Community Service: *see* SOCIETIES AND ASSOCIATIONS.

National Catholic Rural Life Conference: *see* CATHOLIC RURAL LIFE CONFERENCE, NATIONAL.

National Catholic Welfare Conference: *see* CATHOLIC WELFARE CONFERENCE, NATIONAL.

National Congress of Parents and Teachers: *see* PARENTS AND TEACHERS, NATIONAL CONGRESS OF.

National Debt: *see* DEBT, NATIONAL.

National Education Association

of the United States held its 85th annual meeting and its 26th representative assembly at Cincinnati, O., July 7–11, 1947. The assembly with 2,259 delegates was the largest in the association's history. The association was in the second year of its Victory Action Program (1946–51). Its work was carried on through 25 commissions, councils and committees; 29 departments; and 15 headquarters divisions. In the international field it worked through the World Organization of the Teaching Profession which held its first meeting in Glasgow, Scotland, Aug. 7–13, 1947. During the fall and winter of 1947–48 the association asked its members to contribute at least $1.00 each toward a fund for the relief of teachers in war-devastated countries. The association was making progress in its campaign for federal aid to public schools as embodied in S. 472 and H.R. 2953. The senate bill was favourably reported to the senate by the senate committee on labour and public welfare. The house bill was favourably reported to the house committee on education and labour by a subcommittee of that body. Both bills were pending before the second session of the 80th congress. "The Schools Are Yours" was the theme for American Education week, Nov. 9–15, 1947. Among new publi-

cations issued by the association during the year was the *NEA News,* which began publication Sept. 12, 1947, and which goes weekly to about 30,000 educational leaders. The association was organized in Philadelphia, Pa., in 1857. It had in 1947 a membership of 386,643 and its affiliated state associations had a membership of 755,740. There were 1,970 affiliated local associations in 1947 as compared with 1,106 in 1943. Its official organ is the *NEA Journal,* edited by Joy Elmer Morgan and issued to all members monthly except June, July and August. The president for 1947–48 was Glenn E. Snow, president of Dixie Junior college, St. George, Utah; executive secretary Willard E. Givens. (*See* also EDUCATION.) (J. E. Mo.)

National Foundation for Infantile Paralysis: *see* INFANTILE PARALYSIS.

National Gallery of Art: *see* MUSEUMS; SMITHSONIAN INSTITUTION.

National Geographic Society. In 1947 the National Geographic society and the U.S. army air forces conducted an expedition to Bocaiuva, Brazil, to observe the total solar eclipse of May 20. Participating in the work were scientists from Lick observatory, Yerkes observatory, Georgetown observatory, the national bureau of standards and the U.S. Naval Research laboratory, under the direction of Dr. Lyman J. Briggs, chairman of the Research committee of the society. The many tons of astronomical instruments used in the studies and the personnel of the party were flown from the United States by the army air forces. Observations were made of the behaviour of the radio-reflecting layers during the eclipse and extensive measurements were recorded of temperature and humidity at various levels up to 50,000 ft. Numerous photographs both in black and white and in natural colour were taken of the four "contacts" of moon and sun, of the sun's prominences and of the corona. A special project involved the photographing of a star field near the limb of the sun as the basis for computations to test the Einstein "shift" theory, a phase of the theory of relativity.

To study a section of the Mid-Atlantic ridge 1,200 mi. east of Bermuda, an expedition was conducted in the summer of 1947 by the society in co-operation with the Oceanographic institution of Woods Hole, Mass., and Columbia university. The Mid-Atlantic ridge is an undersea mountain range stretching from subarctic to subantarctic latitudes. The expedition was under the leadership of Dr. Maurice Ewing of the faculty of Columbia university. From the research ship "Atlantis," a staff of specialists dredged up more than a ton of rock fragments from the underwater mountain slopes and obtained numerous cores of mud deposits from the adjoining ocean bottom.

Studies of auroras being conducted by the society and Cornell university were continued from the principal base at Ithaca, N.Y., under the direction of Dr. C. W. Gartlein of the Cornell faculty. Additional data were obtained to aid in the classification of the various auroral forms and the measurement of their intensities and the heights to which the displays reach above the earth's surface. Further work was carried on during the year in the society's study of North American birds under the leadership of Dr. Arthur A. Allen of Cornell university. The field researches were conducted in Georgia and the Adirondack mountains.

The society's cartographic division in 1947 designed, drew and published four ten-colour wall maps which were issued as supplements to the *National Geographic Magazine.* In all 6,400,000 copies of the charts were distributed to the society's members. Two of the maps are units in a series of charts covering portions of the United States on a scale greater than can be used for a complete map of the country. That of the south central United States shows the states of Texas, Oklahoma, Arkansas and Louisiana, a region in which cattle-raising, cotton farming, and oil, gas and sulphur production are dominant industries. That of the southeastern United States embraces nine complete states south of the Potomac river and east of the Mississippi river, and parts of adjoining states. This is the area of the old south and border states in which most of the fighting took place during the Civil War. The map of Canada, Alaska and Greenland covers a broad arc of arctic and subarctic America. Because of the very large segment of the earth included within its borders it was produced according to the new trimetric projection designed by Wellman Chamberlin of the society's cartographic division to minimize distortion. The map of the countries of the Caribbean includes the islands of that sea and the countries which border it and the Gulf of Mexico. Insets show on a large scale the Canal Zone and the principal islands.

A monograph *The Round Earth on Flat Paper,* a notable contribution to the science and art of mapmaking, was published during the year. A foreword by Gilbert Grosvenor traces the history and emphasizes the importance of the map services of the National Geographic society.

Membership of the National Geographic society in 1947 was 1,635,000. Its headquarters are at 1146 Sixteenth Street, N.W., Washington 6, D.C. Officers in 1947: president and editor, Gilbert Grosvenor; vice-president and associate editor, John Oliver La Gorce; secretary, Thomas W. McKnew; and treasurer, Robert V. Fleming. (G. GR.)

National Guard. The national guard during 1947 made the most rapid growth in its history, bringing its membership by Dec. 15 to 208,374, the greatest peacetime strength the guard had ever had except in 1940 and 1941 when with the threat of war an attempt was made to fill its ranks prior to induction.

Upon the return of the national guard to state control in 1946, the guard was completely reorganized, with an ultimate goal of 683,000 men, and with an accent upon air units and mobile ground units, supplied with the latest weapons and equipment, and trained as an "M-day force," capable of immediate mobilization in case of enemy attack.

When complete the national guard was to consist of 25 infantry divisions, 2 armoured divisions, 21 regimental combat teams, 14 anti-aircraft artillery brigades, 12 wings, 27 groups, 72 fighter squadrons, 12 light bombardment squadrons and the necessary supporting troops. Plans included the organization of 5,879 army and 514 air units, allocated to the various states on a basis of population and strategic necessity.

When a unit has recruited 25% of its officers and 10% of its enlisted men, and can meet required standards for armoury facilities, it is "federally recognized." At the beginning of the year 1947, the guard had 1,106 such federally recognized units, with a membership of 23,385 men. By the end of the year 3,916 units had been recognized. This represented a growth of approximately 900% in membership and 300% in units during the year.

Approximately 82,000 of this increased membership was gained during a two-months' recruiting drive, the first in the guard's history. It was launched on Sept. 16, the anniversary of the induction of the first national guard troops in 1940 for World War II, and proclaimed by the president as national guard day.

The guard held to the army's rigid requirements as to physical fitness, intelligence and military aptitudes, and each unit, as soon as organized, entered immediately upon its training

mission. Only World War II officers were accepted during the reorganization period. Initial enlistments were accepted from men 17 to 34 years of age; veterans up to 54 years of age could enlist, depending upon the length of their military service.

Approximately 50,000 men attended the 15-day encampments or shorter school sessions in lieu of camps during the summer of 1947, the first such field training after 1940. All army schools, varying in length from ten days to ten months, had been opened to national guardsmen. These schools offer a variety of courses, many of which have a civilian as well as military value. Courses in watch repairing, diesel motors, welding and photography are examples.

One of the greatest problems was in supplying and equipping the rapidly growing units with the latest weapons developed during and after World War II. Three fighter squadrons were to be equipped with jet-propelled P-80 Shooting Stars. Other air units were being equipped with the same aircraft used by the United States air force.

The national guard had become, by successive acts of congress, the dual responsibility of the state governments and the federal government. The federal government supplied equipment, uniforms and pay for weekly training classes and summer field training; the state was charged with recruiting and housing or armouries. However, since plans called for a guard force much larger than in any previous time, part of the responsibility for armouries would have to be assumed by the federal government if the guard was to reach full strength.

While enlarging its units through recruiting and maintaining rigid training standards, the new national guard had also readily accepted the other half of its dual role, that of furnishing to the states a local disaster force, for the alleviation of distress and the protection of property in case of local emergency. For example, fighter squadrons from California and Louisiana flew emergency supplies into Texas City, Tex., at the time of the disastrous fire in April 1947. Within 30 minutes after an explosion and fire at Stanford, Conn., men of the 963rd field artillery battalion arrived with stretchers, blankets and other supplies. Tornadoes in Oklahoma and Arkansas, and floods in Michigan, as well as many other lesser tragedies, served to dramatize the necessity for an on-the-spot group, equipped, organized and trained to handle such emergencies.

(K. F. C.)

National Housing Agency: *see* HOUSING.

National Income and National Product: *see* INCOME AND PRODUCT, U.S.

National Insurance: *see* RELIEF; SOCIAL SECURITY.

National Labor Relations Board.

More cases were filed with this independent agency in the fiscal year 1947 than in any year after passage of the National Labor Relations act.[1]

A total of 14,909 cases were brought to the board's attention. This represented an increase of 2,649 cases, or 21.6%, over those docketed during the previous year, and was the greatest number received in the board's 12-year history.

Of the 14,909 cases docketed in the fiscal period, 10,677, or 71.6%, involved representation questions and the remaining 4,232, or 28.4%, charges of unfair labour practices.

With the 4,605 cases pending on its books from the previous year, the board had on its docket during the fiscal period 19,514 cases. During the year it closed 14,456 of them, leaving 5,058 cases pending on July 1, 1947. Of these, 2,443 involved unfair labour practice allegations; the remaining 2,615 involved conflicting claims of representation.

Most of the representation cases were closed by board-conducted elections, consent elections or cross-checks of company pay rolls with union authorization cards. The remaining cases closed were either withdrawn by the parties filing the petitions or dismissed by the board for lack of merit.

During the year the board conducted 6,920 elections and cross-checks in which 805,474 employees cast secret ballots for the organization of their choice. About 90% of those eligible to vote went to the polls and, by secret ballot, signified their choice of bargaining representative. Eighty-five per cent of those voting marked their ballots in favour of a bargaining agent.

Only 886 of the 6,920 elections held during the year were ordered by the board. The greater number of them were held with the consent or agreed-upon stipulation of all parties.

Affiliates of the American Federation of Labor were successful in obtaining majority designation in 2,196 polls out of 3,581 elections in which they participated during the year, receiving 208,524 votes. Unions affiliated with the Congress of Industrial Organizations were selected in 2,138 out of 3,410 contests, receiving 288,381 votes. Unaffiliated unions were chosen in 860 instances out of a total of 1,317 ballotings in which they participated, receiving 124,827 votes. In the remaining 1,726 contests, 183,742 votes were cast against union representation.

The board carried over from its previous year 2,225 unfair labour practice cases. With the 4,232 new such charges filed during the year, the total to be handled was 6,457. Of these, 4,014 cases were closed in the fiscal period, leaving a balance of 2,443 pending on July 1, 1947.

These unfair labour practices concerned acts of employers which discourage or interfere with self-organization of employees or the practice of collective bargaining. For example, employers are specifically prohibited from interfering with, restraining, or coercing employees in the exercise of their rights to organize and bargain collectively; dominating or interfering with the formation of any labour organization; discriminating against any employee to discourage or encourage membership in a labour organization; discharging or otherwise discriminating against an employee because he has filed charges or given testimony under the act; and, lastly, employers are prohibited from refusing to bargain with the representatives selected by a majority of employees in an appropriate bargaining unit.

To remedy such unfair labour practices the board is authorized to issue cease and desist orders and to take such affirmative action including reinstatement with or without back pay, as will effectuate the policies of the act. In the 1947 fiscal period the board ordered the reinstatement of 4,114 workers found to have been discriminatorily discharged. Back pay awards of $1,104,660 were given to 2,656 of the reinstated workers. Thirty-six company unions were disestablished. In 273 cases collective bargaining was ordered, while in 658 instances notices of compliance with board decisions were directed to be posted. These posted notices informed employees that they were free to engage in collective activity without interference, as guaranteed in the act.

In its 12 years of operation, more than 100,000 cases had been filed with the agency. During that time the board conducted more than 36,000 elections in which 8,000,000 workers signified their choice of bargaining representative. During this period the board ordered the reinstatement of more than 300,000 workers found to have been discriminated against, and directed back pay awards totalling more than $12,000,000. About 2,050 company unions were ordered disestablished and in another

[1]On June 23, 1947, one week before the close of the fiscal year, the 80th congress passed, over presidential veto, the Labor Management Relations act of 1947 (Taft-Hartley act), greatly amending the National Labor Relations act. The new act enlarged the National Labor Relations board from three to five members and separated the prosecuting and judicial functions by vesting final authority for investigation and prosecution of all unfair labour practice cases in the board's general counsel. Among other provisions, the new act provides for four additional types of elections to be conducted by the board and specifies certain union practices as illegal.
The text of this article relates only to the board's operations under the old law.

8,000 cases notices of compliance with board decisions were directed to be posted.

Decisions and orders of the board are not self-enforceable. Either the company or the board may petition the circuit court of appeals. Beyond this, either party may appeal to the supreme court.

In the fiscal year, 68 board decisions reached the circuit courts. Of these, 48 were enforced in full, 10 were set aside and 10 were modified. Of the 6 cases that reached the supreme court in the fiscal year, board orders were enforced in each instance.

A total of 654 cases had been litigated in the federal courts from the time the act was passed. In the circuit courts, 394 board orders were enforced in full; 83 were set aside; 177 modified; and 14 remanded to the board for further consideration. Of the 56 cases that reached the supreme court, board orders were enforced in 54 cases; in only 2 cases were board orders set aside.

The board's jurisdiction extends only to those industries engaged in or affecting interstate commerce.

While the board has its headquarters in Washington, D.C., it maintains 28 regional offices, each responsible for servicing a particular area. (*See* also LABOUR UNIONS; LAW; STRIKES AND LOCK-OUTS.) (P. M. HG.)

National Lawyers Guild: *see* SOCIETIES AND ASSOCIATIONS.

National Mediation Board.

The National Mediation board is an independent agency of the U.S. government charged with administration of the Railway Labor act. This statute provides procedures for settlement of disputes on the railroads and airlines for the purpose of preventing interruptions to commerce arising out of labour disputes. In disputes over employee representation, the board is authorized to conduct elections and certify representatives designated by majority vote of employees. In disputes between employees and employers over changes in rates of pay, rules or working conditions, the board has authority to endeavour by mediation to settle the dispute and thus prevent interruptions to commerce arising out of work stoppages.

In 1947, the U.S. economy was notably affected by postwar adjustments and mounting prices. Labour unrest was general and strikes or threatened strikes were common. As in other industry, there were but few days during the year when, on some railroad or airline, there was not a threatened interruption to service as a result of unsettled labour disputes. For the most part the step-by-step procedures of the law for achieving peaceful settlements were effectively applied and thus the threatened interruptions were averted. As a result, in scores of cases, substantial financial loss to the railroads and airlines as well as related industries, to their employees, and loss in service to the public were avoided by the orderly settlement of disputes as contemplated by the law.

Although the law's effectiveness was demonstrated many times, its failure in a few cases during the year serves to emphasize the need for the law and alertness in applying its procedures.

During 1947, the prolonged strike of employees of the Toledo, Peoria and Western Railroad, a small midwestern carrier, was brought to an end. The strike began on Oct. 1, 1945, when operation of the road was returned to private management by the Office of Defense Transportation which operated the property during World War II. The dispute which led to the strike extended back to 1941 when the employees began negotiations in an effort to secure improved wages and working conditions.

Refusal of the railroad's management to agree to the employee's proposals led to one of the most bitter and extended labour disputes in recent railroad history. Some striking employees lost their lives, and the carrier's president was assassinated under mysterious circumstances which remained unsolved. Following his death the new management made agreements with the striking employees and thus the strike was terminated on April 22, 1947, nearly 19 months after it began.

During the year there was one strike among airline employees covered by the act. This stoppage involved pilots of American Overseas Airlines and extended from Sept. 30 to Oct. 18. Although mediation was unsuccessful in averting the strike, mediation was resumed by members of the National Mediation board after the stoppage began. Following extended conferences, the disputing parties were finally brought into agreement and the strike was terminated. The stoppage involved about 175 pilots, but grounding of planes resulted in the furlough of some 1,300 nonstriking employees and the stranding of more than 1,000 passengers at various overseas points.

Other strikes during 1947 on carriers covered by the Railway Labor act were of short duration or of minor importance.

During the year, a total of 574 applications for service were received and docketed by the board. There were 436 cases disposed of and, of this number, 224 were wage and rule disputes and 212 were employee representation disputes. (*See* also RAILROADS.) (T. E. S.)

National Military Establishment: *see* GOVERNMENT DEPARTMENTS AND BUREAUS; UNITED STATES.

National Museum: *see* SMITHSONIAN INSTITUTION.

National Parks and Monuments.

During the year 1947 travel to all areas administered by the U.S. national park service increased 17% over 1946. The total number of visitors was 25,265,229.

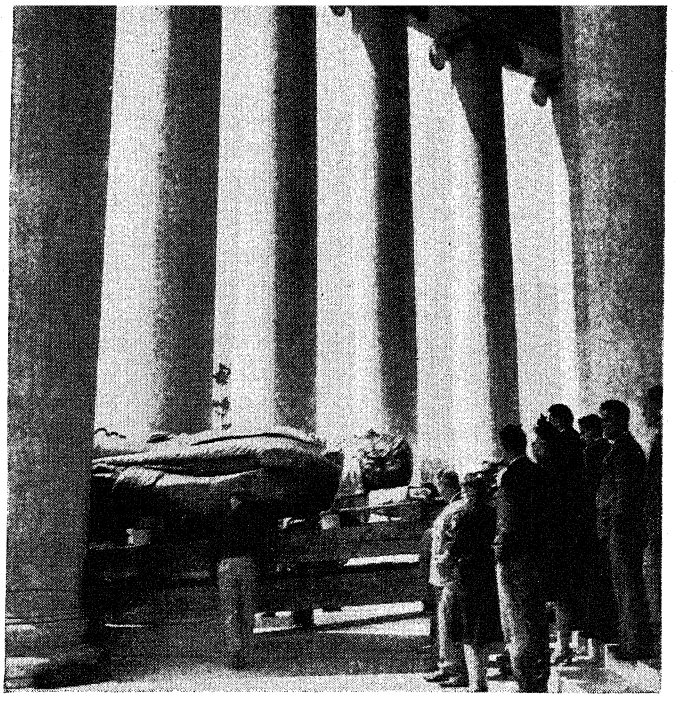
Most important event of the year was the establishment on June 20 of Everglades National park. This new park was dedicated on Dec. 6 by the president of the United States with appropriate ceremonies held at Everglades city, Fla. Located near the southern extremity of the Florida peninsula, the park embraces an area of 454,000 ac., eventually to be increased to approximately 1,282,000 ac. by the addition of lands to be purchased with funds provided by the state of Florida.

Other new areas added to the national park system during 1947 were the Theodore Roosevelt National Memorial park, 35,370 ac., on the Little Missouri river in North Dakota, and Kennesaw Mountain National Battlefield park near Marietta, Ga. Kennesaw Mountain National Battlefield park includes the Kennesaw Mountain National Battlefield site, a smaller area, which formerly served to memorialize the battle.

At the close of 1947 the national park system included 171 units, classified as follows: 28 national parks, 4 national historical parks, 85 national monuments, 11 military parks, 2 battlefield parks, 1 memorial park, 6 battlefield sites, 11 historic sites, 9 memorials, 10 cemeteries, 3 parkways and the system of national capital parks.

Two national monuments were formally dedicated for public use. The first of these, Fort Frederica National monument on St. Simon's Island, Ga., is the site of an English colonial outpost, established in 1736. The second, Whitman National monument in the state of Washington, is the site of the Whitman mission, once a landmark on the Oregon trail where Dr. Marcus Whitman and Narcissa Prentiss Whitman ministered to the spiritual and physical needs of the Oregon Indians until massacred by them in 1847.

In 1947, the name of Boulder Dam Recreational area in Arizona and Nevada was changed to Lake Mead Recreational area



BRONZE STATUE of Thomas Jefferson, sculptured by Rudolph Evans, being brought into the Jefferson memorial at Washington, D.C., in April 1947, to replace the plaster model installed in 1943 when metal could not be spared

after Boulder dam, which impounds Lake Mead, was renamed Hoover dam in honour of former President Herbert C. Hoover. At Fort Raleigh National Historic site on Roanoke Island, N.C., national park service archaeologists had excavated a small earth fort believed to be the remains of a fort constructed by members of Raleigh's expedition in May 1585. Service archaeologists had also uncovered the remains of Fort Vancouver in the state of Washington, the old fortified post which served as western headquarters of the Hudson's Bay company from 1829 to 1845.

A disastrous forest fire on Mount Desert Island, Me., in October, invaded Acadia National park and burned 8,750 ac. or 13.67 sq.mi. within the park in addition to 8,438 ac. outside. Total damage to the forests in this park could not be readily determined until the hardwoods should leaf out again. Where the burn was complete, the return of the forest would be exceedingly slow, for the duff and humus were largely consumed by the fire.

Representatives of the United States International Park commission met with a newly created International Park commission of Mexico in Mexico City, July 15 to 19, inclusive, to discuss plans for establishing a national park in the Mexican states of Coahuila and Chihuahua contiguous to the Big Bend National park in Texas and a Coronado International memorial in the Mexican state of Sonora as a companion area to the proposed Coronado International memorial in Arizona.

The United States travel division, a unit of the national park service which was suspended during World War II, was reestablished toward the end of the year with J. Lee Bossemeyer of Fayetteville, Ark., as chief. Bossemeyer was formerly head of the San Francisco, Calif., field office of this agency, which was known prior to World War II as the U.S. travel bureau. Prohibited by statute from competing with private agencies, the travel division would assist the travel industry in every way possible to acquaint the people of the United States and visitors from other countries with the educational and recreational advantages the United States and its territories have to offer. The travel division would formulate and carry out its program with the aid and guidance of an advisory committee comprised of six representatives of the federal government and six additional members chosen from industry to represent the various regions of the United States. Russell E. Singer, executive vice-president of the American Automobile association, had accepted the chairmanship of this advisory committee. (N. B. D.)

Great Britain.—In July 1947 the reports of the national parks committee, set up in 1945 by the minister of town and country planning, and its two special committees dealing with wildlife conservation and footpaths and access were published. This committee recommended that 12 parks covering 5,682 sq.mi. should be set up in 3 annual instalments, as follows: the Lake district; north Wales; the Peak district; Dartmoor; the Yorkshire dales; the Pembrokeshire coast; Exmoor; the South Downs; the Roman wall; the north Yorkshire moors; Brecon Beacons and Black mountains; the Norfolk Broads.

The committee recommended that the national parks should be controlled by a national parks commission with park committees for each of the 12 parks, that a further 52 areas of outstanding landscape beauty, scientific interest and recreational value should be designated conservation areas, and that a coastal footpath should be made available to the public.

Under the national land fund instituted in 1946, by which land is accepted by the exchequer in lieu of death duties, three properties were handed to the national trust as places of historic interest or natural beauty: Hartsopp Hall estate in the Lake district, Cotehole, Cornwall, and Townend farm, Troutbeck, while Tregonnan house, near Padstow, Cornwall, was handed over to the Youth Hostels' association. Early in 1947 it was announced that Alderley Edge, a woodland in Cheshire, was to be transferred to the national trust.

A statue, by Sir William Reid Dick, of King George V (1865–1936) was unveiled on the lawns of Westminster abbey on Oct. 20 by King George VI. The monument was the centrepiece of the national institution known as King George's Playing fields.

Italy.—In October the Italian ministry of agriculture and forests transferred the control of the national park of the Gran Paradiso to an independent body subsidized by the government and the authorities of Aosta and Turin. The park of the Gran Paradiso covers approximately 220 sq.mi. in the Aosta valley, in northern Piedmont. With this new control the surviving ibex which had almost been destroyed by hunters during World War II would be preserved.

Switzerland.—During the year considerable opposition was expressed to a project to set up power generating stations on the river Spöl, which flows through the Swiss National park situated to the east and west of the Ofen pass in the lower Engadine. On the fringe of the national park it was proposed to construct a dam of a height of about 420 ft. and empty the river Spöl for a length of about four miles, where a series of small lakes would be constructed. The Federal National Park commission, which is nationally supported, and the League for the Protection of Nature both protested against these proposals on the grounds that the seclusion of the park would be violated and the birds and game would be scared by the noise of the proposed engineering work.

BIBLIOGRAPHY.—*Report of the National Parks Committee (England and Wales)* (Cmd. 7121, London). (H. J. G. G.)

National Railway Labor Panel: *see* NATIONAL MEDIATION BOARD.

National Wealth: *see* WEALTH AND INCOME, DISTRIBUTION OF.

Natural Gas: *see* GAS, NATURAL.

Nauru: *see* PACIFIC ISLANDS UNDER TRUSTEESHIP; TRUSTEE TERRITORIES.

Naval Academy, U.S.

The United States Naval academy, located at Annapolis, Md., was founded in 1845, and is maintained by the government, under

the immediate supervision of the bureau of naval personnel of the navy department, for the education and training of young men for the naval service.

The Naval academy renewed emphasis on its traditional role as an undergraduate institution, stressing fundamentals and leaving to postgraduate or special schools of the navy such branches of study as are not basic and properly undergraduate. Postwar curricular studies, which stressed the concept that the Naval academy was but one link in the chain of naval education, were further developed with a consistent view of the academy's undergraduate function. The return to summer practice cruises made possible a reallocation of time among the academic departments which provided increased opportunity for emphasis on fundamentals.

"Camid II," an amphibious operation participated in by 780 midshipmen of the Naval academy and 600 cadets of the U.S. Military academy, was held in the Chesapeake capes area in Aug. 1947. Exchange of faculty members on a yearly basis and students of the first class on a week-end basis between the Naval and Military academies were other typical aspects of the closer co-operation of the service academies in the accomplishment of mutual objectives.

The first, second and third classes of midshipmen, together with designated N.R.O.T.C. midshipmen, were sent on practice cruises in northern European waters aboard the carriers "Randolph" and "Kearsarge," the battleships "New Jersey" and "Wisconsin," and the destroyers "Cone," "Stribling," "O'Hare" and "Meredith." Included in this operation was a short period of indoctrination aboard submarines for first classmen. The joint cruises for academy midshipmen and those of the 52 universities having N.R.O.T.C. units was one of the steps taken for further integration of naval reserve and academy sources of officer personnel under the Holloway plan.

Rear Admiral James L. Holloway, Jr., U.S. navy, assumed his duties as superintendent of the Naval academy in Jan. 1947.

Entrance requirements were rendered more flexible for candidates entering in 1948 by the elimination of chemistry as a part of the regular entrance examinations and as a required subject for admission by either of the certificate methods.

Curricular aims were being increasingly focused upon preparation for the broader aspects of a naval career with decreasing emphasis on the purely junior officer qualifications of graduates. (For statistics of enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (R. S. CR.)

Navies of the World. At the end of 1947 the distribution of the world's warships had undergone considerable alteration, compared with the situation 12 months earlier. The two principal sea powers, the United States and the British empire, had discarded not only the majority of their older vessels, but also a substantial proportion of the additional units constructed during 1939–45. While a great many of these ships had been broken up or converted to mercantile use, others had been acquired by smaller nations as replacements for obsolete tonnage.

Some of the surrendered German ships which had been divided among the navies of the United States, the British empire, France and the U.S.S.R. were utilized as targets or for various experiments, only a minority being incorporated in the fleets of their new owners. At the end of the year the fate of the Italian ships which under the peace treaty were to be divided among the same four nations had not been finally settled. Offers had been made by the United States and British governments to leave the more important of the units assigned to them in Italian hands, to be broken up or otherwise destroyed; but the attitude of the French and Russian governments to this proposal had not been made known.

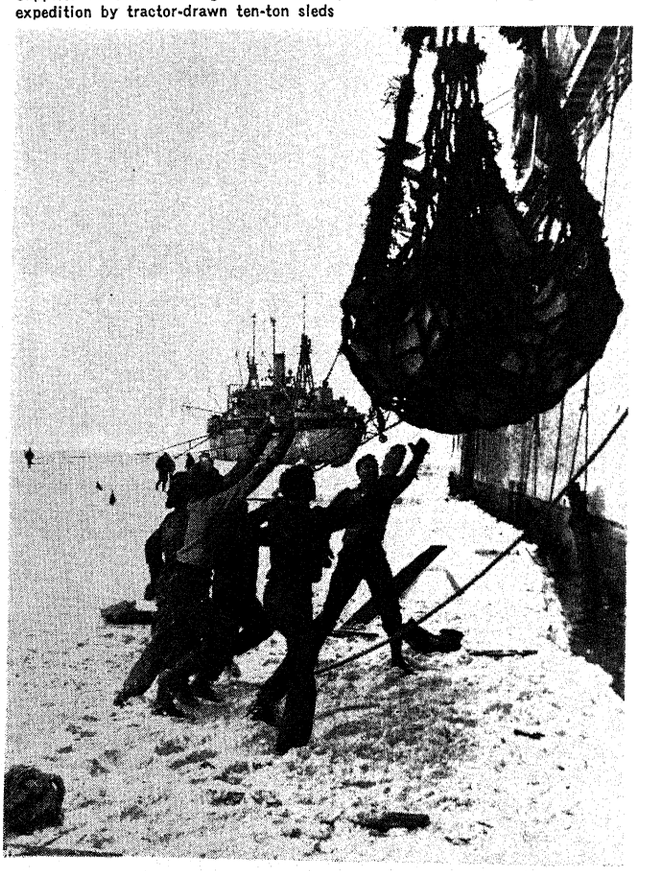
In the far east, a division had been made of the 92 minor war vessels captured when Japanese resistance ended, 23 units each being taken over by the United States, British, Chinese and Russian navies. These ships comprised destroyers, escort and patrol vessels, mine sweepers and other ancillary craft.

In spite of the heavy reduction of expenditure on naval armaments by the two principal powers, research work on new weapons continued. Some of these, naturally, took the form of improvements on war inventions of the Allies; others were adaptations of ideas of the axis countries, some of which had not reached the operational stage when hostilities ceased. Improved antisubmarine devices, more effective anti-aircraft weapons, guided missiles of unexampled range and power and new methods of propulsion were reported to be among the problems under investigation by naval scientists and technicians. So far as warship design was concerned, nothing fresh would appear to have been initiated, beyond the inclusion of certain approved devices in the equipment of the limited number of new vessels ordered to be constructed.

Of the fresh types produced in large numbers under the stress of war, several had almost disappeared from the principal navies, *e.g.*, the corvette, the motor torpedo boat and landing ships and craft of all but a few categories.

Though it had become known that in the 18-in. gun battleships "Musashi" and "Yamato," of more than 63,000 tons standard displacement, and the aircraft carrier "Shinano," of 59,000 tons, the Japanese had built by far the largest war vessels in history, there appeared to be no disposition on the part of the leading naval powers to emulate these examples of megalomania, possibly because none of the three achieved anything of note before being sunk. In fact, it would seem that,

NETLOAD OF FOOD delivered to Little America IV by the U.S.S. "Yancey" being lowered onto the frozen surface of the Bay of Whales early in 1947. Supplies were then brought to the camp site of the U.S. navy's antarctic expedition by tractor-drawn ten-ton sleds



on the whole, the lessons of the war failed to encourage further growth in the size of ships.

Publication during 1947 of documents discovered in enemy archives and of the results of interrogations of prisoners, threw fresh light on many of the principal events of World War II, furnishing valuable material for its historians. Not the least important fact that emerged from this material was the immense influence exerted by Allied command of the sea.

United States Naval Strength.—At the end of 1947 the 45,000-ton battleship "Kentucky," whose armament was believed to include guided missiles of a new type, was still some distance from completion. The battle cruiser "Hawaii" was also unfinished, but the new large aircraft carrier "Coral Sea" had been commissioned during the year. Disposal of the old battleships "Idaho" and "New Mexico" had reduced the total of this category to 15. From the aircraft carrier "Midway" had been launched experimentally during the year a guided missile of a new type, said to resemble the German V-2 in design. A program of new construction introduced in 1947 included two submarines, the "Tang" and the "Trigger," of a novel design to incorporate the latest devices in their equipment. Other submarines were to be adapted for experimental use in Arctic waters. An even larger proportion of the total strength of the fleet was laid up in reserve than during 1946. Ships of war still to be completed included five cruisers, nine destroyers and seven submarines.

Strength of personnel had been brought down to 395,000 officers and men in the navy and 83,700 in the marine corps.

British Naval Strength.—With the disarming of three obsolete battleships, the strength of the royal navy in this category was reduced to ten ships, only five of which were of late design. All escort aircraft carriers had been discarded with two exceptions, one of which had been lent to the Netherlands for a term of years. The number of cruisers had also decreased with the disposal of the oldest units, and the completion of three laid down during the war was deferred indefinitely. Construction of 12 aircraft carriers was also held up for the time being, pending decision concerning their armament. Two destroyers of novel design were ordered to be built; it was possible that one of these might be propelled by gas turbines, in the light of experiments carried out in 1947 with a smaller craft so engined. A number of the escort vessels and mine sweepers built during World War II were sold or otherwise disposed of during the year. Similar reductions were effected in the fleets of the overseas dominions.

Personnel, the strength of which was fixed in the early part of the year at 192,665, was further cut to a total of 147,000 at a later date. To facilitate this reduction, a great many ships at home and abroad were paid off or greatly reduced in complement, temporarily bringing down the effective strength of the home fleet to one cruiser and four destroyers.

France.—Financial stringency curtailed plans for the reorganization of the French fleet. Work on a cruiser which was under construction had to be stopped, and a proposal to build a new aircraft carrier had ultimately to be deferred indefinitely. Seven corvettes and a number of other vessels which were on loan had to be paid off and returned as a measure of economy, and training of personnel was also affected. Three destroyers and 27 other vessels of the former German navy, which were in U.S. hands, were directed to be transferred to the French flag at the end of 1947, but it was not clear whether they would all be commissioned or their material utilized for repair work. Personnel was reduced to about 50,000.

U.S.S.R.—Three old battleships, of which one was on loan from the British navy, constituted the principal strength of the soviet fleet in 1947. Eight cruisers, one of them lent from the U.S. navy, about 45 destroyers and 120 submarines were also believed to exist. Very large flotillas of small craft, many of them lent by Allied Powers during World War II, made up the bulk of the remaining strength. Little was known about new construction, but it was not believed to be important.



LST's which brought Netherlands troops and supplies for amphibious landings at East Java in July 1947, during the colonial warfare between Indonesian republicans and colonial authorities

Italy.—Having been reduced by the peace treaty to 2 battleships, 4 cruisers, 20 destroyers, 20 corvettes and various auxiliary vessels, the Italian navy adapted itself to its new status in 1947. During the summer a cruise around the Italian coasts and islands was undertaken for the benefit of the personnel, which was limited to 22,500. As mentioned above, final arrangements for disposal of tonnage to be divided among four Allied Powers under the peace treaty had still to be carried into effect.

Other European Countries.—In the royal Netherlands navy little alteration in strength took place during the year, the completion of two cruisers being deferred owing to the pressing need for materials for mercantile construction.

A proposal to purchase a cruiser for the royal Norwegian navy was defeated by a narrow vote, with unfortunate results as regards the naval training program. An eighth destroyer was passed into service, and a new royal yacht was bought. No other ships of importance were acquired, but it was arranged to reconstruct five prewar torpedo boats to enable them to be used as escort vessels. Personnel numbered about 5,000.

Denmark completed two small destroyers laid down before the war and chartered three submarines from the British navy. Good progress was made with the construction of the six small torpedo boats in hand. Total personnel numbered nearly 4,000.

Sweden completed one of two cruisers under construction; the second was expected to be ready early in 1948. Two new destroyers were also about to join the fleet, and two more were authorized to be built. Throughout the year the navy was maintained in a high state of efficiency, with a total personnel of 10,000.

Finland was obliged under the terms of peace with the U.S.S.R. to hand over its only coast defense ship, five submarines and a number of motor torpedo boats, leaving under the Finnish flag only a few mine sweeping and patrol craft.

Poland augmented its naval forces by some small craft from the Russian navy; otherwise there were few changes.

Spain continued to proceed slowly with the construction of 20 new destroyers and a number of other vessels. Apparently slow delivery of materials was the chief cause of delay. Personnel numbered 20,000 with reserves.

*Navies of the World, 1947**

	Battleships	Battle Cruisers	Fleet Aircraft Carriers	Escort Aircraft Carriers	Cruisers	Coast Defense Ships	Destroyers	Submarines
United States	15	2	36	69	72	—	630	206
British Empire	10	1	13	1	46	2	209	83
France	3	—	1	1	9	—	22	14
U.S.S.R.	3	—	—	—	8	1	45	120
Italy	2	—	—	—	4	—	20	—
Argentina	2	—	—	—	3	2	11	3
Brazil	2	—	—	—	1	—	13	4
Chile	1	—	—	—	1	—	6	7
Turkey	—	1	—	—	2	—	7	10
Spain	—	—	—	—	6	—	16	5
Sweden	—	—	—	—	4	5	20	24
Netherlands	—	—	—	1	2	—	6	7
Peru	—	—	—	—	2	—	2	4
China	—	—	—	—	1	—	6	—
Greece	—	—	—	—	—	—	10	6
Norway	—	—	—	—	—	—	8	5
Portugal	—	—	—	—	—	—	5	3
Poland	—	—	—	—	—	—	2	4
Denmark	—	—	—	—	—	—	2	3
Rumania	—	—	—	—	—	—	2	1
Colombia	—	—	—	—	—	—	2	—
Yugoslavia	—	—	—	—	—	—	—	6
Siam	—	—	—	—	—	—	—	4

*Though precise information concerning the Russian and Yugoslav navies was not available, the above figures were believed to be reasonably accurate. Other navies, composed of smaller craft than the above, were those of Mexico, Cuba, Belgium, the Dominican Republic, Venezuela, Ecuador, Uruguay, Finland, Bulgaria, Iran, Egypt and Iraq.

Portugal arranged for the modernization in England of its five destroyers. A new surveying vessel was acquired.

Turkey acquired 13 fleet mine sweepers and a number of smaller craft from the British navy.

Greece obtained six patrol vessels and two dock landing ships from the United States, besides some smaller craft.

Rumania was reported to be negotiating for the return from Russia of two destroyers seized during World War II. Bulgaria had acquired four motor torpedo boats and six motor launches from the Russian navy. From the same source the Yugoslavs were reported to have received 6 submarines, 20 motor torpedo boats and a depot ship. Otherwise, there existed only a remnant of the prewar naval strength.

South and Central America.—Though Argentina had introduced an impressive program of naval construction, the only additions to the fleet in 1947 were four frigates formerly belonging to the United States.

Brazil purchased a few auxiliaries in the United States in 1947. It was hoped to acquire the U.S. cruisers "Nashville" and "Phoenix" in the following year.

Chile bought two transports and an oiler in the United States in 1947 and was expecting to receive the cruiser "Boise" from the same source during 1948.

Peru had strengthened its navy by the acquisition of two ex-Canadian frigates and a couple of auxiliaries in 1947. Colombia added a frigate and two small patrol craft to its forces during the year. The Dominican Republic was reported to have bought two corvettes; Venezuela acquired six ex-Canadian corvettes and a former U.S. landing ship; Cuba and Mexico were reported to be negotiating for other vessels; and Ecuador purchased an ex-U.S. frigate.

Asia.—China, in addition to 23 miscellaneous vessels acquired with the disposal of captured Japanese ships, took over a cruiser and a destroyer from the British navy in 1947. A quantity of additional tonnage was expected to be transferred from the United States navy.

The Siamese navy purchased two corvettes and a fleet mine sweeper from the British navy during 1947.

Africa.—Egypt proposed to purchase three sloops, two corvettes, four fleet mine sweepers and a number of smaller craft in England. (*See* also MUNITIONS OF WAR.)

(F. E. McM.)

Navy, U.S. Department of: *see* GOVERNMENT DEPARTMENTS AND BUREAUS.

Nazis: *see* ANTI-SEMITISM; GERMANY; WAR CRIMES.

N.E.A.: *see* NATIONAL EDUCATION ASSOCIATION.

Nebraska. One of the states formed from the territory of the Louisiana Purchase, Nebraska lies in the lower Missouri valley in the west north central part of the U.S.; admitted to the union in 1867; land area 76,653 sq.mi.; water area, 584 sq.mi.; pop. (1940) 1,315,834; estimated 1,301,000 by the bureau of census on July 1, 1947; capital, Lincoln (81,984); largest city, Omaha (223,844). In 1940, 39% of the population was urban. About 1% of the total population is Negro and about 8% foreign-born, principally German and Scandinavian.

History.—State officers for the 1947–49 period were: governor, Val Peterson (Rep.); lieutenant governor, Robert B. Crosby; attorney general, Walter R. Johnson; auditor, Ray C. Johnson; secretary of state, Frank Marsh; treasurer, Edward Gillette; state superintendent of public instruction, Wayne O. Reed; chief justice, Robert G. Simmons.

The legislature of 1947 enacted laws providing for a court of industrial relations, adjusting salaries of the constitutionally elected state officials, providing a tax on cigarettes for the first time, authorizing a building program for state institutions with proceeds of a 1.1 mill levy on real property, authorizing the community property tax and extending provisions of the anticlosed shop amendment to the state constitution. The legislative council, composed of 16 legislators, was directed by the 1947 legislature to investigate and report on proposed changes in state budgetary procedure, centralization of the state university and the teachers colleges, allocation of proceeds of the gasoline tax, laws relating to schools and revision of the school code, the completion of panels and murals in the state capitol and the state's public assistance program.

Education.—Elementary and secondary education is generally directed by local school districts of which there were nearly 7,000 in 1947, with some supervision from the state superintendent and with slightly more than $1,000,000 annual state aid. The total enrolment in elementary and secondary schools in 1946 was 230,147, and the teaching staffs numbered 12,125. Expenditures for 1945–46 were $29,530,870. Higher education is directed by the state university at Lincoln and four state teachers colleges.

Social Insurance and Assistance, Public Welfare and Related Programs.—The state appropriation for public assistance for the 1947–49 period was $36,406,284, of which $18,402,019 were federal funds. In Oct. 1947 the number of persons receiving general relief was 1,513, and each received a monthly average of $28.15. At the same time 7,375 dependent children received an average of $29.42 monthly aid; 471 blind persons received a monthly average of $41.32; 24,351 persons received a monthly average of $37.61 for old-age assistance. The state maintained 5 correctional and penal institutions with a population of 1,154 as of July 1, 1947, and 11 other institutions for children, mentally ill, and other dependents, with a population of 6,648. These institutions were under the supervision of a board of control to which the state appropriated $13,921,213 for 1947–49.

Communications.—The total highway mileage of the state in 1947 was 100,666. State appropriations for highway purposes for 1947–49 were $16,500,000 plus $11,500,000 in federal funds. In 1947 there were 138 airports in the state. Total railway mileage in the state in 1947 was 6,326. Fifteen radio stations operated in the state, eight of which were located in Omaha and Lincoln.

Banking and Finance.—State banks numbered 282 in 1947 with total assets of $395,523,900. There were also 44 building and loan associations with assets of $80,963,914; 127 credit associations and credit unions with resources of $12,316,790. The assets of eight trust companies amounted to $17,313,701. National banks in July 1947 numbered 127 with resources of $938,461,000. The total assessed valuation of the state as determined in Aug. 1947 was $2,316,658,000. The tax rate for state purposes was set at 5.99 mills, calculated to produce $13,876,783. Receipts for the fiscal year ending June 30, 1946, were $57,429,745, and expenditures amounted to $56,984,705. Total appropriations for 1947–49 were $117,631,050, including unexpended balances and $35,892,230 federal aid. The state had no bonded debt, though that of local subdivisions in 1946 amounted to $50,132,457. This did not include the indebtedness of the public power and irrigation districts which, on July 1, 1946, amounted to $40,381,000.

Agriculture.—The total acreage harvested in 1947 for the crops listed in

Leading Agricultural Products of Nebraska, 1947 and 1946

Crop	1947*	1946
Corn, bu.	152,775,000	231,362,000
Wheat, bu.	95,252,000	90,677,000
Oats, bu.	62,384,000	71,708,000
Barley, bu.	10,516,000	11,529,000
Potatoes, bu.	8,960,000	11,725,000
Sugar beets, tons.	876,000	825,000
Alfalfa hay, tons.	2,101,000	1,786,000
Wild hay, tons	2,400,000	1,836,000

*Estimated Nov. 13, 1947.

the table was 18,305,000. As of Dec. 1, 1947, the total farm income for the year was estimated to be about $1,250,000,000, exclusive of government payments, as compared with $899,710,000 for 1946.

Manufacturing.—Manufacturing is not of major importance in the economy of the state. Most establishments are engaged in the processing of farm products. Although no comprehensive figures were available after 1939, it was estimated that employment by concerns covered by the unemployment compensation laws would total 149,000 as of Nov. 1947.

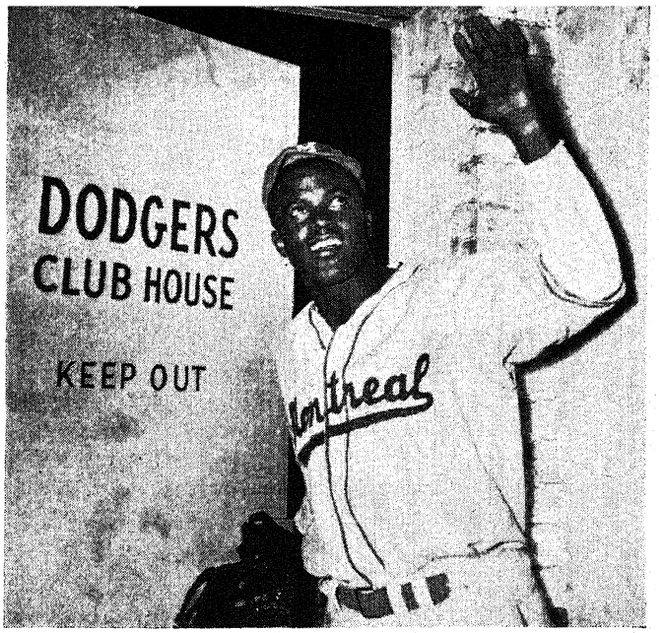
Mineral Production.—Aside from clay, sand, gravel and building stone, most of which is consumed locally, the state has no mineral wealth of consequence. There are deposits of petroleum which produce an annual output of approximately 5,000,000 bbl. (A. C. BE.)

Necrology: *see* OBITUARIES.

Negroes, American. There was measurable improvement both in status and integration of the Negro in the armed forces. Negro personnel totalled 58,437 or 9.2% of the peacetime army, with an 8.3% participation in overseas assignments. Commissioned and warrant officer numbers reached 937, of whom 110 were in the regular army, with 9 cadets at West Point. Navy Negro personnel reached 31,844 and the policy of admitting Negroes to regular commissions was inaugurated.

Legal and Political.—Despite failure of federal legislation for national Fair Employment Practices committee (F.E.P.C.), antilynch and anti-poll-tax laws, there were significant advances on the civil rights front. Two presidential commissions, one on civil rights and the other on higher education, presented detailed reports revealing the extent of discriminatory practices against the Negro and other minority groups and took a forthright stand against such discriminations in law and practice. Two immediate results of the report of The President's Committee on Civil Rights were the strengthening of the civil rights' division in the department of justice and a precedent-breaking filing by the attorney-general of a supporting brief in the case before the U.S. supreme court contesting restrictive real estate covenants. Two decisions of United States courts declaring South Carolina white primary legislation unconstitutional were granted through the 4th U.S. circuit court of appeals upholding the original verdict of Judge T. Waties Waring. The U.S. supreme court also invalidated several Mississippi court convictions on the grounds of evidence of the systematic exclusion of Negroes from jury panels. Documented charges of widespread social, economic and civil discrimination were filed by the National Association for the Advancement of Colored People (N.A.A.C.P.) and supporting organizations before the United Nations and were received by the assistant secretary-general for social affairs for reference to the appropriate U.N. commissions. Similar representations and legislative recommendations for a world guarantee in an international bill of rights were made to the U.N. Human Rights commission. The American Heritage foundation, sponsors of the Freedom Train, set a policy of permitting no stops on this tour of historic documents where guarantees of unsegregated access were not obtained: accordingly scheduled stops at Memphis, Tenn., and Birmingham, Ala., were cancelled, while other southern cities, notably Atlanta, acceded to the stipulation. As gauged by press comments and resolutions of church and other civic organizations, liberal sentiment supporting this and similar progressive stands indicated, even in the south, increasing public sentiment for more consistent democratic practice.

Industrial and Economic.—Despite employment set-backs there was some definite improvement on the Negro labour front. Agitation for F.E.P.C. legislation continued strong; the U.S. supreme court supported the railway firemen's suit against the Brotherhood of Locomotive Firemen for restricting promotion of Negro firemen. As a result of threats of outlawing the union by the N.Y. State Commission Against Discrimination, The Brotherhood of Railway and Steamship Clerks, A.F. of L., removed its membership restriction clauses and gave full voting rights to Negro auxiliary locals. The United Auto Workers, C.I.O., elected a Negro to its executive council, and Negro participation, particularly in C.I.O. unions, moved forward considerably.



JACKIE ROBINSON, first Negro player to enter major-league baseball, joined the Brooklyn Dodgers as first baseman in April 1947

Under F.E.P.C. and consumer pressures, the employment and upgrading of Negroes gained measurably, especially in public utilities, retail department stores and soliciting salesmen.

Educational and Cultural.—The President's Commission on Higher Education advocated as an integral part of its report the complete elimination of educational segregation, and recommended explicit provision in all future federal aid and national educational projects forbidding discrimination on grounds of race, colour or creed. A delayed minority report of four southern members called for gradual application of the above drastic recommendations. In the St. Louis Roman Catholic diocese, after group defiance of an episcopal order abolishing segregation in the parochial high schools, Archbishop Joseph Ritter threatened excommunication for noncompliance, and organized resistance ceased. In Gary, Ind., similarly, a strike against an order abolishing segregation in the high schools was broken by administrative and school board insistence. The N.Y. state department of education proposed a substitute plan for the Austin-Mahoney bill which would effectively guarantee nondiscrimination in that state's public and private schools. The Oklahoma and the Texas decisions upholding segregation in their state universities was appealed to the U.S. supreme court.

As against the 1946 registration of 53,030 Negro college students, *The Crisis* reported a total of 74,095 with 6,052 bachelor degree graduates, 360 master's degrees, 8 Ph.D.'s and 360 professional degrees in 1947. On both the faculty and the student level, integration of Negroes in mixed colleges continued. Charles S. Johnson was inaugurated Nov. 7 as the first Negro president of Fisk university. Dr. E. Franklin Frazier was elected president of the American Sociological society. Ralph J. Bunche, organizer and director of the Trusteeship division of the U.N., was chosen head of the U.N. secretariat for Palestine, after having drafted the report of the visiting U.N. commission to Palestine. Actors Equity association gave the National theatre of Washington, D.C., until May 31, 1948, to change its policy of not admitting Negro patrons; otherwise, Equity members would be forbidden to appear there. *Deep Are the Roots* and *Anna Lucasta* made successful debuts in London, with *Finian's Rainbow* to follow. Canada Lee co-starred notably with John Garfield in the film, *Body and Soul*. Mrs. Edith Isaacs brought

out a definitive history of *The Negro in the American Theatre;* John H. Franklin, a comprehensive history of American Negroes entitled *From Slavery to Freedom.* Frank Yerby duplicated his 1946 best-seller success with a second novel, *The Vixens,* and Willard Motley's *Knock on Any Door* was a similar success. Jackie Robinson, of the Brooklyn Dodgers, first Negro in major league baseball, received the Comiskey Memorial award of the Baseball Writers' association as the "Outstanding Rookie of the Year." Negro players were taken on the major league teams of Cleveland and St. Louis. Several interracial games broke new precedents in intersectional football games between southern and northern teams. (*See* also LYNCHING.)

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Nehru, Jawaharlal (1889–), Indian statesman, historian and writer, was born on Nov. 14 at Allahabad of a distinguished Hindu family. For his early career, see *Encyclopædia Britannica.* Next to Gandhi, Nehru was regarded as the most influential of Indian nationalist leaders. After the outbreak of World War II, he split with Gandhi over the latter's insistence on nonviolent resistance in the event of a Japanese invasion. After the Congress party issued a mass call for a large-scale civil disobedience movement on Aug. 8, 1942, the British authorities arrested Nehru and other nationalist leaders. During his imprisonment at Ahmadnagar fort, Nehru wrote *The Discovery of India* (publ. 1946), a distinguished historical work. He was released on June 14, 1945, and took a leading part in negotiations with the British cabinet mission in New Delhi in March 1946. The following May, he was elected president of the Congress party and later head of the first all-Indian Executive council (the "caretaker government").

Although Nehru originally opposed the partition of India into separate Moslem and Hindu states, he subsequently yielded and upon India's attainment of freedom on Aug. 15, 1947, he became prime minister of the new dominion of India. He denounced the rioting that rocked India after independence and declared, Sept. 9, that his government would meet the crisis "on a war basis." On Nov. 25, he bluntly charged that tribal rioting in Kashmir was being incited by high Pakistani officials.

Nepal. An independent kingdom lying between Tibet (N.), Pakistan (E.) and India (N.E., S. and W.) and including Mt. Everest. Area: *c.* 54,000 sq.mi.; pop. (1942 est.) 5,574,000. Capital: Kathmandu (pop. *c.* 108,800). Sovereign: Tribhubana Bir Bikram. Prime minister: General Sir Padma Shumshere Jung Bahadur Rana.

History.—Far-reaching plans for constitutional and social reforms were announced by the prime minister in May: freedom of the press, of speech and the right of free association were guaranteed. As a result of the measures taken by the prime minister to implement these promises the Nepal national congress called off the agitation for civil liberties which it had been organizing earlier in the year. A United States good-will mission to Nepal led to the signature of an executive agreement of friendship and commerce and the establishment of diplomatic relations between Nepal and the United States (April. 25). (J. RA.)

Nervous System. Several authors reported instances of cure of such fatal disease as tuberculous meningitis by streptomycin, an antibacterial agent with unusual ability to retard the growth of the tubercle bacillus. C. P. Mehas and W. E. Truax reported a case of tuberculous meningitis in a woman, 31 years old, who recovered following the injection of 282 grams of streptomycin. The total period of treatment was 175 days. The patient was cured but developed partial deafness in the left ear with a left lateral nystagmus (oscillatory movements of the left eye from side to side) and inability to stand erect without swaying.

E. Appelbaum and C. Halkin reported a cure in a nine-year-old boy who had tuberculous meningitis. He was treated for 27 days with intramuscular and intrathecal (spinal canal) injections of streptomycin. This child was perfectly normal nine months after the beginning of the meningitis.

Paul Rhoads reported a case of tuberculous meningitis in a 19-year-old girl who had been sick for 22 days. She developed deafness during the course of her treatment, but after treatment was stopped the deafness disappeared.

S. A. Waksman stated that tuberculous meningitis was definitely arrested by the use of streptomycin. Treatment consisted of large doses of streptomycin injected into the muscles and into the spinal fluid by way of the lumbar and cisternal (neck) routes. H. Wissler and M. Streit reported a case of tuberculous meningitis in a two and one-half-year-old child. They gave both intramuscular and intraspinal injections of streptomycin. The intramuscular injections were given for 25 days and the intraspinal (intrathecal) injections for 54 days. Their patient improved but was not regarded as definitely cured. The authors warned that streptomycin may cause permanent damage in the form of blindness, deafness, internal ear disturbances (labyrinthine) and defective intelligence.

Epilepsy.—A. E. Loscalzo reported on a full three years' study with 3 methyl-5, 5-phenylethylhydantoin in 67 co-operative epileptic patients. He concluded that the seizures were reduced in approximately 60% and that the emotional status was improved consistently. New drugs for epilepsy were receiving extended controlled study. (*See* also PSYCHOSOMATIC MEDICINE.)

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Netherlands. A kingdom of northwest Europe, bounded on the north and west by the North sea, on the east by Germany and on the south by Belgium. Area: 13,440 sq.mi.; population (census, May 1947, provisional figures) 9,635,936. Chief towns (pop. census May 1947, provisional figures): Amsterdam (cap., 807,490); Rotterdam (645,417); The Hague (534,135). Language: Dutch; religion: Christian (1947 est., Dutch Reformed church 40%, Roman Catholic 40%). Ruler: Queen Wilhelmina; prime minister: Dr. L. J. M. Beel.

History.—The changed economic conditions, arising out of the practical disappearance of Germany as Holland's second most important customer and main industrial supplier, made themselves severely felt during 1947. Negotiations with the military authorities of the U.S.-British zone of occupation, in which Belgium also took part, failed to produce the desired diversion of shipping traffic from Hamburg and Bremen to Rotterdam and Antwerp. These conditions further strengthened the already existing economic collaboration between Holland and Belgium, and the year saw the practical fulfilment of most of the provisions of the Benelux agreement, the final aim of which was full customs union between Holland, Belgium and Luxembourg.

The Linggadjati agreement with the new Republic of Indonesia, granting *de facto* recognition to the republic, was signed on March 25, but failed to bring about the expected amicable settlement between Holland and its most important former colony. Adopted as a compromise between parties who had not given up certain fundamental differences in their viewpoints, it brought difficulties of interpretation as soon as it came to the practical execution of the rather vaguely worded general principles. Negotiations broke down on July 17, and the Dutch, declaring themselves responsible *de jure* for law and security, then launched a military operation against the republic which gave rise to a complaint to the United Nations Security council by Australia and India. The council passed a cease-fire resolution on Aug. 1 and a vote on Aug. 25 for an immediate investigation by a consular commission and for the institution of a Three Power committee to bring the parties together again in renewed negotiations. (*See* NETHERLANDS INDIES.)

On Oct. 15 a bill was passed placing the Netherlands kingdom under the temporary regency of the heiress to the throne, Princess Juliana, to afford Queen Wilhelmina (*q.v.*) the opportunity of a much needed rest from state affairs. The queen resumed her duties on Dec. 1. (F. H. Aw.)

Education.—In 1946: secondary schools (day) 291, pupils 84,135, (evening) 128, pupils 13,573; schools for mentally or physically defective children 171, pupils 20,392; training colleges for teachers 86, students 5,748. In 1945: infant schools 1,963, pupils 209,726; elementary schools 7,845, pupils 1,311,798; technical and domestic science schools 672, pupils 154,523; agricultural training schools 192, students 42,851. Universities, 1947 (including the *hogescholen*) 10, students 23,827.

Finance.—Draft budget 1948: ordinary services, estimated, revenue, 2,738,200,000 guilders; expenditure 2,378,100,000 guilders; extraordinary services, estimated, revenue 2,841,900,000; expenditure 3,909,700,000 guilders. National debt (Jan. 1, 1947) 17,166,926 guilders (nominal sum); bank note circulation (Aug. 1947) 2,781,000,000 guilders; gold reserve (Aug. 1947) 502,105,000 guilders. Exchange rate (July 1947) 1 guilder = 37.75 U.S. cents.

Trade and Communication.—Foreign trade: imports (1946) 2,145,054,000 guilders, (Jan.–June 1947) 1,036,240,000 guilders; exports (1946) 784,844,000 guilders (Jan.–June 1947) 740,468,000 guilders. Communications and transport: (1947) roads suitable for motor traffic 8,092 mi.; railways open to traffic 1,784 mi.; navigable waterways (1946) 4,405 mi.; airways, distance flown by civilian airways (Royal Dutch Airlines K.L.M. 1946) 11,185,149 mi., (Jan.–June 1947) 6,875,000 mi. Shipping: total number of ships (Jan. 1947) 812; tonnage 1,693,884; new ships built (1946) 44; tonnage 132,971. Ships entered (1946) 6,468; tonnage 13,251,799; liners cleared 6,185; tonnage 13,014,904. Road traffic (April 1947), vehicles licensed: civilian cars 64,400, trucks 57,300, vans 3,300, buses 3,300, motorcycles 77,200. Radio sets (Jan. 1947) 697,279; radio distribution connections (Oct. 1946) 458,995.

Agricultural and Mineral Production.—Agricultural exports (1946) 385,000,000 guilders; (Jan.–June 1947) 293,500,000 guilders. Industrial exports (1946) 401,900,000 guilders; (Jan.–June 1947) 448,800,000 guilders. Production (harvest 1946, revised figures) in short tons: wheat 395,288; rye 502,400; barley 194,310; oats 468,132; pulse 87,555; rape seed 5,457; flax, rippled 61,545; linseed 8,795; potatoes 4,742,999. Preliminary estimates for harvest 1947: wheat and rye 879,000; other grain crops 672,000. Mineral production in short tons (1946): coal 9,141,500; salt 191,417; cement 443,700; bricks (number) 544,100,000. Figures for pig iron and ferro alloys and zinc were not available; in 1938 these were respectively 304,260 and 22,550 short tons. (*See* also CURAÇAO; SURINAM.)

Netherlands Colonial Empire: *see* CURAÇAO; NETHERLANDS INDIES; SURINAM.

Netherlands Indies.

The Netherlands Indies stretch 3,000 mi. from east to west and 1,300 mi. from north to south, between 6° N. and 11° S. latitude, and from 95° to 141° E. longitude. They include the islands of Sumatra, Java, the Celebes and Borneo (whose northeastern part is under British rule), and many smaller islands, together with the western half of New Guinea. Area: 735,000 sq.mi.; pop. (est. 1942) 72,000,000, all but 2.6% of them being indigenous (Java 40,000,000, Sumatra 8,000,000, the Celebes 4,000,000, Borneo 2,500,000). Capital: Batavia (pop. 1930, 435,184). Languages: Malay is to a certain extent a language of intercommunication between different population groups speaking 25 main languages and 250 dialects; Dutch is increasingly used. Religion: Moslem (90%), Christian (*c.* 2,500,000) and Hindu (*c.* 1,000,000). Lieutenant governor general: Dr. Hubertus Johannes van Mook. Indonesian Republic: president, Achmed Soekarno; prime minister: Sutan Sjahrir.



TWO MACHINE GUNNERS captured during the fighting in and about Bandoeng, West Java, in Aug. 1947

History.—The year 1947 was characterized by successes in implementing the 1946 Linggadjati agreement for the formation of a United States of Indonesia, to come into force in 1949, in the eastern part of the archipelago and in Borneo, against its partial failure in the territories of Java and Sumatra. East Indonesia, having formed an autonomous state of that name toward the end of 1946, and being recognized as such by the Netherlands, applied its energies to the completion of its internal political organization, a president and parliament being duly elected, and to the rehabilitation of its shattered economy. Similar developments in Borneo brought early results, in particular through the initiative of the young sultan of Pontianak in West Borneo, Hamid II, answered by a federation of his equals in the eastern half of the island. Co-operation with Dutch administrative and economic experts went smoothly, and provided tangible proofs that the Linggadjati scheme of reforms—which also forecast co-operation with Holland in a Netherlands-Indonesian union—presented a workable basis for the future.

In Java, however, the attitude of the Indonesian republic remained doubtful. The Linggadjati agreement, ratified by the Dutch parliament in Dec. 1946, went slowly through a ratification procedure at the capital Djokjakarta, and the document was at last signed formally by the republican delegates, together with the Dutch commissioners-general, in March. It was clear, however, that fulfilment of the terms of the agreement and a cessation of lawlessness and terror would be more difficult to accomplish. On May 27 the commissioners-general submitted a memorandum to the republic which summarized a joint Dutch-Indonesian program for financial and economic reconstruction on which agreement had been reached by the delegations, together with a proposal to bring about its fulfilment against eventual extremist opposition; the latter project aimed at the creation of a joint Dutch-Indonesian *gendarmerie* or armed police force, which would have to crush internal anarchy. On this proposal, contacts with Jokjakarta, the republican headquarters in Java, ceased forthwith, and the hitherto co-operative republican cabinet headed by Sutan Sjahrir had to resign. The U.S. offer of mediation was rejected by the republic, and both sides prepared for a showdown.

On July 27 Dutch forces sallied forth from their perimeters at Batavia, Bandoeng, Semarang and Soerabaja on Java, and Palembang, Medan and Padang on Sumatra. Meeting little organized opposition, they quickly occupied the western and eastern parts of Java, as well as wide areas in south and east Sumatra; troops were then concentrated for a sweep over the central part of Java, and the republic, confined to this part of its former territory and out of touch with Sumatra, seemed to have entered on its last days.

Late in July, however, the United Nations Security council intervened in the conflict, which was interpreted as endangering world peace, and on Aug. 1 it came forward with a resolution calling on both sides to end hostilities. Lengthy debates were held on the situation in the Indies; these discussions threw into relief the international political implications of conflict in a country of Indonesia's strategic importance. Finally the Security council asked for information on the facts of the case from consuls of various countries accredited in Batavia, who were commissioned to submit a joint report. It offered to mediate between the parties and established a commission of three members (representing Belgium, Australia and the U.S.); this commission would have to contact the Netherlands authorities in Batavia and the republican leaders in Jokjakarta in order to bring about an end to the political deadlock; it arrived in the Indies on Oct. 26. After some local investigations, the commission prepared the way for renewed discussions between Dutch authorities and a delegation from the republic. In order to provide a neutral meeting place, the U.S. ship "Renville" was sent to Batavia harbour, and the first talks under United Nations' patronage took place on board on Dec. 8.

Trade and Communication.—Production capacity in 1947 was reduced to 55% of the 1939 level; exports in 1947 were estimated at $105,000,000, as against $351,000,000 in 1940, and imports would be much greater, mainly for reconstruction purposes. Communications: it was expected that the ocean-going merchant fleet would be back at the 1939 level by the end of the year, but inter-insular shipping would need more time for recovery (1939: ocean-going and inter-insular shipping, 214 ships of 1,007,000 gross tonnage); losses in World War II and after in the railroad and tramway system amounted to $123,000,000, and the cost of reconstruction (to take five years) was estimated at $66,000,000; cost of reconstruction of postal, telegraph and telephone systems (five to ten years) was estimated at $15,000,000.

Agriculture and Mineral Production.—In view of the country's mainly agricultural character, the program of postwar reconstruction was first concerned with an increased agricultural output. War losses had been estimated at $528,000,000, and of the western-owned plantations at $253,000,000 (rehabilitation to cost $330,000,000 there). Indonesian grain production (rice and maize) was estimated at 5,060,000 short tons, 72% of the 1940 figure. In mineral production war losses in the oil industry and other branches of the mining industry amounted to $217,000,000; the tin industry made a rapid recovery, production for the first four months of 1947 being 5,480 short tons of ore and 1,650 short tons of pure tin.

Industry.—Gross production before World War II was estimated at a value of $211,000,000 annually. Total war losses were estimated at $160,000,000 and rehabilitation costs at $113,000,000. In 1947 industrial enterprises in the areas returned to Dutch administration worked at one-third of 1939 capacity. (W. G. P.)

Neutrons: *see* ATOMIC ENERGY; PHYSICS.

Nevada. Nevada was admitted to the union of states on Oct. 31, 1864, as the "Battle-born state"; it is best known, however, as the "Silver state." Land area, 109,802 sq.mi.; water area, 738 sq.mi.; it ranks sixth in size among the states. Population was 135,414 (est. 1946, U.S. census bureau) a decrease of 24,376 from the estimated wartime peak. The capital is Carson City (2,478). Reno (21,317), Las Vegas (8,422), Sparks (5,318), Ely (4,140) and Elko (4,094) are the largest cities.

History.—The 1947 legislature passed a greater number of laws than any previous session; included in the enactments were greatly increased appropriations for Nevada's schools, increased salaries for officials, deputies and stenographers and a state retirement act. Gambling taxes were doubled; a cigarette measure was enacted; and measures were passed to increase the revenue from civil actions, liquor and marriages. Laws to allow the closed shop died in committee, but a state retirement act was enacted. Legislation passed to aid veterans was negligible, and the appropriation for the Nevada national guard was eliminated.

Revenue from Nevada's gambling law for the fiscal year July 1, 1947, showed that at least $30,988,497 passed over the gambling tables, compared with $21,575,472 in the previous fiscal year. As of July 1, 1947, the state's new gambling tax of 2% on all gross revenue went into effect and was estimated to net Nevada more than $1,000,000 per year in receipts.

On Jan. 1, 1948, state officers were: governor, Vail M. Pittman; lieutenant governor, Clifford Jones; secretary of state, John Koontz; state controller, J. P. Donovan; state treasurer, Dan W. Franks; superintendent of public instruction, Mildred Bray; attorney general, Alan H. Bible; chief justice of the supreme court, Edgar Eather.

Education.—On Jan. 1, 1948, Nevada had 197 elementary schools with a total enrolment of 20,378; teachers numbered 699; high schools totalled 41 with enrolment of 6,236, staffed by 290. Enrolment was 1,802 in 11 kindergartens with 21 teachers. The total school enrolment was 28,416, as compared with 23,114 pupils on Jan. 1, 1946.

The 1947 legislature appropriated sufficient funds to pay teachers a salary minimum of $2,400 yearly, graduating to a top minimum of $4,080 for elementary and high school teachers with six years of college education and 20 years of teaching experience.

Social Insurance and Assistance, Public Welfare and Related Programs.—The amount spent for social security was $1,104,113.83 for the fiscal year ending June 30, 1947. Aid to the deaf, dumb, and blind expense was $10,750. Nevada spent $2,047,441.89 for unemployment security benefits, an increase of nearly $400,000 over the 1946 total. On Jan. 1, 1948, the state prison had 263 men and 3 women; total expenditures for the fiscal year ending June 30, 1947, were $164,840.73. The state industrial home had 26 boys and 5 girls on parole; support of the school for the fiscal year 1947 was $28,990.99. The state hospital for mental diseases had 342 inmates on Jan. 1, 1948; expenditures for the 1947 fiscal year were $208,578.73. The orphans' home had 82 inmates on Jan. 1, 1948, and cost to the state for the 1947 fiscal year was $58,490.38.

Communications.—During 1947 highway mileage construction was 98,006 mi. of oil-surfaced highway and 40,949 mi. of gravel-surfaced highway. Expenditures for the fiscal year which ended on June 30, 1947, were $7,689,523.78, an increase of $4,971,439.39 over the 1944–1945 fiscal year.

Railroad mileage was 1,783.40 mi. and railroad sidings totalled 1,076.71 mi. making a total of 2,860.11 mi. as of Jan. 1, 1948.

Airways and airports totalled 55 on Jan. 1, 1948, and consisted of 4 army, 1 navy, 5 Civil Aeronautics administration; 4 state, 8 county, 15 municipal, 17 commercial and 1 private. The office of the Civil Aeronautics administration recommended that 24 new airports, 21 existing airports and 3 seaplane bases be developed under the terms of the Federal Airport act during the fiscal years 1948–51.

During 1947 the Public Service commission granted a certificate of public convenience and necessity to Bonanza Air Lines for the transportation of passengers and express by aeroplane between Reno, Nev., via Tonopah to Las Vegas, Nev. Four round-trip schedules per week were given over this route.

Banking and Finance.—On Jan. 1, 1948, there were 8 main office banks with 17 branches, a total of 25 banks serving Nevada; the total resources of these banks were $175,512,422.33; deposits were $166,556,924.89. The First National Bank of Nevada had ten branches with total deposits of $116,120,694.14 and resources of $122,592,903.19. The Nevada Bank of Commerce, Reno, Nev., had 4 branches and total deposits of $14,702,898.27 and resources of $15,318,580.91. The Ely National bank with one branch at McGill had deposits of $6,447,865.44 and resources of $6,856,836.63. The Bank of Nevada at Las Vegas with one branch at Boulder City had deposits of $9,069,180.97 and resources of $9,638,594.92. The Security National bank of Reno with one branch at Babbitt had deposits of $8,525,647.38 and resources of $8,733,190.97. The First National Bank of Ely had deposits of $4,750,470.19 and resources of $5,063,989.93. The Farmer's Bank of Carson Valley, Inc., Minden, Nevada, had deposits of $4,003,050.50 and resources of $4,224,311.36. The First National Bank of Lovelock had deposits of $2,937,118.00 and resources of $3,084,014.42. Total resources of Nevada banks increased $5,157,773.34 during 1947, showing substantial growth during the year.

Of state funds on July 1, 1947, cash on hand was $5,607,592.19; total cash received, including cash balance on July 1, 1946, of $5,364,077.46, was $18,033,804.62; cash disbursements during the fiscal year were $12,426,212.43. There was no state debt on Jan. 1, 1948. Total securities held by the state treasury on Jan. 1, 1948, totalled $23,351,000. Nevada's Post-War Reserve fund totalled $1,553,000 in U.S. bonds and $199,409.87 in cash. Actual cash balance in the state treasury on Jan. 1, 1948, was $4,128,731.71.

Agriculture.—The 1947 farm and ranch production was about the same

Leading Agricultural Products of Nevada, 1946 and 1945

Crop	1946	1945
Barley, bu.	680,000	640,000
Potatoes, bu.	672,000	760,000
Wheat, bu.	545,000	485,000
Hay, tons	666,000	613,000
Oats, bu.	308,000	351,000
Corn, bu.	70,000	64,000

as that of 1945, according to estimates of the U.S. department of agriculture; both acreage and yield varied little from the 1945 farm census figures. The 1945 final figures gave the number of cattle and calves in Nevada as 479,315, sheep and lambs 533,915, horses 38,338, mules 1,608, goats 16,185, and chickens 284,627.

Cows milked during 1945 were 14,553 and milk produced was 10,524,642 gal.; wool produced was 4,528,763 lb.

Mineral Production.—The quantity and value of zinc produced in Nevada in 1946 attained the highest levels in the history of the state, surpassing the previous record of 1945 by 6% in quantity and 12% in value. White Pine county (Ely) produced 62% of the state total value of the five principal metals, gold, silver, copper, lead and zinc. Lincoln county (Pioche) ranked second with 20% of the total value, leading the state in the production of lead, silver and zinc. Scarcity of experienced miners handicapped production in 1947 in spite of higher metal prices. At the end of the year there were only 4,067 men employed in Nevada mines as compared with 7,885 in 1942.

Production from nonmetallic mines was estimated at 3,800 tons. Production of tungsten, mercury and manganese, however, was seriously affected by increased mining costs. (E. C. D. M.)

New Brunswick.

New Brunswick, one of the three maritime provinces of Canada, entered the union in 1867. Area, 27,985 sq.mi., of which 512 sq.mi. are fresh-water lakes; pop. (1941 census) 457,401 (1947 est.) 491,000. Cities (1941) are Saint John (51,741), Moncton (22,763), Fredericton, capital (10,062).

History.—Liberal premier John B. McNair continued in office. The most serious drought after 1934 curtailed hydroelectric power. Cloud banks over the Nepisiguit watershed were "bombed" with dry ice crystals to induce rainfall. The government reorganized the New Brunswick Planning board (defunct after 1942) and gave it power to beautify the provincial countryside and bring planning to villages and towns.

Education.—Enrolment in educational institutions for the 1944–45 school year was 103,237. To promote education, the province increased teachers' minimum salaries to $1,100, established a teachers' college and gave additional financial aid to school districts.

Transportation.—The "D. J. Purdy" was declared obsolete and for the first time in 130 years there was no river boat on the Saint John river. The Cape Tormentine trans-Northumberland Strait ferry terminal was expanded and improved to handle the new "M. S. Abegweit."

Agriculture.—Apple yield in 1947 was 330,000 bu. A federal horticultural experimental station was begun at Washademoak lake to encourage all phases of orcharding. Livestock (cattle, horses, swine, sheep) production in 1946 dropped to 445,000 (1944· 494,000). After 13 years of research, the Fredericton experimental farm announced a blight-resistant potato which it was estimated would save maritime farmers $1,000,000 a year.

Industry and Resources.—Steps were taken to speed oil and gas flow at Stoney creek, which produced 390,000 bbl. of oil and 650,000,000 cu.ft. of gas in 1946. The 1947 cut of hardwoods and softwoods ran to 270,000,000 bd.ft., 20% higher than in 1946. The 1947 live mink show was the largest in New Brunswick's history, and featured new colour phases. Experiments with draggers for fishing proved successful and the reconstruction department announced the number would be increased. Mineral production in 1946 amounted to $4,409,064.

Production.—Gross value of 1945 production was $254,926,964. Net value was $133,984,112, which was 2.2% of Canada's total. Per capita production was $286.29. (C. Cy.)

New Caledonia: *see* FRENCH OVERSEAS TERRITORIES.

Newfoundland and Labrador.

A British colony of North America, with suspended constitution. Area: Newfoundland 42,734 sq.mi.; Labrador 110,000 sq.mi.; pop. Newfoundland 312,899 (1945); Labrador 4,780 (1938). Capital: St. John's (pop. 1947, 57,849). Language: English; religion (1945 census): Roman Catholic 105,952; Church of England 100,873; United Church 79,768; Salvation Army 22,543. Governor: Sir Gordon Macdonald.

History.—In May a delegation of the national convention (elected in 1946 to draw up recommendations on Newfoundland's future form of government) visited Great Britain for discussions with the dominions office. The discussions hinged on the question of the future financial and fiscal relations between the two countries should Newfoundland opt for self-government. Britain made it clear that it was not prepared in this case to continue financial support, and the British government considered it impossible to guarantee to maintain its purchases, since Newfoundland was in the dollar area. Some members of the visiting delegation expressed their dissatisfaction with their reception in London. When a similar delegation visited Ottawa in June to find out on what basis Newfoundland might enter the Canadian confederation, the Canadian government provided all the information desired, at the same time maintaining an impartial attitude. The delegation returned to Newfoundland on Sept. 30 with a report containing information essential for the assessment of the position. In November the text of the proposed arrangements for Newfoundland's entry was sent to the governor of Newfoundland by the Canadian government; in his accompanying letter the Canadian prime minister emphasized that the decision rested with the people of Newfoundland. There seemed to be no clear-cut trend of opinion among Newfoundlanders at home: antipathy to confederation was less strong than formerly, but a movement known as the Responsible Government league received the support of some prominent businessmen and members of the legal profession. (J. RA.)

Education.—In 1946: schools 1,198; scholars 70,460; teachers 2,231 (including 307 uncertificated teachers).

Banking and Finance.—Revenue (est. 1947–48, in Canadian dollars) $35,702,500; expenditure (est. 1947–48) $37,574,300; public debt (1947) $73,996,000. Exchange rate, 1947: Canadian and U.S. dollar at par.

Trade and Communication.—Overseas trade, 1944–45 (in Canadian dollars): imports $65,898,707; exports (incl. re-exports) $65,588,498; re-exports $2,297,495. Communication: roads (1946) main and secondary 2,200 mi.; railways 747 mi.; motor vehicles licensed (1945) 6,903.

Mineral Production and Fisheries.—Exports (1946–47, in short tons): fluorspar 31,383; iron ore 1,395,354; limestone 365,478; copper 19,646; zinc 104,809; newsprint 345,113. Value of fish exported (1946–47, in Canadian dollars): dried codfish $15,615,916; fresh and frozen fillets $4,516,804; herrings $4,908,267.

New Guinea: *see* NETHERLANDS INDIES; PACIFIC ISLANDS UNDER TRUSTEESHIP; TRUSTEE TERRITORIES.

New Hampshire.

One of the New England states of the United States and one of the original group of 13, popularly known as the "Granite state"; area, 9,304 sq.mi., including 280 sq.mi. of water. Population (1940) was 491,524, of which 57.6% was urban and 42.4% rural. Estimated population, July 1, 1947, excluding armed forces overseas, was 547,000. In 1940 there were 490,989 whites, including 422,693 native-born and 68,296 foreign-born. Capital, Concord, with estimated population (1943) of 27,495. Other cities: Manchester (78,436); Nashua (33,914); Portsmouth (20,530); Berlin (16,480); and Dover (16,393), as of 1943.

History.—The general court convened on Jan. 1 and was adjourned on July 1. An unusually large number of important measures were passed, including the following: an act permitting women to serve on juries on a voluntary basis; an act creating an advisory fiscal officer, to aid the legislature in preparing budgets and framing appropriation bills; an act creating a state housing authority backed by $7,000,000 of state credit to assist municipal housing authorities in constructing low rent public housing for veterans of World War II. The Willey labour act was passed regulating labour union activities. Under its provisions employees may bargain for a closed or a union shop only when two-thirds of those voting and 50% of all employees vote by secret ballot in favour of the closed shop. Under the terms of an equal work, equal pay law, discrimination in wages because of sex was prohibited. The legislature authorized the convening of a constitutional convention in May 1948.

State officers in 1947 were: governor, Charles M. Dale; secretary of state, Enoch D. Fuller; state treasurer, F. Gordon Kimball; commissary general and adjutant general, Charles F. Bowen; attorney general, Ernest R. d'Amours; commissioner of education, Edgar Fuller.

Education.—In 1946–47 there were 154 one-room public elementary schools with a total of 3,540 pupils and 154 teachers; 381 classified public elementary schools with 45,296 pupils and 1,713 teachers; and 82 public high schools with an enrolment of 18,587, and 926 teachers. Total

estimated expenditures for public elementary schools and high schools during the year 1946–47 were $8,750,000. The general court in its 1947 session passed an act increasing state aid to local municipalities for primary and secondary education from $400,000 to $2,000,000 annually. In 1940 private and parochial elementary and secondary schools had an enrolment of 25,007.

Social Insurance and Assistance, Public Welfare and Related Programs.—In June 1947 there were 2,517 cases on general relief with an expenditure of $90,151, as compared with 2,315 cases in June 1946 with an outlay of $72,272. Expenditures for public assistance under the Social Security act were $374,401, as compared with $314,198 for June 1946. The total for June 1947 included $268,466 for old-age assistance, $93,005 for dependent children and $12,930 for aid to needy blind. During the calendar year 1946, net contributions and interest to the amount of $3,700,000 became available for unemployment compensation, while $791,000 was disbursed in benefits to the unemployed. A total of 16,278 former service men and women received benefits of more than $3,300,000, a large increase over the number of beneficiaries and amounts paid in 1946.

On Jan. 1, 1944, there were 207 persons in prison and in reformatories in New Hampshire. The net appropriation for the state prison at Concord for the fiscal year ending June 30, 1947, was $150,113; and for the Industrial School for Committed Minors at Manchester, $108,313.

Communications.—At the end of 1944 there were 12,502 mi. of rural roads in New Hampshire, including highways under state, local and federal control. Disbursements from state highway funds for the calendar year 1945 amounted to $6,935,000. In 1945 there were 951 mi. of steam railways in the state. At the close of the same year there were 29,162 business and 75,868 residential telephones in operation.

Banking and Finance.—As of June 30, 1947, there were in New Hampshire 51 national banks with deposits of $171,745,000 and resources of $191,264,000, as compared with 51 banks with deposits and resources, respectively, on June 30, 1946, of $186,678,000 and $204,499,000. Fifty-six state-chartered banks reported deposits of $350,113,398 and resources of $390,743,788, as compared with 55 institutions reporting deposits and resources, respectively, of $333,919,000 and $371,790,000, on June 30, 1946. There were 25 state-chartered building and loan associations with resources of $19,937,724, as compared with $17,800,000 for the previous year. State-chartered savings banks and savings departments of trust companies reported deposits of $335,305,661.84 as of June 30, 1947, an increase of $17,379,932.69 over the total for June 30, 1946, and representing an all-time high record for savings deposits in the state. The Laconia Federal Savings and Loan association reported assets of $1,901,806 and members' share accounts of $1,381,311 on June 30, 1947, while the Manchester Federal Savings and Loan association reported assets of $13,535,029 and members' share accounts of $11,861,107, as of Dec. 31, 1946. Time deposits in savings departments of national banks within the state amounted to $42,924,000.

Cash receipts of the state treasury department for the fiscal year ending June 30, 1947, were $42,036,085.31; cash disbursements $41,660,618.94; cash balance, June 30, 1947, was $5,939,682.05. Cash balance July 1, 1946, was $5,564,215.68. Gross fixed bond and note debt, June 30, 1947, $8,285,000.00; net bonded debt, $4,673,768.43.

Agriculture.—In 1945 there were 18,786 farms in New Hampshire with a total acreage of 2,017,049 and of an average size of 107.4 ac. Estimated acreage from which crops were harvested or hay cut or which was planted in orchards amounted to 435,602. The total value of farm lands and buildings in 1945 was approximately $80,394,869. Estimates by the U.S. department of agriculture for 1946 reported cash receipts from farm marketings as $50,231,000, including such major items as chickens and eggs, $20,211,000; milk, $13,859,000; cattle and calves, $2,869,000; and harvested crops, $9,101,000. Government payments amounted to $1,817,000, in addition to which an estimated valuation of $7,350,000 was placed upon products used by farm households. It was estimated that cash receipts from farm marketings in 1947 would exceed those for 1946 by approximately 20%.

The estimated apple crop for 1947 was 838,000 bu., a little less than twice as large as that for 1946 and about 11% above the 10-year level for 1936–45. More favourable weather conditions resulted in a large increase over 1946 in the production of maple syrup. Severe drought in the late summer and autumn adversely affected certain crops, and a government estimate placed the potato crop at 893,000 bu., as compared with the 1,250,000 bu. produced in 1946.

Lumber production in 1945 amounted to 290,000,000 bd.ft. as compared with 356,000,000 bd.ft. in 1944. Severe forest fires in Oct. 1947 burned an estimated 20,000,000 ac. with losses running to almost $1,000,000.

Manufacturing.—State authorities estimated the value of products manufactured in New Hampshire in 1945 to have been at least $525,000,000. To this total textiles contributed about 28%, leather and leather products 25%, and paper and pulp 10%. Their contribution (63% of the total) was, however, relatively less than the 75% of the total which the same industries contributed in 1939. The number of persons employed in manufacturing in March 1946 was estimated at 93,800, as compared with the 1943 peak of 102,000, and gross wages and salaries paid in the same year were placed at $171,800,000.

In 1945 New Hampshire enjoyed an estimated business of $110,000,000 from recreational enterprises, which thus continued to rank next to manufacturing and ahead of agriculture as a source of income. Assessed value of recreational property was $49,713,788.

Leading Agricultural Products of New Hampshire, 1947 and 1946

Crop	1947 (est.)	1946
Corn, bu.	528,000	533,000
Oats, bu.	224,000	259,000
Hay, tons	473,000	443,000
Potatoes, bu.	893,000	1,250,000
Apples, bu. (commercial)	838,000	456,000
Maple syrup, gal.	51,000	36,000
Maple sugar, lb.	10,000	12,000

Mineral Production.—Principal mineral resources were feldspar, mica, building stone (chiefly granite), brick clays, sand and gravel. In 1944 New Hampshire ranked second among the states in the production of mica. With the ending of the war there was a decline in the value of the state's mineral production, the total for 1945 being but $801,000, as compared with $1,166,000 for 1944. (W. E. Ss.)

New Hebrides: *see* FRENCH OVERSEAS TERRITORIES.

New Jersey. The third state of the U.S. to enter the union, New Jersey is situated on the middle Atlantic coast between New York and Philadelphia. Its 1940 population of 4,160,165 ranked it ninth among the states. The state bureau of vital statistics estimated its population on July 1, 1947, at 4,435,000, exclusive of those in the armed forces overseas. Its area is 7,836 sq.mi., including 314 sq.mi. of water. Capital, Trenton (1940: 124,697). The largest city is Newark (429,760); second is Jersey City (301,173).

History.—The outstanding event in New Jersey in 1947 was the adoption of a new constitution to replace the 1844 charter which had been amended on only four occasions in the 103-year interval. Constitutional revision was the main goal of Governor Alfred E. Driscoll's first year in office.

The new constitution provides for a more liberal Bill of Rights; better defined legislative power; a stronger, more responsible executive; a simple, unified system of courts; a sounder basis of taxation and finance; and a simplified, less expensive method of amendment. The following provisions may very briefly be noted: no person may be limited in his privileges because of race, colour, sex, religious belief, national origin or ancestry; labour's right to organize and bargain collectively is guaranteed to those in private employment; the legislature may provide for absentee voting by members of the armed forces in peacetime; and it may provide for a verdict by not less than five-sixths of a jury in civil cases.

The term of assemblymen is increased from one to two years and of senators from two to four, and the legislators may fix their own salaries; the legislature may not elect any administrative, judicial or executive officer except the state auditor; and home rule for municipalities is encouraged. The governor's term is increased from three to four years, and he may succeed himself once; he is elected in odd-numbered years; and he is given effective supervision over all executive department heads (except the auditor). The parole system is given constitutional recognition, and civil service has a constitutional status.

The old "true value" of assessment is dropped; existing tax exemptions are given constitutional status; transportation to and from any school may be authorized within reasonable limits by the legislature; slum clearance can receive tax relief; and a new limitation is placed on the state debt.

Education.—New Jersey had 1,594 elementary schools in 1947, 271 junior and senior high schools, 21 trade and industrial schools and numerous parochial and private institutions on the primary, secondary, college and university levels, among the latter Princeton university, Stevens Institute of Technology and Seton Hall. Rutgers university, a state university since 1946, continued its rapid expansion.

Increased enrolments continued, with all institutions attempting to improve the makeshift accommodations which featured the first postwar year. New Jersey teachers enjoyed an average increase of $400 in salary, but teacher shortage was still a problem.

Social Insurance and Assistance, Public Welfare and Related Programs.—The average monthly grant for old-age assistance in New Jersey, as of June 30, 1947, was $40.76 (an increase of $7.46) and for dependent children $78.49 (an increase of $13.34). Grants to the blind averaged $42.07, up $6.77, and general relief assistance averaged $49.29 per case, up $11.20.

Banking and Finance.—Deposits in 154 state banks, trust companies and savings banks totalled $2,621,195,000 on June 30, 1947, a drop of more than $92,000,000 from June 30, 1946, mostly resulting from U.S. government withdrawals since all other deposits increased more than $101,000,000. Government deposits generally dropped $194,282,000 to $116,906,000 in the same period. Of the 132 commercial banks, 79, with 75.6% of total deposits, were members of the federal reserve system. Government securities made up 53.8% of the total assets ($2,843,923,000) of all the banks, compared with 60.5% the year before, while cash represented 13.6% of the total as compared with 12.9%. There was a further reduction in the total real estate owned of $278,000, a drop of

27.2% from June 30, 1946. As of Jan. 1, 1948, the state's bonded debt stood at $81,080,000. Sinking fund assets of $23,393,246 left a net debt of $57,686,755.

Agriculture.—About 2,000,000 ac., or 40% of New Jersey's land area, is devoted to agriculture. New Jersey ranked high in potato production, with 13,140,000 bu. in 1947, a slight drop. Peaches increased to 1,617,000 bu., but the apple crop fell to 1,935,000 bu. Processed asparagus took 21,450 tons of a crop which produced 1,144,000 crates additional for market. Tomato canning is an important industry; 292,000 tons went into that enterprise, with 1,925,000 bu. going to market.

An outstanding poultry state, New Jersey sent about 10,000,000 chickens to market; approximately 1,330,000,000 eggs, a great increase over the 1946 figure, were produced, and about 250 hatcheries produced 22,000,000 chicks. The dairy industry ranks high with about 470,000,000 qt. of milk produced yearly by 156,000 milk cows of the 215,000 cattle in the state.

Manufacturing.—The year 1947 saw relatively little labour disturbance; there were no large-scale work stoppages. New Jersey industry continued full speed ahead toward maximum peacetime production. The state is represented in 90% of all industries, with more than 8,000 factories and shops employing 200 different classifications of labour. There was considerable plant expansion during the year. (S. GN.)

New Mexico.

Fourth largest state in the southwestern United States, popularly known as the "Sunshine state"; admitted to the union in 1912. Area 121,666 sq.mi. (121,511 sq.mi. land, 155 sq.mi. water); pop. (1940) 531,818; rural 355,417; urban 176,401; native white 477,065; Negro 4,672; foreign-born 15,247. On July 1, 1946, the bureau of the census estimated the population of the state at 528,997.

History.—The administration, legislature and congressional representation were Democratic in 1947. The chief officers of the state elected in the 1946 elections were: governor, Thomas J. Mabry; lieutenant governor, Joe M. Montoya; secretary of state, Mrs. M. A. Romero; auditor, E. D. Trujillo; treasurer, H. R. (Ray) Rodgers; attorney general, Clyde C. McCulloh; superintendent of public instruction, Charles L. Rose; commissioner of public lands, John E. Miles. New legislation makes it a felony to accept a bribe for altering an election ballot, provides for a survey of the state educational system and for a school-lunch program.

Education.—For the school year 1945–46 there were 732 schools. The rural schools enrolled 45,760 pupils; employed 1,455 teachers, average salary $1,733.30; total expenditures were $5,326,432.86. Municipal schools enrolled 82,814, employed 2,362 teachers, average salary $2,037.50 and total expenditures were $8,394,607.19.

Social Insurance and Assistance, Public Welfare and Related Programs.—During the calendar year 1947, $392,109 was paid out for civilian unemployment benefits; for unemployed veterans, $3,051,499; and for self-employed veterans, $1,068,951.

On June 30, 1947, $628,000 had been spent for old-age and survivors insurance, and $5,332,995.09 for public assistance.

The penitentiary appropriation was $189,500 for 655 inmates (Sept. 1); insane asylum, $696,000, 980 inmates (Nov. 15); Los Lunas Mental hospital (the new name for the School for Mental Defectives), $164,000, 68 inmates; Industrial school, $97,500, 62 inmates (November); Girls' Welfare home $105,000, 122 inmates (December).

Communications.—New Mexico had an estimated 63,126 mi. of roads in 1947: 9,957 mi. constituted the state highway system. The state highway department expended $15,086,178.69. Steam railway companies operated 2,526 mi. of main track (1946). There were 103 airports and approximately 832 mi. of airways operated by three scheduled air carriers. There were about 74,300 telephones.

Banking and Finance.—On June 30, 1947, there were 24 national banks with deposits of $187,897,000; loans $58,341,000; investments $84,708,000; and 22 state banks with deposits of $68,009,000; loans $20,565,000; investments $31,452,000. Total resources of 12 building and loan associations in 1946 were $6,537,394.62 and of 7 federal savings and loan associations $7,250,321.89.

Table I.—*Leading Agricultural Products of New Mexico, 1947 and 1946*

Crop	1947 (est.)	1946
Tame hay, tons	510,000	514,000
Grain sorghums, bu.	1,488,000	1,127,000
Winter wheat, bu.	9,120,000	2,648,000
Corn, bu.	1,904,000	2,256,000
Beans, bags	273,000	308,000
Cotton, bales	160,000	145,000
Cottonseed, tons	64,000	58,000
Forage sorghum, tons	84,000	159,000

The total of all state receipts for the fiscal year ending June 30, 1947, was $55,666,160.87; expenditures $53,319,432.35. The gross and net debt were respectively $22,569,000 and $22,343,248.93.

Agriculture.—The total value of agricultural production in 1946 was $67,178,000 (est.); acreage harvested 1,333,000 (est.). Livestock was valued at $112,736,000, Jan. 1, 1947.

Manufacturing.—Manufactured products were valued at $25,123,641 in 1939; an average of 3,250 employees received $2,912,993 in wages.

Table II.—*Principal Mineral Products of New Mexico, 1947 and 1946*

Mineral	Value, Year ending June 30, 1947	Value, Year ending Oct. 31, 1946
Copper	$20,404,404.94	$12,927,701
Potash	39,296,180.00	15,035,037
Coal	6,011,226.68	5,351,388
Zinc	6,928,805.14	2,840,124
Lead	1,270,575.59	214,996
Silver	335,206.14	172,822
Gold	109,009.97	77,917

Mineral Production.—Potash was New Mexico's chief mineral in 1947. For the year ending Dec. 31, 1946, 36,714,473 bbl. of oil, valued at $55,071,709.50, were produced.

A marked increase in value of mineral figures between the two 12-month periods reported was largely due to better reporting of production to the state mine inspector. The reporting year was changed to a period ending June 30. (F. D. R.)

Newspapers and Magazines.

Paper shortage, labour disputes, strikes and rising costs of production—all part of the nation-wide wave of inflation—made 1947 a difficult year for the newspapers and magazines of the United States.

In the news field, the year was relatively quiet, and there was no sign of the expected postwar spasm of sensationalism; economics, government and foreign affairs overshadowed the crime wave in the news columns. The United Press listed the "Ten Biggest News Stories of the Year" thus: (1) the high cost of living; (2) the "cold war" with Russia inside and outside the United Nations; (3) passage of the Taft-Hartley labour law and subsequent litigation; (4) the Hughes and the Meyers congressional investigations; (5) the Texas City, Tex., disaster; (6) the romance and marriage of Princess Elizabeth of England; (7) the partition of India; (8) the series of air disasters; (9) Arab-Jewish controversy over Palestine and the United Nations decision to partition that area and (10) the world series in baseball.

Labour disputes hit some leading newspapers early in the year. The 86-day strike of the American Newspaper guild against J. David Stern's *Philadelphia Record* and *Camden Courier* and *Post* (N.J.) which had started on Nov. 7, 1946, ended with the suspension of the newspapers on Feb. 1 and their later sale to the *Bulletin* company. The two Gannett newspapers of Rochester, N.Y., the *Times-Union* and *Democrat and Chronicle,* settled their strike on Feb. 8 after three months. The *Kansas City Star* and *Times* were shut down for 16 days, beginning Jan. 17, by a strike of contract carriers. During a strike that closed the *Colorado Springs Gazette-Telegraph* on Jan. 27, striking printers published a rival newspaper. The tie-up of Sherman H. Bowles's four newspapers of Springfield, Mass.—*News, Republican* and the two *Unions*—which began on Sept. 26, 1946, continued through the year, but the *News* resumed publication on Feb. 17, 1947, in spite of the unsettled strike. The *Asbury Park Sun* (N.Y.) was suspended and sold in February because of a printers' strike. The two newspapers of St. Petersburg, Fla., whose printers had been on strike since Nov. 20, 1945, received labour board permission in Feb. 1947 to ignore a union that would not bargain. Three newspapers of St. Louis, Mo.—*Globe-Democrat, Post-Dispatch* and *Star-Times*—were closed for three days by a pressmen's strike which ended April 15. The *New Bedford Standard-Times* (Mass.) in September took its labour troubles to the U.S. supreme court.

Before passage of the Taft-Hartley act in June, the International Typographical union and other unions spent $1,500,000 for advertisements in 110 newspapers to oppose the bill. At the 89th convention of the I.T.U. in Cleveland, O., on Aug. 22, Pres. Woodruff Randolph declared that his printer unions would sign no contracts with employers but would work only under "conditions of employment." Late in November the situation broke in Chicago. On Nov. 22, six Chicago newspapers com-



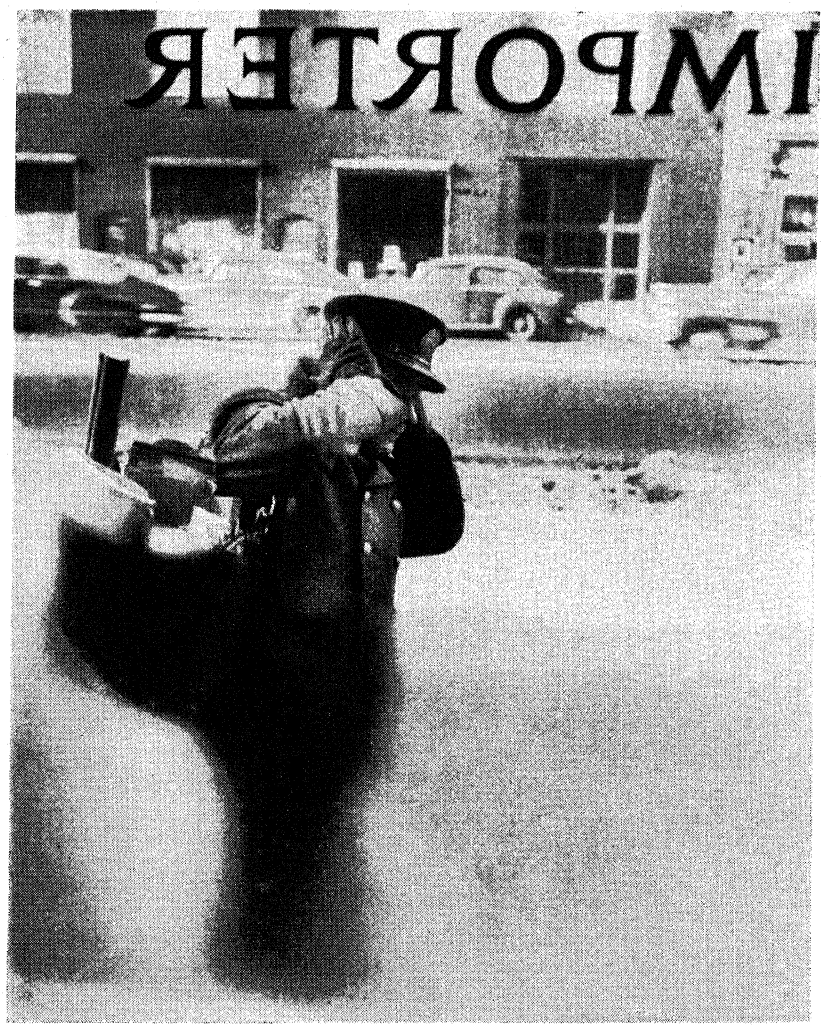
NEWS—Johnny Thompson of Acme Newspictures won first prize for this dramatic picture, "Hell on Earth," taken during the Texas City disaster. Second prize winner was Peter Marcus of the *Minneapolis Tribune* for "A Dog's Best Friend," and Jack Teehan, of Keene, N.H., won third prize for his picture, "Lost and Found"

"News Pictures of the Year" CONTEST WINNERS

These pictures were awarded first prize in the news, feature and sports categories, respectively, in the fifth annual "News Pictures of the Year" competition and exhibition, sponsored jointly by the University of Missouri School of Journalism and the *Britannica Book of the Year*. A total of 1,000 photographs were submitted in the competition.

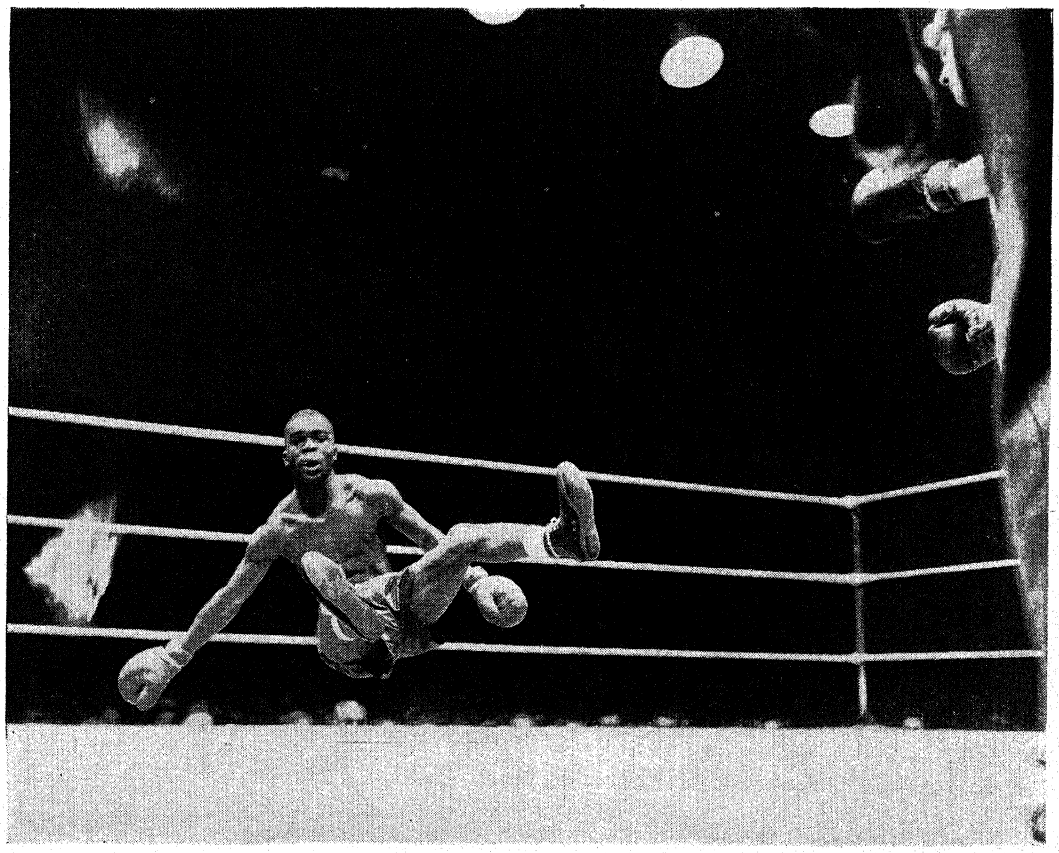
Judges were Joseph Costa of King Features, photo supervisor of the *New York Sunday Mirror Magazine* and president of the National Press Photographers Association; Frank J. Scherschel of *Life*; A. Aubrey Bodine, photographic director of the *Baltimore Sun* Sunday picture magazine; Robert Ghio, representing the University of Missouri School of Journalism, and Walter Yust, editor-in-chief of the *Encyclopædia Britannica*.

The 100 best pictures submitted in the competition were published in a book entitled *The Great Pictures—1948*.



FEATURE—Tom Johnson of the *Chicago Tribune* received first prize for this picture entitled "Ten Below." Second prize went to Francis Reiss of Columbia, Mo., for a *Life* picture, "New Yorkers Prove They Are Not Their Brother's Keeper." Two pictures tied for third place: "Contour Plowing," by Wallace Kammann of the *Minneapolis Star*, and "At the Races," by Hans Marx of the *Baltimore Sun* ←

SPORTS—First prize winner was this picture taken at a boxing match by Chester Gabrysiak of the *Chicago Tribune* entitled "With the Greatest of Ease." Winner of second prize was a golfing picture, "Body English," by Charles Knoblock of the Associated Press, and third prize went to Mathew Zimmerman of the Associated Press for another boxing picture, "Smash Hit" ↓



plained of "slow-down," and on Nov. 24 all their composing-room employees walked out. All Chicago newspapers then printed editions typewritten on Varitype machines and reproduced by photoengraving. Meanwhile, similar threats were heard on the three newspapers of Detroit. By December, 15 newspapers in eight cities were publishing photographically, with more than 1,500 employees on strike, and 239 other newspapers had I.T.U. contracts expiring before Dec. 31, all waiting for one of the test cases "to set the pattern."

After the suspension of the *Philadelphia Record* on Feb. 1, following the 86-day guild strike, the American Newspaper guild had a quiet year. Its strike vote taken five months before against the *Philadelphia Inquirer* was rescinded late in February, and the former employees of the *Camden Courier and Post* on Feb. 26 started a new daily *Free Press*. At its 14th annual convention in Sioux City, Ia., June 23–28, the guild reported 24,000 members and began a campaign for 40,000. After the withdrawal of Milton Murray, the guild in August voted for a new president for the first time after 1941 and elected Harry Martin of the *Memphis Commercial Appeal*. In November the guild officers filed the noncommunist affidavits required by the Taft-Hartley law.

The year 1947 brought great increase in newspaper operating costs and income. In May the Hearst papers announced a cost increase of 30% in one year; a study of one 50,000-circulation daily showed costs up 27%; another study of smaller newspapers showed costs up 32% and income up 28%; only newspapers of more than 50,000 circulation reported income rising faster than costs. Several studies showed circulation income greater than advertising. However, in spite of paper shortage, advertising income broke all records. Rises in sales prices were common; in March 1,252 newspapers were selling for 5 cents a copy, the *Chicago Tribune* went to 4 cents in February and the *New York Sunday Times* to 15 cents in November. After a total circulation gain of 4.8% in 1946, an even greater increase was expected for 1947.

The outstanding newspaper ownership change of the year was in Chicago. Marshall Field, in August, paid $5,338,000 for the employee-owned *Chicago Times*, afternoon tabloid, organized the Sun-Times company, moved his morning *Chicago Sun* from the plant of the *Daily News* into the *Times* building, converted the *Sun* into a morning tabloid on Sept. 29, and began issuing the two tabloids daily from the same plant, with a joint tabloid *Sunday Sun-Times*. Richard J. Finnegan continued as editor of the *Times*. In Philadelphia, the two newspapers of J. David Stern which were suspended on Feb. 1 were sold separately—the *Philadelphia Evening Bulletin*, which bought both, converted the *Record* into a Sunday newspaper on Feb. 9, and sold the *Camden Courier and Post* on May 14 to a new company headed by Harold A. Stretch, formerly of the *Inquirer*. On Dec. 15 the *New York Journal of Commerce*, owned by Bernard J. Ridder, paid $1,250,000 for the *Chicago Journal of Commerce;* it was announced that the two would be continued as separate newspapers. The *Seattle Star* (Wash.) suspended on Aug. 13, and in November was purchased by David Stern III, son of J. David Stern of Philadelphia. The 60-year-old *Brooklyn Citizen* (N.Y.) suspended on Aug. 29. John and Anna (Roosevelt) Boettiger, former publishers of the *Seattle Post-Intelligencer*, launched the daily *Arizona Times* in Phoenix. Among the noted newspaper centennials of the year were: the *Chicago Tribune* celebrated its 100th birthday on June 10 with a 28-page centennial edition transmitted by radio to 50 newspapers in 35 countries, and the publication of several historical books; the *St. Louis Post-Dispatch* celebrated on April 10, and a three-cent stamp was issued in memory of its founder, Joseph Pulitzer; the *Philadelphia Evening Bulletin* published a 24-page roto edition on April 12.

A Free and Responsible Press, the report of a three-year study conducted by the 13-man Commission on Freedom of the Press, financed with grants of $215,000 by Time, Inc. and Encyclopædia Britannica and headed by Dr. Robert M. Hutchins of the University of Chicago, was published late in March, followed by several volumes by individual members. Among the steps toward world-wide press freedom during the year were: meeting of a 12-member United Nations Subcommission on Press Freedom in May; a proposed treaty presented in April by Richard J. Finnegan of the *Chicago Times;* announcement of an international meeting in Geneva, Switzerland, early in 1948; a formal agenda proposed in August by the International Organization of Journalists.

Public hearings were held in April on the Mason bill (HR 110) designed to exempt newsgathering from antitrust laws and to free the Associated Press from the 1946 ruling of the supreme court, but the bill was not passed. Newspapers made vigorous protest against a proposal to increase second-class postal rates.

Associated Press announced in August that 441 radio stations had associate memberships; many newspapers were involved in the 259 new AM radio stations started during the year, and the number of newspaper FM station projects could only be estimated. The number of tabloid newspapers was said to have risen to 48. United Press and Acme developed picture service for television stations.

U.S. Magazines.—The year 1947 was a quiet one in the magazine world. Although circulations increased strikingly and available advertising was record-breaking, magazines faced the same difficulties of paper shortage and rising costs that embarrassed the newspapers. Few new magazine ventures were announced, and there were no notable demises. In one field, church publications, circulation gains were most marked; one survey indicated that 57 Protestant and Catholic periodicals showed a gain of from 10% to 500% in circulation in seven years, going to a combined circulation of more than 4,225,000, double that of 1940. One new project was a four-colour tabloid comic weekly circulated by McClure Newspaper syndicate. Stanley Walker, formerly of the *New York Herald-Tribune*, became editor of the new magazine *Scene* of Ft. Worth, Tex., in October. The Curtis Publishing company of Philadelphia made news three times during the year: first by breaking its time-honoured rule to admit liquor advertising in *Holiday;* second by arranging with Western Union telegraph company to have ads on 350,000,000 blanks and envelopes announcing that subscriptions might be ordered by wire; third on Nov. 15 by raising the sale price of *Saturday Evening Post* to 15 cents a copy, or $6 a year, and advertising rates to $11,200 a page. *Life* magazine joined with the *New York Times* and Houghton-Mifflin company to pay $1,000,000 for U.S. rights to Winston Churchill's memoirs—about $1 a word. (G. M. Hy.)

Canada.—Newsprint remained in short supply throughout 1947 and printing costs went up, resulting in continued limitations of the sizes of newspapers and sometimes a reduced coverage of news events because pressure for advertising space continued. Most dailies raised their prices to 5 cents a copy.

There were two flurries in Canadian newspaper publishing during the year. One came when the Canadian Daily Newspapers association presented a brief to the radio committee of parliament in which it declared that government policy forbidding new licences to newspapers to operate radio stations was discrimination which threatened "the very life of the press" because facsimile reproduction would be completely controlled by the crown-owned Canadian Broadcasting corporation. The second flurry came when opposition members of parliament unsuccessfully objected to the policy of carrying papers as second-

class mail at a cost of $7,200,000 a year to the post office.

Specific developments of interest included a $250,000 suit of the Southam Newspaper company against the officers and members of the International Typographical union because the *Vancouver Province* (B.C.) lost $200,000 in revenue and incurred $50,000 additional expenses when forced to suspend between June 5 and July 23, 1946, as a result of a strike.

The communist *Toronto Tribune* (Ont.) had a six-month career beginning May 1 as a daily, before reverting to weekly status. (C. Cy.)

Great Britain.—The year 1947 was one of great hopes and sad disappointment for British newspapers. With an increased supply of newsprint and the removal of sale restrictions, circulations rose considerably in the early months; but the fuel emergency in February, and the economic crisis later, both resulted in setbacks. By the end of the year, with the supply of newsprint again reduced, circulations had once more become stabilized.

During the fuel emergency, in order to save electric power, the publication of all periodicals and trade and technical papers was suspended for two consecutive issues, by an agreement between the ministry of fuel and power and the proprietors' association; and the daily newspapers reverted temporarily to their wartime size.

In response to the government request for an immediate reduction in newsprint consumption to save dollar expenditure, the rations of newspapers were reduced from July 21, 1947. For the morning papers the cut was equivalent to a reduction of one page per issue (two pages in tabloid newspapers) from the maximum paging then in force. The reduction could be effected either by reduced paging or reduced sale. These cuts were estimated to effect a dollar saving of a little more than £1,000,000 in the first six months. The decision was severely criticized as endangering the freedom of the press, and 20 Labour M.P.'s abstained from voting after a house of commons debate.

The names of the chairman, Sir W. David Ross, provost of Oriel college, Oxford, and the 16 other members of the royal commission to inquire into the control, management and ownership of the press were announced in March. The first meeting of the commission was held on April 30. The commission published written memoranda of evidence but heard oral evidence entirely in private.

In March the *Times* attained a sale of nearly 275,000. The sales of the *Daily Telegraph,* which in 1930 were less than 100,000, reached 1,000,000 in April. The *Daily Mail* and the *Daily Herald* both exceeded 2,000,000 and the *Daily Express* 3,000,000 copies a day. The *Evening News* with 1,600,000 claimed the highest net sale of any evening paper in the world.

The board of trade appointed a committee to advise on selection and production of new periodicals. Among new publications were *Coal,* a monthly magazine prepared for the new national coal board; the *Times Review of Industry,* which incorporated the *Times Trade and Engineering,* and *Hansard Digest.*

Final steps were taken in March 1947, to convert Reuters news agency into a world news agency under the ownership and control of newspapers of the United Kingdom, Australia and New Zealand.

J. W. Robertson Scott, founder and editor of the *Countryman,* retired and was succeeded by J. Cripps. Both Robertson Scott and J. Bone, late London editor of the *Manchester Guardian,* were made Companions of Honour. Dr. L. P. Jacks retired from the editorship of the *Hibbert Journal* which he had held since its foundation in 1902. Sir Bertram Ford, managing director of the *Birmingham Post* and *Birmingham Mail,* retired after 33 years' service. Sir Walter Layton received a barony in the New Year honours and became Lord Layton.

Europe.—The activity of the press in many European countries was restricted by the shortage of newsprint. Even in Sweden, cuts up to 25% in consumption of newsprint for newspapers were imposed.

The German news agency, launched by the British military authorities for the supply of news, was taken over by the Germans during the year; it distributed between 30,000 and 40,000 words a day throughout the British zone, in which 45 newspapers were licensed. In January British newspapers and periodicals were on sale again in the British zone for the first time since 1939. A special edition of the *Manchester Guardian Weekly* was printed in Hamburg.

The British government protested to the Bulgarian government against the arbitrary closure of opposition newspapers and against the press law in Bulgaria, which gave wide powers to the minister of information. A strict censorship of British newspapers was imposed in Rumania. (*See* ADVERTISING.)

(D. Hn.)

New York.

One of the original 13 states of the United States, popularly known as the "Empire state," New York covers an area of 49,576 sq.mi. of which 1,647 are water. With a population of 13,479,142 (federal census, 1940) and an estimated population of 14,207,052 exclusive of persons in institutions (New York state department of health, July 1, 1947), it is the most populous state. The foreign-born population in 1940 was 2,853,530. The urban population was 11,165,893. The 1947 population of principal cities estimated by the state health department and their percentage increase from 1940 included: Albany (state capital), 134,966 (up 3.4%); New York city 7,835,392 (up 5.1%); Buffalo 620,700 (up 7.8%); Rochester 338,492 (up 4.2%); Syracuse 225,423 (up 9.4%); Yonkers 143,560 (up 0.7%); Utica 103,694 (up 3.2%); Schenectady 96,893 (up 10.7%); Niagara Falls 91,915 (up 17.8%); Binghamton 90,391 (up 15.4%). The health department estimate showed a state-wide increase of 5.4% from 1940.

History.—Governor Thomas E. Dewey approved 908 bills passed by the 1947 legislature. Among the principal measures enacted were: continuation of a reduction in state personal income tax and 25% reductions in the corporation and unincorporated business tax rates, originally effected in 1946; the Young-Demo Merit Rating bill, permitting tax credits to employers estimated at $140,000,000 in the fiscal year ending June 30, 1948, based in part on employment experience records; an act prohibiting strikes by public employees; continuation of the state's stand-by rental control law for state regulation of residential rents in the event federal controls lapse; extension of commercial rent controls in New York city to July 1, 1948; measures making permanent certain temporary taxes on motor fuel, liquor, cigarettes, inheritances and estates, gross utilities receipts and unincorporated business; a measure channelling federal funds for airport development through the state department of commerce.

A $32,000,000 increase in state aid for education was appropriated to provide increases in pay of $300 each for 72,000 public school teachers, establishing a minimum annual salary of $2,000 for the period Jan. 1, 1947, to March 31, 1948. Another measure set a minimum salary schedule for teachers in New York city beginning at $2,500; in other cities of 100,000 population or over, starting at $2,200; and elsewhere, starting at $2,000. To enable localities to raise revenue to finance increased cost of teachers' salaries and for other purposes, the legislature granted new taxing powers to counties and cities over 100,000 population. This measure permitted the local legislative bodies to impose certain taxes on retail sales, motor vehicle use, amuse-

ments and other specified items.

The legislature passed for the second time a proposed constitutional amendment to provide $400,000,000 for a World War II veterans' bonus. This was approved by the voters at the November state-wide election, making possible individual bonus payments, ranging from $50 to $250, starting Jan. 1, 1948. Special taxes were to become operative to retire the debt thus incurred within a period of ten years. The special taxes were a one cent tax on each pack of cigarettes and a change in personal income tax reduction from 50% to 40% of the normal tax.

In the November election, the voters approved public housing propositions and five constitutional amendments. The housing propositions permit issuance of bonds up to $135,000,000 for loans to municipalities for slum clearance and low rent housing. This sum represents the balance of a $300,000,000 housing program previously authorized. Amendments approved by the voters permit more extensive use of the absentee ballot; authorize legislators to set their own salary by law; provide an alternate method of removal or retirement of judges and justices; create a new supreme court judicial district consisting of Queens, Nassau and Suffolk counties; authorize state construction and maintenance of ski trails on state forest preserve lands on Gore, South and Pete Gay mountains in the Adirondacks and Belle Ayre mountain in the Catskills.

New York state established an emergency housing program which had provided (to Oct. 1947) homes for 35,000 veterans in 214 veterans' emergency housing and educational projects located in 39 communities and at 52 colleges. When this $69,800,000 project should be completed, it would provide additional homes for 50,000 veterans and their wives and families. For disabled veterans who are paralyzed and paraplegics, the state constructed especially designed apartments at Marine park and the maritime base in New York city.

Besides the additional housing facilities provided for veterans at the schools and colleges, the state education department had a program of education aids for ex-service people. In 1947, approximately 100,000 veterans of World War II were attending schools and colleges in the state. On the recommendation of Governor Dewey, 4,800 war service scholarships were issued for colleges, business, professional and technical and trade schools in the state. These scholarships had a value of $350 a year for tuition and fees for four years. There were also 100 war orphan scholarships of $350 a year each for tuition and $100 a year for maintenance to resident children of deceased or disabled veterans.

Chief officers of the state during 1947 were: Thomas E. Dewey, governor; Joe R. Hanley, lieutenant governor; Frank C. Moore, comptroller; Nathaniel L. Goldstein, attorney general; Thomas J. Curran, secretary of state; Benjamin F. Feinberg, majority leader of the senate, and Oswald D. Heck, speaker of the assembly—all Republicans. United States senators: Robert F. Wagner, Democrat, and Irving M. Ives, Republican.

Education.—During the 1945–46 school year, New York state's educational system included: school districts, 5,112; common school districts, 4,215; union free districts, 415; central rural school districts, 319 (344 in 1947); cities and villages under separate superintendents, 162; grade pupils, 1,255,197; high school pupils, 576,664; and college and university students, 171,122 (regular), 51,021 (summer) and 52,203 (extension). During the year ending June 30, 1946, the approximate cost of maintaining public schools (including salaries of 73,079 teachers) was $378,143,894, excluding moneys raised by bonds.

Established to meet housing and college space difficulties, three state colleges (Sampson at Sampson, Champlain at Plattsburg and Mohawk at Utica), which comprise the Associated Colleges of Upper New York and operate as a single unit, had during 1947–48, 8,500 students, of whom about 7,200 were World War II veterans. There were more than 110 colleges and universities in the state.

Social Insurance and Assistance, Public Welfare and Related Programs.—During 1946 approximately 3,300,000 men, women and children received health and welfare services through 1,524 local public and private voluntary agencies and institutions under the supervision of the state department of social welfare, at a total cost of about $325,000,000. Of this sum, $197,000,000 came from public funds and $128,000,000 from private voluntary funds. During 1946 expenditures for aid to dependent children totalled $30,956,336; for old-age assistance, $52,732,075; for aid to the blind, $1,737,439; and for home relief and veteran assistance, $26,967,005.

During 1947 the state operated 18 mental hospitals, 2 mental institutions, 6 schools for mental defectives, 1 epileptic colony, 1 hospital for criminal insane and 1 for conduct insane. There were 7 state prisons, 3 reformatories and 3 institutions for defective delinquents. State expenditures for prisons, reformatories, etc., for the fiscal year ending March 31, 1947, were $15,863,886.36. The number of inmates on Oct. 31, 1947, was 15,949.

Communications.—New York state had 82,140 mi. of roads in 1946, of which 11,799 were state highways (exclusive of cities and incorporated villages), 16,994 county and 53,347 town roads. The 40 railroads in the state operated more than 7,000 mi. of tracks. The state maintains a system of more than 500 mi. of canals including the Erie, 340; the Champlain, 63; the Cayuga-Seneca, 92; and the Oswego, 24. Including the rivers and lakes which are part of the New York State Barge Canal system, the total length is more than 800 mi. Although no tolls are charged, the canals and waterways yielded a revenue of $518,204.29 in 1946 from the use of terminals, the sale of electric power and the operation of grain elevators. Airports had almost doubled in number in the two-year period after V-J day. The New York state department of commerce reported in July 1947 a total of 287 airports in the state.

Banking and Finance.—As of June 30, 1947, 114 state banks had total resources of $471,768,243 and deposits of $434,650,051; 145 trust companies had total resources of $19,387,671,655 and deposits of $17,454,080,977; 5 private banks had total resources of $263,334,943 and deposits of $226,387,577; 13 industrial banks had total resources of $174,026,132 and deposits of $151,486,012; and 131 savings banks had total assets of $10,629,941,202 and deposits of $9,583,259,401. As of Jan. 1, 1947, 172 saving and loan associations had total resources of $433,525,286 and due to shareholders $381,926,104.

The comptroller's report for the fiscal year ended March 31, 1947, showed that the state had an operating surplus of $58,712,842. Revenues for the year were $658,850,262.76 and expenditures $600,137,420.76. The surplus in the postwar reconstruction fund was $435,766,464.39. The state debt at the end of the fiscal year was $359,696,084.

Agriculture.—In 1946, the production of dairy products in the state was $315,861,000. Sales of eggs, poultry and other livestock products were $193,451,000, the second largest source of farm income in the state. The 1946 value of all farm crops was $232,560,000. Government payments amounted to $43,223,000. The grand total of farm cash receipts was $785,095,000.

As of Jan. 1, 1947, New York's milk-cow population was estimated at 1,439,000 head; total cattle in the state numbered 2,118,000 head. There were 15,333,000 chickens.

Total milk production in 1946 was 7,803,000,000 lb., third largest in the country. Egg production was 181,166,000 dozen. The New York state department of agriculture and markets in 1946 reported animal population as follows: horses, 202,000; mules, 3,000; milk cows and heifers two years old and over, 1,439,000; heifers, one–two years for milk cows, 274,000; hogs, 235,000; and sheep, 223,000. The number of turkeys raised was 756,000.

The farm value of vegetable crops for market in 1946 was $64,861,000. The estimated value of the 1946 production of apples, peaches, pears, cherries and grapes—the major New York fruits—was about $58,293,000.

According to the 1945 federal census, 83% of New York farms had electricity in the farm dwellings, 59% had running water, 53% telephones and 89% radios. Nearly 120,000 farms reported having 145,000 automobiles. Motor trucks were reported on 57,000 farms.

*Estimated Value of Product and Number of Employees in Ten Leading Manufacturing Industries, New York State, 1946**

Industry	Value of product (000's omitted)	Number employed
Apparel and other finished products made from fabrics and similar materials	$5,751,000	404,448
Food and kindred products	2,345,000	142,543
Printing, publishing and allied industries	2,155,000	147,324
Chemicals and allied products	1,589,000	91,901
Machinery (except electrical)	1,213,000	146,874
Nonferrous metals and products	1,125,000	65,499
Iron and steel and products	1,118,000	108,902
Textile-mill products	837,000	94,031
Paper and allied products	832,000	66,774
Electrical machinery	827,000	114,718

*Estimates by New York state department of commerce.

Manufacturing.—In the first half of 1947, the state's manufacturing firms were producing goods at an estimated annual rate of $20,000,000,000, compared with an output of $7,134,000,000 in 1939. By the end of 1947, the number of business firms operating in the state had reached an all-time high of 540,000. Estimated total employment in September, exclusive of agricultural workers, proprietors, domestics and personnel of the armed forces, was 5,440,400. The average weekly earnings in factories for that month were $54.94, or $4.13 more than the average for Sept. 1946.

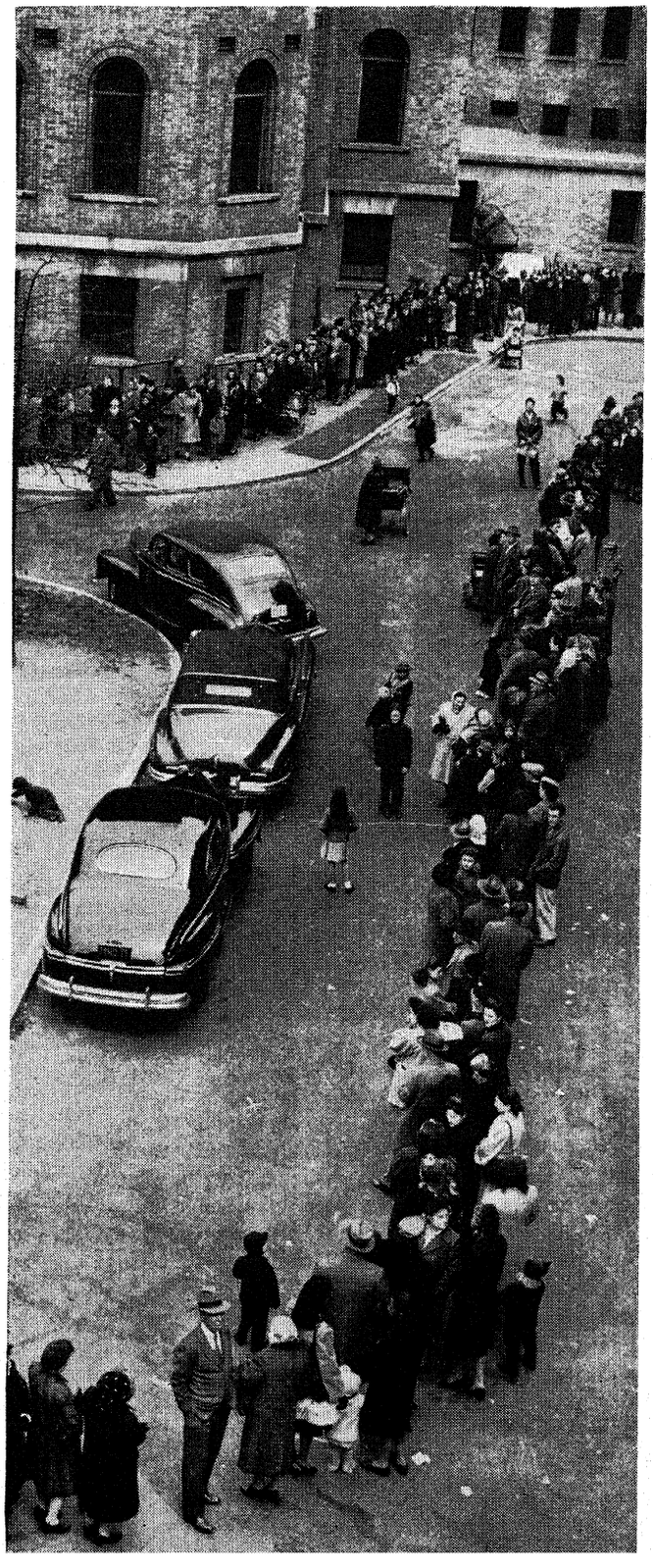
Of the 118 war plants constructed in New York state by the federal government, at a total cost of $316,983,560, 69 had been sold as of Nov. 25, 1947; 16 were leased, chiefly to firms which had operated them during the war; 23 were under negotiation for sale or lease; and 10 remained available. Several of the larger plants were owned or operated by concerns which moved into the state.

Mining.—In 1945, the latest year for which complete statistics were available, New York state produced $90,286,000 worth of primary mineral products. The value of the principal products listed in 1945 included: petroleum $17,470,000; salt $10,327,013; stone (including limestone)

$9,133,781; cement (Portland) $9,009,454; pig iron $74,857,092; coke $46,676,238; and gypsum $1,262,989. (H. C. CL.)

New York City. Unofficial estimates placed the population of New York city in 1947 at 7,835,392. The second year of Mayor William O'Dwyer's term of office saw the New York city expense budget inflated to a record $1,023,047,530 by increased costs of construction and government. This budget was second in size only to that of the federal government.

SMALLPOX SCARE after 12 cases and 2 resultant deaths caused 6,350,000 New York city residents to be vaccinated during April-May 1947. New Yorkers are shown waiting to be immunized at the Morrisania hospital



Large increases in the cost of operating the municipal transit system caused the city administration to ask the state for legislation to enable the board of transportation to fix a fare that would cover operating costs of the subways. This program also called for an increase in the real estate tax limit to 2.5%, or for the removal of education costs from the tax limitation.

In a plan developed at the suggestion of the mayor, the city's airport building program was turned over to the port of New York authority. The city also invited proposals from public and private agencies for the rehabilitation of the port of New York under a setup that would also save the capital cost to the taxpayers but, like the airports, continue to provide revenue to the city.

Again, with a view to economy, a three-member mayor's committee on administration was established, whose duty was to study all city departments and streamline their administrative procedures. A bureau of analysis of the budget was organized to make detailed studies for this committee.

To encourage new business to enter New York, the department of commerce was re-established with leading businessmen serving on a nonsalaried basis in advisory capacities.

Although conservative estimates said that 150,000 families still needed homes, 18,100 apartments were provided in 1947, and many developments, both public and private, neared completion. In addition, the city established by local law a Temporary Housing Rent commission seeking to regulate rents in hotels, apartment hotels and other housing no longer subject to federal controls.

As New York prepared for its golden anniversary celebration in 1948, commemorating the consolidation of the five boroughs into greater New York, construction had been started on 18 new schools. In addition, although hampered by constantly rising construction costs, a program of subway improvement was started whose aim was to lengthen station platforms and thus double the passenger capacity of local trains. Plans went ahead, too, for the purchase of 750 new subway cars and 1,155 buses and trolley coaches.

To prevent inflation from hampering the city's fiscal arrangements for construction, the mayor proposed to labour, management and suppliers in that industry that they reach a stabilization agreement under which final building costs could be more accurately estimated. As a result, 70% of the 250,000 construction workers in the New York area joined an agreement to stabilize wages until June 30, 1950.

On the whole, labour had a quiet year, with the city's labour relations division settling 52 disputes of which 26 were major.

On Dec. 26 the greatest snowstorm in New York's history smothered the city under a 25.8 in. blanket weighing 99,000,000 tons. Business and transportation were momentarily paralyzed, but the snow was rapidly removed. (*See* also MUNICIPAL GOVERNMENT.)

New York University. A coeducational institution occupying six centres in various parts of New York city and consisting of two liberal-arts colleges, three graduate schools, seven professional schools and colleges and a division of adult education, with programs of study embracing the liberal and fine arts, business, dentistry, education, engineering, law, medicine and public administration. Although bearing the name of both the state and the city, it is a privately-controlled institution with no religious or other affiliations. Its operating revenue in 1946–47 was $16,615,218, derived from student fees, endowments and gifts. The latter exceeded $2,667,000, of which approximately $843,000 was for specialized training and research. The university was engaged during 1947 in two major fund-raising campaigns, the first for the $3,000,000

law centre to be erected at Washington square, and the second for the projected $15,000,000 medical centre in conjunction with the proposed rebuilding of Bellevue hospital by the city of New York. The land comprising the site for the medical centre was acquired during the year and several of the activities of the centre were initiated, notably the Institute of Rehabilitation and the Institute of Industrial Medicine. Other educational developments during the year included the new co-operative work-study program in the School of Retailing, the Investment Banking program in the Graduate School of Business Administration, the consolidation of the Institute for Applied Mathematics and Mechanics in the Graduate School of Arts and Science, and the specialized programs of training in book publishing and business paper publishing in the division of general education. The cumulative enrolment of the university for 1946–47, including the summer session of 1946, reached a net total of 59,466, of whom 25,435 were veterans. Degrees and certificates were awarded at the regular June commencement exercises to 5,507 candidates. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (H. O. V.)

New Zealand, Dominion of.

A British dominion, consisting of a group of islands, lying in the South Pacific to the southeast of Australia. Area: dominion proper 103,416 sq.mi.; other islands 519 sq.mi.; pop. dominion proper (est. March 31, 1947): 1,793,225 (including Maoris 105,699); Cook and other Pacific islands 19,167; Tokelau Islands (census 1945) 1,388. Western Samoa, a trusteeship, has an area of 1,133 sq.mi. and a pop. (est. March 31, 1947) of 71,460. Chief cities (pop. est. April 1, 1947): Wellington (cap. with suburbs, 183,100); Auckland (with suburbs, 281,900); Christchurch (159,400); Dunedin City (87,700). Language: English; religion: Christian (1936 figures, excluding Maoris: Church of England 600,786; Presbyterian 367,855; Roman Catholic 195,261; Methodist 121,012). Ruler: King George VI. Governor-general: Lieut. Gen. Sir Bernard Freyberg. Prime minister: Peter Fraser.

History.—On June 26, 1947, Lieut. Gen. Sir Bernard Freyberg, the governor-general, emphasized that the peace settlements with Japan and Germany should not be dictated by the great powers, but that all the antiaxis belligerents should take part in the peacemaking. Peter Fraser, the prime minister, announced on March 5 the gift to Britain of £NZ.12,500,000, "in recognition of the magnificent, unprecedented effort of the United Kingdom and her people in maintaining freedom. . . ."

The first session of the new parliament, in which the government had a majority of four, was opened by commission on June 24, and Robert McKeen (Labour, Wellington South) was elected speaker. Daniel Giles Sullivan, minister of industries, commerce, supply and munitions, died on April 8, and Mabel Howard, who succeeded him, became New Zealand's first woman cabinet minister. James O'Brien, minister of transport and marine, died on Sept. 28, and was succeeded by Terence McCombs; shortly afterward the cabinet was reorganized and McCombs became minister of education, various other changes taking place.

The New Zealand delegation to the British Commonwealth conference on the Japanese peace treaty, held in Canberra in August, was led by Fraser.

The government announced on Aug. 14 its decision to abolish or reduce subsidies on a number of goods (fruit, tea, meat, bacon, sugar and imported raw materials), on sea and rail fares and on freight charges. The value of the subsidies affected was about £NZ.6,900,000.

Western Samoa.—In August, Walter Nash, the acting prime minister, announced a number of constitutional changes, including the appointment of a council of state of three Samoan *Fautua* (high advisers) and the replacement of the council by a legislature with a Samoan majority. On April 22, the United Nations Trusteeship council, of which Sir Carl Berendsen, the New Zealand delegate, was elected vice-chairman, decided to send a mission of investigation to Western Samoa. The mission, consisting of representatives of U.S.A., Belgium and Chile, reported in October, with recommendations similar to the New Zealand proposals already announced.

Education.—Dec. 1943: state elementary schools 2,090, scholars 204,060; postprimary scholars 47,620. University of New Zealand students (1946) 10,700. Total cost of education (year to March 31, 1944) £NZ.5,221,389.

Finance.—(In £NZ.) revenue, consolidated fund (est. 1947–48), £108,860,000; expenditure £105,516,000. Revenue, social-security fund (est. 1947–48) £39,727,000, including contribution from consolidated fund of £16,000,000; expenditure £40,039,000. Note circulation (June 1947) £39,842,000. Reserve (in reserve bank): gold £2,802,000, exchange £93,933,000. Net overseas funds £105,068,000. Deposits in post office and trustee savings banks (March 31, 1947) £171,782,000. Gross indebtedness of general government (March 31, 1947) £634,800,000. Exchange rate: £NZ.125 = £100 sterling. £NZ. = 324.2 U.S. cents.

Trade and Communication.—Imports (1946) £NZ.71,630,000; exports (1946) £NZ.99,410,000. Communication: road, paved or surfaced 45,118 mi. (including main highways 12,431 mi.); not paved or surfaced 8,591 mi.; railways 3,504 mi.; passenger journeys (year to March 31, 1947) 28,869,000. Civil aviation: passengers carried on internal air lines (year to March 31, 1947) 110,700; on overseas services 13,300; freight (internal) 128,700 ton-miles, (external) 220,300 lb.; mail (internal) 74,500 ton-miles, (external) 307,400 lb. Shipping (1946): entered 2,141,000 tons, cleared 2,633,000 tons. Motor vehicles licensed (June 26, 1947) 338,680. Wireless licences 395,139.

Agriculture.—Production (1945–46): wheat 5,439,041 bu.; oats 2,796,877 bu.; barley 1,872,316 bu.; maize 350,188 bu.; peas 816,897 bu.; potatoes 140,252 short tons; onions 11,996 short tons; perennial rye grass 20,642,061 lb.; Italian rye grass (including western wolths) 10,157,178 lb.; cocksfoot 3,107,218 lb. Livestock (1946): horses 216,335; cattle 4,666,782; pigs 549,391; sheep shorn 30,475,740. Wool production (1945–46): 365,000,000 lb. (greasy); butter fat production (1945–46) 368,000,000 lb.

Manufacturing.—1943–44: number of establishments 6,202; total number of employees 117,864; salaries and wages paid £NZ.34,433,075; value of products £NZ.175,686,689; value of land, buildings, machinery and plant £NZ.90,740,357.

Mineral Production.—Production in 1944 included: gold 142,287 oz.; silver 328,281 oz.; (in short tons) arsenic 18; talc 28; asbestos 19; scheelite 160; fuller's earth 117; coal 3,086,567; iron ore 6,640; phosphate 21,924.

NHA (National Housing Agency): *see* HOUSING.

Nicaragua.

A republic in Central America, situated between Honduras on the north and Costa Rica on the south. Area: 57,143 sq.mi., of which 3,475 sq.mi. is water. Pop. (off. est., Dec. 31, 1945) 1,095,488. Capital, Managua (1945 pop., 132,154); other urban centres: Chinandega (24,413), Granada (36,953), Jinotega (37,934), León (48,862), Masaya (35,065) and Matagalpa (50,072). Language: Spanish. Religion, predominantly Roman Catholic. Presidents in 1947: Gen. Anastasio Somoza, Leonardo Argüello, Benjamín Lacayo Sacasa and Victor M. Román Reyes.

History.—In 1947 a presidential election, a coup d'état, and a general reorganization by a new constituent assembly ended the presidency but not the power of General Somoza, Nicaragua's political strong man since 1936.

The election, held Feb. 2, was policed by the national guard and resulted officially in victory for proadministration Leonardo Argüello. The opposition candidate, Enoc Aguado, protested and left the country to obtain foreign support. Popular demonstrations and press criticism were suppressed by the government.

Argüello, inaugurated May 1, almost immediately alienated his chief benefactor (General Somoza) by attempting to placate the opposition and to eliminate military influence in the government. On May 25, Somoza and a portion of the national guard forced Argüello out of the presidential mansion and reconvened the congress. The congress, sanctioning the general's actions, declared Argüello deposed for inability to maintain public order, and designated Benjamín Lacayo Sacasa president *pro tem.* Argüello took refuge in the Mexican embassy until Nov. 30 and

died in December while an exile in Mexico. The temporary president named Somoza minister of war, dissolved congress and convoked national elections for a constituent assembly to form a new constitution and select a new president.

Meanwhile, economic crises resulted from the political uncertainty, both agriculture and trade suffering acutely. To aggravate the situation, a ten-day eruption of the Cerro Negro volcano in July devastated an estimated 280 sq.mi. of farm land, killing an undisclosed number of persons and leaving thousands homeless in and around León.

The constituent assembly, selected Aug. 3 by orderly voting, named Victor M. Román Reyes president on Aug. 15. General Somoza was left in charge of the national guard. Sporadic revolts in September brought about more stringent sedition legislation, and on Sept. 28 Gen. Emiliano Chamorro, leader of the Conservative party, was charged with fomenting subversive activities and was exiled to El Salvador.

The majority of the American republics refused to recognize the new administration, and Nicaragua was not invited to the Inter-American conference near Rio de Janeiro. (*See* INTER-AMERICAN DEFENSE CONFERENCE.) On Dec. 24, Pres. Román Reyes invited the United States to activate its treaty granting it rights to build and protect an interoceanic canal in Nicaragua.

Education.—In 1946 there were 1,275 schools of all kinds with a total enrolment of 84,651 students. The illiteracy rate (approx. 60% of the total population in 1945) continued to fall during 1947 as a result of national legislation obligating literate citizens to teach reading and writing to illiterates. As of Jan. 1, 1947, there were 44 motion-picture theatres with a total seating capacity of 41,037.

Finance.—The monetary unit is the córdoba, officially maintained in value at 20 cents U.S. The provisional budget for the 1946–47 fiscal year recommended expenditures amounting to 77,359,607.59 córdobas. The public debt on Jan. 1, 1947, amounted to 17,675,975.22 córdobas, internal, and 21,073,343.30 córdobas, external. At the same date the banks held $4,391,775.47 in gold and $871,924.23 in foreign exchange; money in circulation totalled $14,511,512.12.

Trade and Resources.—Exports for 1946 were valued at $18,131,880 ($13,962,728 in 1945); imports, $14,822,775 ($12,651,615 in 1945). During the first seven months of 1947, exports were valued at $14,400,000 and imports at $11,700,000. The U.S. took 78% and supplied 79% of the 1946 trade. The leading exports were gold (6,338 kg. at $7,731,252), coffee (196,276 bags at $4,316,432), lumber (19,611,504 bd.ft. at $986,864) and rubber (584,245 kg. at $384,245). Early estimates of the 1947–48 coffee crop placed production at 250,000 bags (230,000 bags in 1946–47).

Communications.—In 1946 public railroads measured 238 mi.; improved highways 597 mi.; telephone lines 4,748 mi.; telegraph lines 4,704 mi. There were 14 radio broadcasting stations. Registered motor vehicles included 725 automobiles, 94 buses and 623 trucks. In 1947 both internal and external air service continued to expand.

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Nickel. World production of nickel, as indicated in Table I, had by 1946 declined to about the 1939 level, not so much from lack of demand, as from inability to meet demand.

Table I.—*World Production of Nickel*

(In short tons)

	1939	1941	1943	1945	1946
Burma	1,015	?	?	?	?
Canada	113,053	141,129	144,009	122,565	94,833
Cuba	—	—	2,679	12,015	12,391
Finland	?	107	9,888	4,079	?
Greece	1,473	204	545	?	—
Japan	966	2,547	1,778	717	?
New Caledonia	11,712	11,459	8,128	4,771	3,063
Norway	1,219	1,000	636	61	?
U.S.S.R. (est.)	?	?	12,300	14,800	?
United States	394	660	642	1,155	352
Total	134,500	178,600	190,000	169,000	140,000

Table II.—*Nickel Supply in the United States*

(In short tons)

	1939	1941	1943	1945	1946
Production	394	660	642	1,155	352
Secondary recovery	2,920	5,313	6,917	6,483	8,248
Imports*	64,796	124,130	141,249	122,528	104,734
Exports*	10,167	7,125	9,464	3,876	7,977
Consumption	?	?	?	96,252	80,105

*Includes gross weight (not nickel content) of ore, matte, oxide and alloys.

United States.—The United States is dependent on imports for practically its entire supply of nickel, with Canada as the chief source.

Canada.—Nickel output dropped from 122,565 short tons in 1945 to 94,832 tons in 1946, but recovered to 85,336 tons in the first nine months of 1947.

Cuba.—During World War II Cuba developed into the second largest producer, with 12,015 short tons of contained nickel in 1945 and 12,391 tons in 1946. (G. A. Ro.)

Nicola, Enrico de (1877–), Italian statesman, was born on Nov. 9, in Naples. After graduating from Naples university in 1895 with a law degree, he was admitted to the bar and won renown as a criminal lawyer. Elected Liberal member for Naples to the chamber of deputies in 1909, he was re-elected in 1913, 1919 and 1921. Undersecretary of state in the Orlando and Giolitti governments, De Nicola was elected in 1920 speaker of the chamber of deputies. He occupied this position when Mussolini was appointed prime minister and held it until the end of 1923. He was re-elected speaker in 1924 without being candidate; he refused to take his seat and retired from politics. Under the fascist regime he kept aloof from public affairs, but in 1932 he accepted an appointment as senator. In 1944, monarchist in sentiment, he acted as intermediary between King Victor Emmanuel III and the committee of national liberation, and it was he who formulated the decree by which Crown Prince Humbert became lieutenant general of the realm (June 28, 1944). On June 28, 1946, after the proclamation of the republic, the constituent assembly elected De Nicola provisional head of state, and he was re-elected for another year on June 25, 1947. He accepted with the reservation that he would not be a candidate once the constitution had been promulgated.

Niger: *see* FRENCH OVERSEAS TERRITORIES.
Nigeria: *see* BRITISH WEST AFRICA.

Nitrogen, Chemical. Imports of Chilean nitrate into the United States dropped from 849,888 short tons in 1945 to 529,677 tons in 1946. Ammonium sulphate recovered in the by-product coking of coal also dropped, from 764,293 tons in 1945 to 643,752 tons in 1946, while the ammonia content of other by-product recovery declined from 218,680 tons in 1945 to 185,929 tons in 1946. As an offset to these reductions the output of synthetic ammonia rose from 548,655 tons in 1945 to 725,537 tons in 1946.

There was such an insistent demand for fertilizer nitrogen from the areas devastated by World War II that the decreased needs for military uses were more than offset, resulting in a world shortage of nitrogen which was expected to last at least into 1948. (G. A. Ro.)

NLRB: *see* NATIONAL LABOR RELATIONS BOARD.
NMB: *see* NATIONAL MEDIATION BOARD.

Nobel Prizes. The Nobel prizes, five in number, were awarded annually beginning in 1901. The 1947 physics and chemistry prizes, amounting to $40,588 each, went to two British scientists: the physics prize to Sir Edward Victor Appleton, world authority on radio waves and the discoverer of the ionosphere and the Appleton layer, atmospheric belts which surround the earth at heights of 60 mi. and 120 mi.; the chemistry prize to Sir Robert Robinson, authority on the synthesis or building up of natural compounds, and codiscoverer of the artificial sex hormones, stilbestrol and hexestrol. The prize in medicine and physiology was divided between Drs. Carl F. and Gerty T. Cori, U.S. biological chemists, and Dr. Bernardo A. Houssay of Argentina. The Coris, husband and

wife, are naturalized U.S. citizens, working at Washington university, St. Louis, Mo. They took their degrees and received their training in the German and Czech university schools at Prague. Dr. Houssay was formerly professor of physiology at the Buenos Aires National university but was deprived of his post during a political purge. The literature prize was won by the 78-year-old French writer, André Gide, whose works in English translation are issued by Knopf, and in French by Pantheon Books and Crofts. The 34th award of the peace prize was divided between the American Friends Service Committee of Philadelphia and the Friends Service Council of London. These two Quaker groups divided $40,946 between them. (B. GM.)

Noel-Baker, Philip John (1889–), British statesman, was born on Nov. 1 and was educated at Bootham school, York, and King's college, Cambridge. During World War I he served with the Friends' ambulance unit in France and Italy. Labour member for Coventry, 1929–31, and for Derby from 1936, he served as parliamentary secretary to the ministry of war transport in the coalition government, 1942–45. In the Labour government he was minister of state, 1945–46, and was appointed secretary of state for air, Oct. 1946.

In Jan. 1947 Noel-Baker visited royal air force establishments in Malta and Gibraltar. At the completion of his year of office as chairman of the Labour party, he presided over the annual conference in May, where he spoke of the Labour government's "bold new legislation and beneficent reforms." In the ministerial changes in October, Noel-Baker entered the cabinet as secretary of state for commonwealth relations. During the illness of Alfred Barnes, minister of transport, he was temporarily in charge of the transport ministry.

Nokrashy Pasha, Mahmoud Fahmy (1888–), Egyptian politician, was educated at the University college of Nottingham, Eng. He taught school in Egypt and joined the government in 1920 as a subdirector in the agriculture ministry. He was minister of communications in 1930 and again in 1936–37. He also held the portfolios of interior, education and finance between 1938 and 1940.

In 1938, Nokrashy pulled out of the Wafd party, joining the Saadists (or dissident Wafdists). He became president of the Saadist party in 1945.

Following the assassination of Ahmed Maher Pasha, Nokrashy Pasha (then foreign minister) became prime minister of Egypt, Feb. 25, 1945. However, following a week of anti-British demonstrations in Cairo, during which several persons were killed, his government fell on Feb. 15, 1946. He returned as prime minister Dec. 9, 1946, after the downfall of Ismail Sidky Pasha's government.

In 1947, he unsuccessfully tried to obtain British consent to termination of the Anglo-Egyptian condominium over the Sudan, permitting the latter area to achieve independence "under the Egyptian crown." He took up his case before the United Nations Security council, delivering before that body (on Aug. 11) an impassioned 11,000-word speech asking the council to order Britain out of the Sudan and evacuate all British troops from Egyptian soil. The Security council took no action, however, and tabled the Egyptian complaint on Sept. 10.

North Borneo. Three separate territories (all in the northern part of the island of Borneo) were under British protection before World War II, viz.: the state of Brunei under its own sultan; Sarawak, governed by a white rajah (Sir Charles Vyner Brooke); and the state of North Borneo, administered through a governor by a chartered company operating in London. Under arrangements made in 1946 full sovereignty over Sarawak and British North Borneo was transferred, by the rajah and the chartered company respectively, to the British crown, and British North Borneo was united with Labuan to form the new colony of North Borneo. Sarawak became a separate colony. Brunei retained its status as an independent sultanate under British protection. Area of North Borneo (including Labuan): 29,417 sq.mi.; Sarawak, 50,000 sq.mi.; Brunei, 2,226 sq.mi.; pop.: North Borneo (including Labuan, est. 1946), 310,000; Sarawak (est. 1946), 600,000; Brunei (1946 est.), 40,786. Capitals: North Borneo, Jesselton (pop. 15,000); Sarawak, Kuching (pop. 25,000); Brunei, Brunei (12,000). Executive authority in North Borneo and Sarawak is vested, under the new arrangements, in a governor appointed by the British crown. Brunei is governed by a sultan, assisted by a state council and advised by a British resident. All three territories come under the general co-ordinating and supervisory authority of the British governor-general of Malaya. Governors: North Borneo, E. F. Twining; Sarawak, Sir Charles Arden Clarke (both appointed in 1946).

History.—The main effort of the civil government in each of these territories during 1947 was concerned with urgent rehabilitation measures. In Sarawak much attention was given to problems of health and education, and steps were taken for the establishment of new local government institutions. As regards North Borneo, arrangements were being made for the settlement by arbitration, under the terms of the 1946 agreement, of the amount of compensation to be paid to the British North Borneo company for the transfer of its territory to the crown. Opposition was raised during the year to the maintenance of an export tax on rubber from North Borneo, first imposed by the British military administration during the period following the ejection of the Japanese. Negotiations on the subject were in progress between the colonial office and the Rubber Growers' association. Schemes sanctioned during the year, under the Colonial Development and Welfare act, included grants for appointments to North Borneo of a drainage and irrigation officer, a town planner and a veterinary officer. Grants to an aggregate amount of more than £250,000 were sanctioned for Sarawak. A further grant of £21,500 was made for the investigation of coal deposits in both territories.

Finance and Trade.—The normal unit of currency in all these British territories is the Straits dollar, linked to sterling. Prior to World War II, the Sarawak and British North Borneo governments issued their own notes and subsidiary coinage. Revenue: North Borneo (1947 est.) £590,000; Sarawak (9 months) £494,000; Brunei (6 months) £75,000. Expenditure: North Borneo (1947 est.) £1,070,000; Sarawak (9 months) £815,000; Brunei (6 months) £103,996. Imports: North Borneo (1940) £1,083,000; Sarawak (1946) *c.* £3,383,000. Exports: North Borneo (1940) £2,386,000; Sarawak (1946) *c.* £2,683,000. The leading agricultural product of North Borneo is rubber. Other exported articles included timber, cutch (a tanning extract prepared from bark), dried fish and tobacco. In Sarawak, as in North Borneo, rubber is the most important agricultural product, but the territory also contains oil deposits (the Miri oil fields). Apart from oil and rubber, articles of export include gold, sago flour, pepper and copra. Brunei produces oil, rubber, sago and rice. (*See* also BRITISH EMPIRE; NETHERLANDS INDIES.) (J. E. SH.)

North Carolina. A south Atlantic coast state, popularly known as the "Old North state" or the "Tar Heel state," North Carolina is one of the original 13 states of the union; area 52,712 sq.mi. (49,142 sq.mi. land, 3,570 sq.mi. water); pop. (1940) 3,571,623 of which 974,175 (27.3%) were urban, 2,597,448 (72.7%) rural and 1,005,501 (28.2%) nonwhite. On July 1, 1944, the bureau of the census estimated the civilian population of the state at 3,534,545. Capital, Raleigh (46,897); other cities: Charlotte (100,899); Winston-Salem (79,815); Durham (60,195); Greensboro (59,319); Asheville (51,310).

History.—Continuing high prices and income and economic

prosperity characterized North Carolina in 1947. The state legislature meeting in Raleigh, Jan. 8–April 5, broke all records with its appropriations of $155,615,959 for current expenses and debt service for all state functions for the biennium 1947–49. It also appropriated $48,432,256 for permanent improvements to become available for projects upon the approval of the governor and the Advisory Budget commission. The Post War Reserve fund was increased by $9,300,000 to a total of $30,000,000 as a cushion against declining revenues. Emergency bonuses of $8,050,000 for teachers and state employees were voted for the fiscal year 1946–47 and regular average increases of 20% for state employees and approximately 30% for school teachers were voted for 1947–49.

The entire state medical care program as recommended by the Medical Care commission and approved by the governor had been so well publicized that it was adopted by the legislature without the expected opposition. It provides, among other things, for the establishment of a four-year medical school and teaching hospital at the University of North Carolina in Chapel Hill. The launching of the medical care program was contingent upon the availability of federal funds to the extent of one-third of the costs of the projects.

Three state-wide liquor referendum bills were defeated, thus preserving the state-wide county local-option system of liquor stores. The local-option idea was extended beyond the county-unit system by local acts permitting a few designated cities to call A.B.C. store elections independently of the county and by a general law providing for the holding of an election on the question of the sale of wine or beer or both in any county. If the sale is defeated in the county referendum, any town with a population of 1,000 or more may hold an election on the question of the sale of wine or beer or both in the town. Taxes on beer and wine were increased.

An act was passed over strong labour opposition making it illegal after July 1, to enter into a labour contract providing for a closed shop, a union shop, the check-off of union dues or the maintenance of union membership. A mild wages-and-hours bill was defeated. Other laws required public registration of persons, firms and corporations engaged principally in the business of influencing public opinion or legislation and made it a felony to advise, advocate or teach the duty or necessity of overthrowing the state's organized government by force.

State officers in 1947 were R. Gregg Cherry, governor; L. Y. Ballentine, lieutenant governor; Thad Eure, secretary of state; Henry L. Bridges, auditor; C. M. Johnson, treasurer; Clyde A. Erwin, superintendent of public instruction; Harry McMullan, attorney-general; W. P. Stacy, chief justice.

Education.—In 1945–46 there were 3,418 public elementary schools with 19,794 teachers and principals and 689,348 enrolled pupils; 971 public high schools with 6,100 teachers and principals and 133,771 enrolled pupils; these schools were operated at a cost of $56,970,455, about three-fourths of which was contributed by the state government. Average of all teachers' salaries was $1,545. The state provided bus transportation for 308,191 school children at an average cost of $11.93 per pupil.

Social Insurance and Assistance, Public Welfare and Related Programs.—In Nov. 1947, public grants amounting to $750,185 were made to 41,666 persons for old-age assistance; $278,302 to 8,025 families for aid to dependent children; $78,977 to 2,980 blind persons; and $43,177 to 3,066 cases for general relief (by the county governments). During the year ending June 30, 1947, the total amount of public relief funds distributed was $11,459,301, and during the first 11 months of 1947 unemployment benefits amounted to $5,537,094. In 1947 the state maintained 10 charitable institutions with 10,431 inmates on Nov. 1; 5 correctional institutions with 782 inmates; and state highway prison camps with 7,198 prisoners.

Communications.—In 1947 the state highway and public works commission maintained 11,349 mi. of state highways, of which 10,062 mi. were hard-surfaced; and 50,845 mi. of county roads, of which 3,334 mi. were hard-surfaced. There were 4,581 mi. of railroads, 324 mi. of city bus routes, 10,277 mi. of passenger bus routes and 11,525 mi. of freight vehicle routes in 1944.

Banking and Finance.—On June 30, 1947, there were 59 national banks and branches with assets of $471,065,000, and 332 state banks and branches with deposits of $1,223,676,791 and assets of $1,313,593,493. On Jan. 1, 1947, there were 150 building and loan associations operating under state charters with 142,462 shareholders and total assets of $117,645,155, and 26 federal savings and loan associations with total assets of $65,090,629. In 1946–47 state receipts were $407,247,812; disbursements $382,874,418. On June 30, 1947, the state gross bonded and net debts were $90,956,500 and $22,640,218 respectively. The assessed value of property was $2,884,364,459 in 1945. In the state general fund there was a cash surplus of about $42,100,000 at the end of 1947.

Table I.—Leading Agricultural Products of North Carolina, 1947 and 1946

Crop	1947 (est.)	1946	Value, 1947
Tobacco, lb.	915,460,000	927,425,000	$386,285,000
Cotton, bales	440,000	440,000	69,300,000
Corn, bu.	65,209,000	58,320,000	143,460,000
Tame hay, tons	1,207,000	1,283,000	35,003,000
Peanuts, lb.	343,100,000	272,875,000	38,427,000
Wheat, bu.	8,449,000	6,307,000	20,700,000
Sweet potatoes, bu.	7,360,000	7,320,000	15,824,000
Irish Potatoes, bu.	9,216,000	12,616,000	14,561,000
Oats, bu.	11,623,000	12,870,000	12,785,000
Soybeans, bu.	3,915,000	2,862,000	11,745,000
Lespedeza seed, lb.	33,600,000	40,900,000	4,368,000
Peaches, bu.	2,905,000	3,160,000	4,212,000
Apples, bu.	768,000	1,248,000	1,690,000
Pecans, lb.	2,040,000	1,344,000	682,000

Agriculture.—The total value of agricultural production harvested from about 6,650,000 ac. in 1947 was approximately $782,000,000 of which tobacco accounted for $386,285,000 and cotton $69,300,000. North Carolina produced about 42% of all the tobacco and 70% of all flue-cured tobacco grown in the United States. The cash income of North Carolina farmers in 1946 was $633,394,000 from crops; $119,799,000 from livestock and livestock products; and $11,211,000 from government payments. The value of the lands and buildings on the 278,276 farms in 1940, 44% of which were operated by tenants, was $736,708,125.

Manufacturing.—In 1939 manufacturing establishments numbering 3,225 employed 270,210 wage earners at wages of $199,289,501 and made products valued at $1,421,329,578. The principal industries were tobacco products, cotton goods and furniture. Estimated industrial production in 1947 was about $2,000,000,000.

Mineral Production.—The mineral production for North Carolina in 1944 was $22,199,000. In quantity production of mica, feldspar and bromine, North Carolina ranked first among the states; but in value of all minerals produced, it ranked 32nd in 1944. The value of gold produced in 1943 was $4,585.

Table II.—Principal Mineral Products of North Carolina, 1945, 1944, 1943 and 1942

Mineral	Value, 1945	Value, 1944	Value, 1943	Value, 1942
Stone	$3,044,135	$5,975,951	$5,376,600	$3,774,472
Clay products	—	2,700,000	3,000,000	4,000,000
Sand and gravel	1,503,422	1,405,917	1,823,516	2,491,820
Feldspar (crude)	—	778,007	656,182	533,448
Mica	633,250	2,280,910	2,288,691	991,194

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North Carolina, University of.

The University of North Carolina at Chapel Hill began its 154th session with an enrolment of 7,600 students, an increase of 80% above 1941. Three large dormitories were almost completed. Additional classroom facilities were provided by 28 temporary buildings, secured from the Federal Works administration. The chief items of new construction authorized by the state legislature were: a 50% increase in the library; a new medical school and teaching hospital of 400 beds; and expansion of the various utilities. Salary increases of 20% were also authorized.

Gifts during 1947 included the David C. and Martha Reeves Edwards Student Loan fund of $78,000, a bequest of $82,500 from Julian Price to assist in supplying a professorship of insurance and $280,000 from other sources. The Business foundation received approximately $1,000,000, the income from which is used to provide educational services and research for business and industry. On Nov. 29, the cornerstone was laid for the $2,000,000 Morehead Memorial building which would provide space for a planetarium and for an art collection.

The curriculums leading to graduate degrees in the school of public health were reorganized and the faculty strengthened. The school of pharmacy was authorized to offer the Ph.D. degree. Staff was added for expanding teaching and research in clinical psychology. A unit of the air officers reserve training

corps was inaugurated. A new department of radio was authorized to give an undergraduate major leading to the A.B. degree. Of unusual significance in a state university was the beginning of a department of religion with plans to offer both elective courses and a major in the college of arts and sciences. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.)

North Dakota. A west north central state of the United States, admitted to the union Nov. 2, 1889. Popular name, "Flickertail State." Land area, 70,054 sq.mi.; water area, 611 sq.mi. Population (1940), 641,935; rural, 510,012; urban, 131,923. The bureau of the census estimated the population July 1, 1944, as 528,071. Capital, Bismarck (15,496). Chief cities, Fargo (32,580); Grand Forks (20,228); and Minot (16,577).

History.—The Garrison dam and Missouri-Souris irrigation projects were expected to increase the possible resources and population of the state appreciably. Federal agencies appropriated $22,785,545 to be spent in North Dakota in the year ending June 30, 1948. The Republican Organizing committee gained majorities in both house and senate of the 1947 legislature in the 1946 election. The chief state officers in 1947 were: governor, Fred G. Aandahl; lieutenant governor, C. P. Dahl; secretary of state, Thomas Hall; auditor, Berta E. Baker; treasurer, H. W. Swenson; attorney-general, Nels G. Johnson; superintendent of public instruction, G. B. Nordrum; commissioner of insurance, Otto Krueger; commissioner of agriculture and labour, Math Dahl; tax commissioner, John Gray; public service commissioners, C. W. McDonnell, S. S. McDonald, and Ben C. Larkin.

Education.—School teaching positions for the year ending June 1947 were 6,420; elementary 4,901; high school 1,519; enrolment 114,541 (elementary 85,912; high school 28,629); buildings, one-room and two-room 2,848; graded elementary 231; combinations (elementary and high school), 421; schools in session (1947–48), 3,500. Total enrolment in the state university, the state agricultural college and other state institutions of higher education, in the fall of 1947, was 12,091.

Social Insurance and Assistance, Public Welfare and Related Programs.—Public assistance, in the year to Nov. 30, 1947, was $6,190,988; average number aided per month, 11,971; types of aid: old-age, $4,145,998 with 8,912 persons; care of dependent and foster home children, $1,563,018 with 1,972 persons; blind $57,514 with 125 persons; general assistance, $424,458 with 962 persons. Cost of operating 4 charitable and 4 correctional institutions, biennium to June 30, 1949, $4,758,520. Average number of patients (1947): feeble-minded, 1,025; blind, 30; deaf, 88; tubercular, 230; correctional institutions, penitentiary, 218, state farm, 18, training schools, 1,175. Additional appropriations for improvements, repairs, new buildings and equipment, $1,674,370.

Communications.—Highway mileage, state, 7,223; rural, 107,413. Spent for construction of state highways (1947) $6,093,000, and for maintenance of state highways, $4,500,000. No additional amounts apportioned to counties. Railway mileage, 5,272.

Banking and Finance.—On June 30, 1947, 1 trust company and 110 state banks had resources of $311,959,931; deposits, $296,069,436. Resources, 41 national banks (4 with trust powers), $242,102,000; deposits, $230,975,000. On Dec. 31, 1946, 6 federal savings and loan associations had resources of $8,285,171; share capital of $7,201,998; 12 state building and loan associations, Dec. 31, 1946, had resources of $19,536,679 and share capital of $17,865,671. State treasury collections, year to June 30, 1947, $40,451,855; payments, $35,382,127; bonded debt, $17,350,250.

Agriculture.—Farm acreage in crops (1947), 17,082,000. Gross farm income (1947) of $619,491,400 averaged $10,500 per farm unit for 60,000 operators; of this livestock and its products made $216,660,000; crops, $381,650,400; and soil conservation payments, $21,181,000; additional crops of $125,109,300 were fed to livestock on the farms. Number of workers on farms in 1947 was 236,539, reduced from 252,052 in 1943.

Leading Agricultural Products of North Dakota, 1947 and 1946

Crop	1947	1946
Spring wheat (other than durum), bu.	105,868,000	107,460,000
Durum wheat	40,170,000	32,364,000
Corn	24,374,000	25,542,000
Oats	61,902,000	62,764,000
Barley	50,358,000	46,600,000
Rye	4,360,000	2,058,000
Flax	11,400,000	5,334,000
Potatoes	20,100,000	17,760,000
Hay, tons	3,281,000	2,736,000

Manufacturing.—Estimated number of employees in nonagricultural establishments in North Dakota (Sept. 1947), 219,000, an increase of 9% over 1940; and in manufacturing, 6,200 employees, an increase of 24% over 1940; estimated yearly wages per worker in manufacturing, $2,312. Value of creamery butter, $34,750,000. There were approximately 15,000 places of business in North Dakota on Dec. 1, 1947, an increase of about 3,000 in 12 months.

Mineral Production.—Production of lignite coal, to June 30, 1947, was 2,817,768 tons; value, $4,743,581. Employment, 509 miners, 285 others. New mines, 9; reopened, 17; closed, 35. Number of mines in operation, 119. Natural gas, 24 wells, to Nov. 30, 1947, produced 364,630,000 cu.ft.; yield from 16 wells, calendar year 1946, was 344,653,000 cu.ft.

(A. V. O.)

Northern Ireland: *see* IRELAND, NORTHERN.

Northern Rhodesia: *see* RHODESIA, NORTHERN.

Northwestern University. An institution of higher learning at Evanston and Chicago, Ill. The university comprises the following divisions: the college of liberal arts, the graduate school, the technological institute and the schools of music, education, speech, commerce and journalism, all located in Evanston (a suburb of Chicago) on a campus bordering Lake Michigan; the medical, law and dental schools and the evening departments of the university, all on Chicago's near north side, on a campus six blocks from the loop business district.

During the academic year ending Aug. 31, 1947, the university awarded 3,504 degrees and diplomas, and the gifts received totalled $1,582,318.

The enrolment of the university for the fall term of 1947 totalled 24,254 students, consisting of 10,446 full-time students and 13,808 part-time students enrolled in the evening divisions on the Chicago campus. The enrolment showed a 12% increase over that of the previous year, and veterans represented approximately 50% of the total. The university would gladly have restricted its enrolment to more normal figures, but such a course was unthinkable in view of its obligation to do all it could for the returning veterans.

Under trying conditions, the university was making every effort to maintain the quality of its educational programs. Able teachers were added to the staff. Late afternoon and evening classes relieved congestion, and careful selection of students made it possible to do good work under adverse conditions.

The large enrolment, however, created a financial problem for the simple reason that tuition represented only about 65% of instructional costs. The increased enrolment did not bring increased endowment. Its net effect was to impose an additional burden on the university's investment income, already too thinly spread.

During the year the university completed a $3,000,000 building, containing 208 apartments, which were immediately occupied by faculty, staff and students. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.)

Northwest Territories. The Northwest Territories comprise the mainland portion of Canada lying north of the 60th parallel of latitude between Hudson bay on the east and Yukon territory on the west, together with the islands lying between the mainland of Canada and the north pole, including those in James bay, Hudson bay and Hudson strait. Area, 1,304,903 sq.mi.; pop. (1941 census) 12,028, comprising 2,284 whites, 4,334 Indians, 5,404 Eskimos and 6 others; estimated pop. (1947), 15,201. The seat of government is at Ottawa, Ont.

For purposes of organization and administration, the territories were divided into the provisional districts of Mackenzie, Keewatin and Franklin by order in council dated March 16, 1918. The Northwest Territories act (1927) provided for a territorial government composed of a commissioner, a deputy commissioner and five councillors appointed by the governor in

council. The Northwest Territories council in 1947 was composed as follows: commissioner, Hugh L. Keenleyside; deputy commissioner, Roy A. Gibson; members of council: Stuart T. Wood, Robert A. Hoey, John G. McNiven, Louis de la C. Audette, Harold B. Godwin; secretary, James G. Wright.

Education.—The education of white, native and half-breed children in Mackenzie district was carried on at day and residential schools operated under the supervision of the dominion government by missions of the Church of England in Canada and the Roman Catholic Church, and at public schools situated at Fort Smith and Yellowknife, all of which received financial assistance from the government. The new public school at Yellowknife, designed to provide greater educational opportunities for children residing at other settlements in the territories, was completed and occupied in 1947. A school inspector was appointed by the Northwest Territories administration in 1946 to co-ordinate all educational services in the territories, and improvements introduced during 1947 included an extensive circuit system for the distribution of educational films and the institution of special radio programs broadcast to the classrooms. Eskimo children in the eastern arctic were given instruction at mission day schools.

Transportation and Communications.—Inland water transportation on the Mackenzie river system from railhead at Waterways, Alta., to points in Mackenzie district was available during the open season of navigation. Regular commercial air services, which also carried mail, were maintained from Edmonton, Alta., to the principal settlements. Good progress had been made at the end of the year on the construction of a new all-weather highway from Grimshaw, Alta., to Hay River settlement on Great Slave lake. Medical centres, trading posts, missions, etc., in the eastern arctic were served, in part, by R.M.S. "Nascopie," and following the wreck of that vessel off Cape Dorset in July 1947, by auxiliary boat services from railhead at Churchill, Man., and by special charter vessel S.S. "North Pioneer," from Montreal. Radio communication was maintained between important settlements and trading posts in the territories and outside points through government and private commercial radio stations.

Agriculture, Lumbering and Fisheries.—Limited agricultural and horticultural operations were carried on at most of the settlements in Mackenzie river valley. Experimental substations operated by the department of agriculture at Fort Simpson and Yellowknife carried on field work during the year. Sawmills in the vicinity of Slave river delta operated to meet the demand for lumber at Yellowknife. Commercial fishing on Great Slave lake, inaugurated in 1945, produced a catch of 2,387,000 lb. (round weight) during the summer of 1946, and a catch of 251,965 lb. during the 1946–47 winter season.

Fur Trade.—The trapping of fine furs continued to provide the chief occupation of the native population. The fur harvest for the year ended June 30, 1946, totalled 565,065 pelts, with an estimated value of $2,750,183. Fur trading was controlled by regulation, and was open only to those who had been issued permits and who had established permanent posts. Of the white residents, only those who, under the regulations, were included in an established eligible list were permitted to hunt and trap, and such individuals required an annual licence. Reindeer herding in the Mackenzie delta region was continued in the interests of the native population.

Mineral Production.—Mineral development in 1947 included the production of gold, silver, pitchblende concentrates, from which radium and uranium are extracted, and petroleum. Yellowknife continued to be the centre of gold mining activity, with the Con-Rycon, Negus and Thompson-Lundmark mines in production. Development work was continued at other properties in the district, with emphasis on prospecting and assessment work to hold claims already acquired in good standing. Mineral production in the Northwest Territories during 1947 included 60,346 oz. of gold, with an estimated value of $2,112,110; 16,192 oz. of silver, with an estimated value of $11,658; 244,194 bbl. of petroleum, with an estimated value of $239,310. These are preliminary figures.

At the end of the year considerable work had been done on the new hydroelectric power development on Snare river, 94 mi. northwest of Yellowknife, designed to provide the power required by new mines in the Yellowknife district.

Production of pitchblende concentrates was continued at the mine of Eldorado Mining and Refining (1944) Ltd. at Port Radium on Great Bear lake. The concentrates were shipped by air and rail to the company's refinery at Port Hope, Ont., for reduction.

Crude oil production was continued by Imperial Oil Ltd. at Norman Wells on Mackenzie river. Much of this oil was processed at the Norman Wells refinery, and was then shipped by barge to Port Radium and to Yellowknife where consumption of petroleum products, including fuel oil, was maintained at a high level.

A building program on a scale hitherto unknown in the Northwest Territories was carried on at Yellowknife settlement, and two-thirds of the building lots available within the settlement had been taken up at the end of the year.

Freight shipments to Yellowknife, from points north and south of the settlement, far exceeded in volume the shipments of any previous year. Improvements were made in navigation aids and landing fields available for the use of aircraft operating in the Northwest Territories, and access roads to airports at all principal settlements were maintained by the department of transport. The landing field at the Yellowknife airport, including two 600 ft. x 5,200 ft. strips, with rolled gravel surfaces, was completed in 1947. (R. A. G.)

Norway. A democratic monarchy of northern Europe, bounded north by the Arctic ocean, east by Finland, the U.S.S.R. and Sweden and west by the North sea. Area 124,556 sq.mi.; pop. (Dec. 3, 1946, census, prelim. figs.) 3,123,883. Capital, Oslo (1930 census, 253,124). Other principal cities with 1930 populations are Bergen (98,303); Trondheim (54,458) and Stavanger (46,780). Religion, Lutheran Christian. Ruler in 1947: King Haakon VII. Prime minister: Einar Gerhardsen.

History.—The major news of Norway in 1947 was the progress of the hard-fought battle of reconstruction. Imports were restricted, exports were stimulated, work stoppages were prohibited and the wartime compulsory arbitration of labour disputes was continued. By the end of 1946 total production was back to 90% of normal and the figure for Jan. 1947 rose to 109%.

Norwegians showed their hopefulness and vigour by planning a number of large-scale enterprises. Foremost of course was a rebuilding of the merchant and fishing fleet. In the first 10 months of 1947, 261 ships of 818,051 gross registered tons and a value of 660,000,000 kr. were added.

Food rationing was strict, and late in the year the amount of flour, sugar and fats allowed to bakeries was appreciably reduced. Meat continued to be very scarce in most of the country. Eggs continued to be very short.

International trade was encouraged in every way. The government made agreements for exchange of goods with Finland, Poland, the U.S.S.R. and other countries. Most significant were the arrangements made for tariff reductions in the series of trade treaties negotiated at Geneva with the U.S., Great Britain, France, the Benelux countries (Belgium, the Netherlands and Luxembourg), Brazil, Cuba, Australia, Canada, Chile, China and New Zealand. About 50% of Norway's exports to the U.S. were affected, on which the U.S. granted tariff reductions of about 50%; among the items concerned were whale oil and sardines. Norway in turn lowered its duties on automobiles from 40% to 30% and made adjustments on many other items. Parliamentary review was to precede application of the new rates.

Norway also made an agreement with Great Britain and Sweden (Nov. 18) to concert measures in financial exchange. This was a result of the Marshall Plan conference in Paris and the original agreement among Benelux, France and Italy.

Many of the measures described involved use of forceful social controls. The Norwegian government was frank in acknowledging that it took a popular mandate to the Socialist and Communist delegates to mean that the people favoured governmental oversight. But the Conservatives vociferously attacked the government at many points, and demanded a larger degree of individual freedom of action. The effectiveness of this attack—together with a trend rightward throughout western Europe—resulted in general losses to the left parties in the municipal elections of October. In a vote much larger than at the elections of 1945 the Conservatives increased their ballots by 56%, the Farmers by 49%, the Liberals by 32%, and the combined Labour parties by only 2.3%. The Communists lost votes absolutely as well as relatively. The Labour party lost 140 council seats and the Communists lost 150; the Conservatives gained 240. Although storting seats were not affected, the right won an impressive moral victory, all the more so because Premier Gerhardsen had declared that people would vote for or against the Labour government policy.

In international affairs Norway faced two delicate problems at the very beginning of the year. A dispute with Russia had been simmering since the fall of 1944 when Russia asked to become a partner with Norway in the defense of the island of Spitsbergen (Svalbard), and sole defender of Bear Island. Norway then had no choice but to be partly yielding, partly evasive, and passed a resolution to the effect that the defense of Spitsbergen was a joint concern of Norway and the Soviet Union. Russia forced the question into the open in Jan. 1947. On Feb. 15, the Norwegian storting met in secret session and

voted 101 to 11 to deny the Russian request for bases. The 11 votes were all cast by Communists. Norway argued in its reply to the Soviet Union that conditions had changed with the ending of the war: one factor was the soviet-initiated vote for disarmament in the United Nations. Joint defense of an area under Norwegian sovereignty, it said, was contrary to the policy pursued by the Norwegian government since the liberation.

The other serious problem was in relation to Spain, which took umbrage at Norwegian leadership in the United Nations against General Francisco Franco and his government. Other states did little to back their acid remarks on Spain, and Norwegian restrictions on trade with Spain were annoying rather than effective. Hence, on Jan. 4 the Spanish government threatened to retaliate against Norway by excluding Norwegian ships from Spanish ports. After reviewing the entire situation in the storting Norway decided to negotiate directly with Spain for a settlement of the dispute in line with Norwegian interests.

Most spectacular of the year's Norse expeditions was the raft voyage across the Pacific, headed by 32 year old Thor Heyerdahl. On the 15 ton "Kon-Tiki" six scientist-navigators drifted from Peruvian shores to the Polynesian islands in a 4,300 mi. slow-motion passage, to prove that prehistoric South Americans could have drifted this same route and peopled the islands of the Southwest Pacific. They kept careful records of a variety of phenomena in the 101 days at sea.

Finance.—The monetary unit is the krone (20.16 U.S. cents in Sept. 1946 and remained quite stable throughout 1947). Along with rebuilding its fleet, and largely because of its expenditures for that, Norway's great problem was dollar exchange. Much of its gold reserves was used, its gold and foreign exchange dropping from $300,000,000 at the end of 1946 to $136,000,000 on Sept. 30, 1947. About $40,000,000 was left of a United States Export-Import bank credit, and there was a revolving credit of $16,000,000 set up by New York banks in 1946. In the spring of 1947 Norway also sold a $10,000,000 bond issue (3½%) in New York.

Norway sought only slight aid from the Marshall plan.

Trade and Communication.—For the first 10 months of 1947 imports amounted to 2,593,000 kr. and exports to 1,420,000,000. The October figure for imports was down to 247,600,000 kr., showing that import restrictions were taking effect. Exports consisted chiefly of the following items (for first 10 months 1947): fish and canned goods 372,500,000 kr., wood products 393,400,000 kr., metals 196,000,000 kr., fertilizers 84,000,000 kr., whale and cod oil 214,000,000 kr.

Agriculture.—Acreage tilled declined about 8.8% from 1942 (from 1939, 9.4%). The chief loss was in grain acreage. The number of pigs increased slightly (2,000) over 1946, but was 28.5% less than in 1939. Chickens increased 42.8% from 1946, but were still 40% less than in 1939. Horses were more numerous than in 1939, but 5.6% less than in 1946. Milk cows were 8% less than in 1939.

Fisheries.—The whaling season (from Dec. 1946 to April 1947) produced about 1,000,000 bbl. of whale and sperm oil (165,000 tons); with prices high this was expected to bring 250,000,000 to 300,000,000 kr. in foreign exchange. In the Lofoten fisheries a good catch of 146,000 tons of cod was valued at 55,000,000 kr., and the total cod take was 227,905 tons. Winter herring produced a record catch with a value of 79,000,000 kr.

Manufacturing.—As of 1944 there were 4,905 industrial establishments, with 153,436 workers, which produced goods valued at 2,363,282 kr. In 1947 the timber felled reached a record high and promised a paper output of 400,000 tons.

The general production index figure was 106 for June 1946, as compared with 105 for 1938 and 109 for 1939. Production committees, based on a U.S. wartime system, aided in maintaining high outputs. Employment by March 1946 was up to 170,900, only 2,100 less than in 1939, and remained at a high level through 1947, partly because of the government prohibition of work stoppages, partly because of national feeling and the needs of reconstruction.

Mineral Production.—Total mineral production, 1943, was valued at 49,575,000 kr. The chief products and the value of each were:

	Weight	Value
Silver ore	12,303,000 kg.	709,000 kr.
Copper	21,216,000 „	9,406,000 „
Sulphur pyrites	808,779,000 „	23,252,000 „
Nickel	15,679,000 „	1,506,000 „
Titanium	285,191,000 „	8,830,000 „
Zinc and lead	9,075,000 „	1,403,000 „
Molybdenum	386,000 „	4,159,000 „

(F. D. S.)

Nose: *see* EAR, NOSE AND THROAT, DISEASES OF.

Notre Dame, University of.

Quadrupling of its research program highlighted the 1947 program of the university. The expansion indicates the opportunities challenging universities through pure research developments and through the requirements of the government and industry. A peak enrolment of students continued to tax housing and academic facilities. Fifty new members were added to the teaching staff in September.

The 1947 Laetare medalist was William G. Bruce, distinguished Milwaukee Catholic publisher, who became the 65th recipient of the outstanding American award to Catholic laymen.

Academic highlights of the year were the opening of the Medieval institute on Feb. 2; resumption of the university's summer session after a three-year wartime suspension; and the first Natural Law institute, conducted by the College of Law on Dec. 12–13.

Rev. J. Hugh O'Donnell, C.S.C., president of Notre Dame during the war years (1940–46) died on June 12, 1947.

The 1947 commencement highlighted addresses by Gen. George Kenney and Rt. Rev. Msgr. William Newton, biblical scholar, who received honorary LL.Ds. as did also I. A. O'Shaughnessy, St. Paul business leader and philanthropist; Rev. J. Hugh O'Donnell, C.S.C., past president of the university; Mother Rose Elizabeth, C.S.C., superior general of the Sisters of Holy Cross, and Most Rev. Lawrence Graner, C.S.C., D.D., alumnus-bishop of Dacca, Bengal, India.

Most significant development of the year for the university's future was the establishment of the University of Notre Dame foundation. A university-alumni enterprise, it proposes to coordinate and stimulate fund-raising to enable the university to meet effectively the opportunities offered it. Key to the foundation program are 48 state governors and 200 city chairmen, organizing a program of public relations for the university on the state and community levels.

Undefeated national cochampion, Notre Dame's football team attracted record crowds and publicity.

A new laboratory for advanced study of germ-free life was begun.

(For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (J. E. AR.)

Nova Scotia.

Most easterly of the three maritime provinces of Canada, Nova Scotia entered the union in 1867. Its area is 21,428 sq.mi., of which 325 sq.mi. are lakes; pop. (1941) 577,962; (1947 est.) 621,000. The capital is Halifax, pop. (1943) 126,480; other cities are Sydney (1941) 28,305, Glace Bay 25,147.

History.—Liberal Premier Angus L. Macdonald continued in office and reported the largest peacetime surplus of $122,635 for the fiscal year ending Nov. 30, 1947. Lieut. Col. Hon. H. W. Kendall resigned as lieutenant governor and John Alexander Douglas McCurdy (first man to make an aeroplane flight in the British empire on Feb. 23, 1909) was appointed. The minimum age limit of industrial workers was raised from 14 to 16. The 1947 provincial Trade Union act made union officials responsible for their activities, established fines for illegal striking and placed restrictions on employers to prevent discrimination. The first general maritime coal strike after 1925 lasted 110 days. Miners lost $5,000,000 in wages and coal production was cut by 1,000,000 tons.

Education.—Total enrolment in educational institutions in the 1944–45 school year was 133,107. In 1946, 250 of the province's 2,236 schools were without teachers. Faced with a similar problem when the 1947 school year began, the government increased schoolteachers' pay about 35%, and granted school boards $700,000 to meet the increases.

Transportation.—The government commenced a paved highway program aimed at covering 800 new miles by 1950. A $1,000,000 causeway to connect Cape Sable Island with the southern tip of the mainland was begun. After a hiatus of nearly a century, the province's ancient cross-and-lion flag flew on 12 Nova Scotia-owned freighters.

Agriculture.—Agricultural sales in the first six months of 1947 totalled $14,663,000 (same period 1946: $13,366,000). Livestock (cattle, horses,

sheep, swine) stood at 445,000 in 1946 (1944: 498,000). The 1947 apple crop was estimated at 1,125,000 bbl.

Resources and Industry.—Mineral production reached a high of $35,391,301 in 1946, about $3,200,000 more than 1945. Increased production of coal and gypsum were the principal factors. After spending two years and $1,000,000, the Sun Oil company abandoned drilling near Amherst. From Jan. 1, 1946, to July 1, 1947, 52 new industries began operation in Nova Scotia.

Production.—The gross value of 1945 production was $338,522,173. The net value was $182,724,409, which was 3.01% of Canada's total. Per capita production was $294.24. (C. Cy.)

Nursery Schools: *see* EDUCATION.
Nursing: *see* HOSPITALS.
Nutmegs: *see* SPICES.
Nutrition: *see* FOOD RESEARCH; VITAMINS.

Nuts. The U.S. pecan crop of 1947 was estimated at 100,209,000 lb., compared with the short crop of 76,706,000 lb. harvested in 1946 and an average of 107,784,000 lb. during 1936–45. The crop of improved varieties was 42,887,000 lb., 26% above the previous year but 10% below average. The seedling crop was much better, being 45% above 1946 and 2% above average. The improved varieties were grown mostly in the southeast, 51% in Georgia alone, while the seedlings or wild varieties were grown in Texas and Oklahoma. The 1947 crop was short in Mississippi and Louisiana, where the September hurricane caused severe loss. Florida also suffered from the storms.

Walnut production was estimated at 64,800 tons, a smaller crop than in 1946 but above average. Dry weather during September in California reduced the yield and produced smaller sizes. The Oregon crop was estimated at 5,800 tons compared with the record 8,900 tons harvested in 1946. Damage from blight reduced the output.

The almond crop of California was estimated at 29,200 tons or 23% below the record high crop of 37,800 tons harvested in 1946. This crop was 65% above the average harvest.

Filbert production in Oregon and Washington was estimated at 8,900 tons, a new record, compared with a production of 8,450 tons in 1946, the record to that year. The 1947 crop was

U.S. Pecan Production, 1947 and 1946

(In thousands of pounds)

State	Improved varieties 1947	Improved varieties 1946	Wild varieties 1947	Wild varieties 1946
Georgia	22,572	13,000	3,983	3,000
Alabama	6,175	6,642	1,265	2,098
Texas	3,100	3,400	17,900	19,100
South Carolina	2,200	1,180	350	226
Oklahoma	2,000	1,100	22,500	5,900
North Carolina	1,734	1,224	306	120
Florida	1,670	2,650	1,104	1,876
Mississippi	1,305	1,920	1,595	2,430
Louisiana	1,300	2,250	3,000	6,750
Arkansas	654	250	3,196	950
Missouri	60	16	1,440	484
Illinois	17	3	683	137

about double the average of 4,310 tons for the two states. Oregon produced 7,800 tons and Washington 1,100 tons. (*See* also COCONUTS.) (J. C. Ms.)

Nyasaland. A British protectorate in central Africa surrounded by northern Rhodesia, Tanganyika and the Portuguese Mozambique. Area: 47,949 sq.mi., including 10,353 sq.mi. of water; pop. (1945 census) 2,050,051, (1946 est.) 2,230,955, including 3,100 Asiatics, and 2,400 Europeans. Capital: Zomba. Governor: G. W. T. Colby. Public finance (1944): revenue (including grants in aid) £1,029,282; expenditure £857,194; public debt £3,779,161. Foreign trade (1945): exports £1,876,063; imports £1,620,882. Chief exportable products: tobacco, tea, cotton, beans, groundnuts, tung oil, sisal.

Nylon: *see* RAYON AND OTHER SYNTHETIC FIBRES.

Oats. The U.S. oat crop of 1947 was estimated at 1,215,970,000 bu., a decline from the 1,497,904,000 bu. record crop of 1946. The average of 1936–45 was 1,161,282,000 bu. Lower production in 1947 was mainly due to an 11% drop in acreage to 38,648,000 ac. from the 43,205,000 ac. harvested in 1946 and also a decline in average yield per acre to 31.5 bu. from 34.7 bu. in 1946. Unfavourable weather in April and May delayed planting and kept growers from seeding full acreages in most of the heavy producing north central states. Dry, hot weather reduced yields on late planted areas.

U.S. Oats Production in Leading States, 1947, 1946 and 10-year Average, 1936–45

(In thousands of bushels)

State	1947	1946	10-yr. average	State	1947	1946	10-yr. average
Iowa	180,609	211,575	189,046	North Carolina	11,623	12,870	6,722
Minnesota	163,332	197,506	153,589	Montana	10,478	10,912	11,086
Wisconsin	120,758	124,758	92,318	Oregon	10,132	9,782	9,527
Illinois	117,005	165,256	129,381	Arkansas	9,641	7,650	6,418
South Dakota	95,511	100,398	62,789	Idaho	7,568	7,216	6,958
North Dakota	61,902	62,566	52,008	Colorado	6,900	5,610	5,255
Nebraska	61,672	71,708	45,603	Washington	6,812	6,144	7,762
Kansas	40,455	40,556	35,492	Tennessee	6,095	6,492	3,055
Michigan	38,150	71,890	45,662	Alabama	5,083	5,537	3,821
Missouri	30,107	57,133	43,861	California	4,860	5,700	4,479
Indiana	30,320	55,068	42,145	Virginia	3,456	4,260	2,786
Oklahoma	30,276	24,780	26,572	Louisiana	3,348	2,640	2,621
Texas	30,248	36,366	33,236	Maine	2,625	2,840	3,576
Pennsylvania	19,865	30,033	25,078	Kentucky	2,415	3,213	1,667
South Carolina	19,630	20,097	13,352	Wyoming	5,049	4,666	3,495
Ohio	19,058	62,235	39,970	Utah	2,112	1,763	1,735
Georgia	16,100	16,404	11,347	Maryland	1,216	1,254	1,098
New York	13,338	32,360	22,989	New Jersey	1,000	1,440	1,335
Mississippi	12,480	10,571	7,785				

The world's oat crop was not as good in 1947 as in the preceding three years; it was estimated at 4,120,000,000 bu. compared with a prewar average of 4,363,000,000 bu., 1935–39. Yields were lower in Europe than in previous years, although the acreage was well maintained and was approaching the prewar level. The crop in France, Germany and the United Kingdom reflected the effects of unfavourable weather. (J. C. Ms.)

Obituaries. The following is a selected list of prominent men and women, of the United States and other countries, who died during the year 1947.

Abadía Méndez, Miguel (June 5, 1867–May 15), Colombian politician.
Agate, James Evershed (Sept. 9, 1877–June 6), British drama critic.
Ajalbert, Jean (1863–Jan. 14), French writer.
Albers, Homer (Feb. 28, 1863–Jan. 9), U.S. lawyer, educator.
Allen, Sir William (James) (Oct. 1866–Dec. 20), Northern Ireland politician.
Anderegg, Rupert Andrew (1894?–July 18), U.S. flood control expert, educator.
Anderson, William Gilbert (Sept. 9, 1860–July 7), U.S. athletics director.
Andrae, Tor Julius Efraim (1885–Feb. 24), Swedish clergyman, politician.
Anglesey, Charles Henry Alexander Paget, 6TH MARQUESS OF, (April 14, 1885–Feb. 21), British peer.
Anspacher, Louis Kaufman (March 1, 1878–May 10), U.S. writer.

Argüello, Leonardo (1875–Dec. 15), Nicaraguan politician and physician, was born in León, Nicaragua, and studied medicine in León and Europe. Dr. Argüello participated in the revolution of 1912 and subsequently was deputy to the national congress and held several cabinet posts. He was an unsuccessful candidate for president in 1936, but nominated again in 1946, he was elected Feb. 1, 1947, and was inaugurated May 1. However, 25 days later he was deposed by Gen. Anastasio Somoza, former president and powerful political leader. Argüello fled to the Mexican embassy where he was given asylum for six months. Finally on Nov. 20, he was permitted to leave with his family for Mexico City where he died.

Armstrong, Warwick Windridge (May 22, 1879–July 13), Australian cricketer.
Ashley, Clifford Warren (Dec. 18, 1881–Sept. 18), U.S. marine artist, author.
Ashley, Raymond Harman (March 29, 1881–Dec. 1), U.S. chemist, educator.
Asquith, Herbert (March 11, 1881–Aug. 5), British novelist, poet.

Atcheson, George, Jr. (Oct. 20, 1896–Aug. 16), U.S. government official and diplomat, was born in Denver, Colo. He served in the army during World War I as an aeronautics instructor and was graduated from the University of California, Berkeley, with a B.A. degree in 1919. He entered the U.S. foreign service in 1920 and spent the next two decades in various diplomatic posts in the orient. In 1942 he was dispatched to Chungking as counsellor of the U.S. embassy, but he clashed with Ambassador Patrick J. Hurley over policy. Hurley accused Atcheson of "disloyalty," and while the latter was removed from his post on grounds of insubordination, he was subsequently cleared of the disloyalty charges.

Atcheson's next assignment, in Sept. 1945, was that of political adviser to Gen. Douglas MacArthur, supreme commander of allied occupation forces in Japan, who made him the U.S. member of the Allied four-power council in Tokyo.

An army plane, in which Atcheson was en route from Tokyo to Washington, D.C., sank after an emergency landing in rough seas west of Honolulu.

Atcheson was one of the four persons who were missing after the craft went down and he was presumed dead.

Atwater, Helen Woodward (May 29, 1876–June 26), U.S. home economist.

Aung San, U (1914?–July 19), Burmese national leader, was imprisoned when an undergraduate at Rangoon university for subversive activities. Shortly after the outbreak of World War II, he escaped to Japan, where he received military training. During the Japanese occupation he negotiated with the British and, as a result, the Burmese National army attacked the Japanese on April 26, 1945, and assisted the Allies. From the political movement accompanying this armed resistance was formed the Anti-Fascist Peoples' Freedom league, uniting most parties under Aung San's leadership. Soon after the liberation, Aung San refused office in the executive council, unless his party was given a large majority of seats. On Sept. 26, 1946, a new council with powers of interim government was formed, with the governor as chairman and Aung San as deputy chairman and counsellor for defense and external affairs. Aung San demanded that steps be taken toward Burma's constitutional independence and headed a delegation which visited London in Jan. 1947, where a wide measure of agreement was reached with the British government. In the election for a constituent assembly, held in April and boycotted by extremists and dissidents from his policy, his party won 196 out of 202 seats. Five men armed with Sten guns and rifles broke into the council chamber at Rangoon while the executive council was in session and assassinated Aung San and six other members.

Ayres, Louis (Aug. 25, 1874–Nov. 30), U.S. architect.
Backe, Herbert (1896–April 6), German politician.
Bacon, Charles Sumner (July 30, 1856–July 10), U.S. obstetrician.
Bacon, Sir Reginald (Hugh Spencer) (1863–June 9), British naval officer.
Bagg, Halsey Joseph (Oct. 23, 1889–April 14), U.S. research biologist.
Baily, William Lloyd (Dec. 26, 1861–April 6), U.S. architect, ornithologist.

Bainbridge, William Seaman (Feb. 17, 1877–Sept. 22), U.S. surgeon and cancer authority, was born in Providence, R.I., and in 1893 was graduated from the College of Physicians and Surgeons of Columbia university. He spent several years in postgraduate work in European hospitals.

In the United States, Dr. Bainbridge won wide renown as the first U.S. surgeon to use spinal analgesia. He also developed new surgical methods for use in cancer cases and a special technique for removal of cancer-infected breasts.

He was professor of operative gynaecology of the New York Post-Graduate Medical school, professor of surgery at New York Polyclinic Medical school and hospital, and surgeon and secretary of the research committee of the New York Skin and Cancer hospital.

He served in World War I as ship's operating surgeon and as medical observer with Allied field armies. Later he became consulting surgeon of the 3rd naval district and attending specialist in surgery with the U.S. public health service of the New York city area.

Author of *The Cancer Problem* (1914), Dr. Bainbridge also wrote numerous monographs on cancer and surgical subjects. He died at Danbury hospital, Bethel, Conn.

Bajpai, Sir Seetla Prasad, Rai Bahadur (April 19, 1865–Feb. 1), Indian jurist.
Baldwin, Edward Robinson (Sept. 8, 1864–May 6), U.S. physician.
Baldwin, Elbert (1894?–Dec. 6), U.S. economist.

Baldwin of Bewdley, Stanley Baldwin, 1st Earl (Aug. 3, 1867–Dec. 14), British statesman and thrice prime minister, was born at Bewdley, Worcestershire, the only child of Alfred Baldwin, M.P., and was educated at Harrow and Trinity college, Cambridge. For his early life see *Encyclopædia Britannica.*

After nine months out of office, Baldwin's second term as prime minister, which saw Britain's return to the gold standard, the general strike of May 1926 and the passing of the Trades Disputes act, 1927, began in Nov. 1924, when the Conservative party was returned in the house of commons. The general elections of June 1929 returned a Labour government, but in Aug. 1931 a National government was formed in which Baldwin was lord president of the council. From Sept. 1932 to 1934 he held the additional post of lord privy seal.

On the resignation of J. Ramsay MacDonald in June 1935, he became prime minister for the third and last time, for on May 28, 1937, he retired—a sick man needing a long rest. During his last period as premier, the grave constitutional crisis arose, which ended in the abdication of King Edward VIII and the accession of the duke of York as King George VI.

His services to the state were recognized by the conferment of the titles of Earl Baldwin of Bewdley, Viscount Corvedale and a knighthood of the Order of the Garter. He died at his home near Stourport-on-Severn, Worcestershire.

Barbeau, Antonio (?–June 14?), Canadian neurologist.

Barcroft, Sir Joseph (1872–Mar. 21), British physiologist, was educated at Bootham school, York, the Leys school, Cambridge and at King's college, Cambridge university, where he was made a fellow in 1901. His work was classical in three major fields: the physical chemistry of oxyhaemoglobin, the distribution of the blood between the storage depots and the circulation; and the physiology of foetal life. His work in World War I made him a leading authority on defense against war gases. He was elected a fellow of the Royal society in 1910, was appointed a C.B.E. in 1918; was elected president of the physiological section of the British association in 1920; Fullerian professor of physiology at the Royal institution, 1923–26; and was professor of physiology at Cambridge university, 1926–37. He was knighted in 1935. From 1941 he was director of the unit of animal physiology under the Agricultural Research council. Many learned societies and universities honoured him, and in 1943 he received the Copley medal, the Royal society's highest honour. He was editor of the sixth edition of *Huxley's Physiology*, joint editor of the *Cambridge Comparative Physiology* and was a departmental editor (physiology) of *Encyclopædia Britannica.* He died at Cambridge.

Barnard, William Nichols (April 24, 1875–April 3), U.S. educator.
Batchelder, Charles Foster (July 20, 1856–Sept. 3), U.S. naturalist.
Bauer, Charles Christian (Nov. 17, 1881–March 15), U.S. tax authority.
Baxter, Bruce Richard (Aug. 18, 1892–June 20), U.S. Methodist bishop.
Beaman, Bartlett (July 20, 1891–Nov. 14), U.S. army officer.
Beatty, Bessie (Jan. 27, 1886–April 6), U.S. radio commentator.
Beaumont, Henry (June 7, 1902–Feb. 21), U.S. educator, psychologist.
Beedy, Carroll Linwood (Aug. 3, 1880–Aug. 30), U.S. congressman.
Belcher, George Frederick Arthur (Sept. 19, 1875–Oct. 3), British cartoonist.
Belloc, Marie Adelaide (Mrs. Lowndes) (1868?–Nov. 14), British novelist.
Belmont, Perry (Dec. 28, 1850–May 25), U.S. diplomat.
Belson, J. Harry (1906?–March 13), Canadian chess champion.
Bench, John J. (1905?–Dec. 9), Canadian senator.
Benlliure y Gil, Mariano (Sept. 8, 1862–Nov. 9), Spanish sculptor.

Bennett, Richard Bedford Bennett, 1st Viscount, of Mickleham in the County of Surrey and of Calgary and Hopewell, in Canada (July 3, 1870–June 26), was prime minister of Canada 1930–35. Born at Hopewell, N.B., and educated in local schools, he took a law degree at Dalhousie university, Halifax, and built up a successful law practice, first at Chatham, N.B., and later at Calgary, Alta. He entered politics in 1898 as a member of the legislature of the Canadian Northwest Territories. From 1911–17 he represented Calgary in the Canadian parliament. For a short time, in 1921, he was minister of justice and attorney general, but was not thereafter politically active until 1925 when he re-entered parliament and in 1926 became minister of finance. In the following year he became leader of the Conservative party, a post which he held until 1938. In 1930 he became prime minister, and attended the 1930 Imperial conference in London where he came out in favour of the principle of empire preferences. Apart from attending to negotiations in Washington with President Herbert Hoover in 1931, he played an important part at the Ottawa Empire conference of 1932, in which the system of empire preferences was greatly strengthened. He represented Canada at the World Economic conference in London in 1933, at the League of Nations in 1934 and again in London at the celebrations of King George V's silver jubilee in 1935. In that year, he resigned the premiership after the Conservative party was defeated in the general election, and in 1936 visited Australia and New Zealand. In 1938 he retired from public life in Canada and settled at Mickleham, Surrey, England. During World War II he served in an advisory capacity to Lord Beaverbrook at the ministry of aircraft production. He was created a viscount in 1941, and died at Mickleham. *See* also *Encyclopædia Britannica.*

Benton, James Webb (July 9, 1892–Oct. 22), U.S. diplomat.
Beresford, John Davys (March 7, 1873–Feb. 1), British novelist.

Bernard, Tristan (Sept. 17, 1866–Dec. 7), French playwright, humorist and novelist, was born in Besançon. For his early career, see *Encyclopædia Britannica.* Abroad, Bernard was noted principally for his plays, but at home he was perhaps even more famed as a humorist.

Bernard left Paris for Cannes to escape the German occupation during World War II. But his caustic comments on the occupation offended the conquerors and, arrested on the Riviera in Sept. 1943, he was interned at Drancy until the liberation.

Among his later works are *l'Enfant prodigue de Vésinet* (1921), *Le Voyage imprevu* (1928), *Aux abois* (1933), *Paris Secret* (1933), *Visites nocturnes* (1934) and *Robins des bois* (1935).

Bernard died at his home in Paris.

Berreta, Tomas (Nov. 22, 1875–Aug. 2), Uruguayan soldier and politician, was born near Arroyo Miguelete, Uruguay, the son of an Italian liberal emigré. He participated in the revolutions that shook Uruguay between 1896 and 1904, tied his fortunes to those of Pres. José Batlle y Ordoñez and became chief of Batllista armed forces.

In the ensuing years, Berreta became an important figure in the government. He was a national deputy, 1922–29, and a member of the National Council of Administration from 1929 until its dissolution by Pres. Gabriel Terra in 1933.

An opponent of the Terra regime, Berreta was banished but later was permitted to return to Montevideo, where he once more assumed a leading role in the government. In 1942 he was elected to the council of state and later became minister of public works. He reached the peak of his political career in 1946, when as candidate of the liberal Colorado party, he defeated Luis Alberto de Herrara for the presidency. In Feb. 1947, the new president-elect visited Pres. Harry S. Truman in Washington. At the time, he emphasized that his purpose was not to engineer a loan but to tighten bonds of Uruguayan-U.S. friendship.

Berreta, who was inaugurated March 1, 1947, died in Montevideo after an emergency operation.

Bidwill, Charles W. (1896?–April 19), U.S. sports promoter.

Bilbo, Theodore Gilmore (Oct. 13, 1877–Aug. 21), U.S. politician, was born in Juniper Grove, Miss. At the age of 19, he became an active Baptist lay preacher. He was admitted to the Tennessee bar in 1908.

Elected to the Mississippi state senate in 1908, Bilbo was accused two years later of taking a bribe to vote for a candidate to the U.S. senate, but later asserted he had taken the gift to "trap" the giver.

Bilbo's explanation was received with skepticism by his colleagues who voted a resolution into the state journal calling for his ouster.

The Mississippi politician, however, toured the back country, and, with florid oratory, convinced his constituents that he was being victimized; the issue also helped him win election as lieutenant governor in 1911 and the governorship in 1915 and again in 1927.

In 1934 Bilbo was elected to the U.S. senate and was re-elected in 1940 and 1946. In the upper house, he denounced the anti-lynching bill and the Committee on Fair Employment Practice measure. He spoke for "white supremacy," urged deportation of all Negroes to Africa and (in 1946) admitted membership in the Ku Klux Klan.

In Dec. 1946, however, senate committees investigated charges that Bilbo used intimidation to keep Negroes from the polls in Mississippi and that he used his office to get financial favours from war contractors. During the inquiry into the bribe charges, Bilbo admitted receiving certain gifts apparently for the purpose of promoting the candidacy of Wall Doxey for the senate, but claimed there was nothing "improper" in these actions. While the senate refused to permit Bilbo to take the oath of office in Jan. 1947, it did not expel him. He died in New Orleans, La.

Bingley, George Richard Lane-Fox, 1ST BARON (Dec. 15, 1870–Dec. 11), British politician.
Black, Charles Clarke (July 29, 1858–Dec. 23), U.S. jurist.
Blair, Arthur (Sept. 2, 1869–Feb. 4), British army officer.
Blake, Maurice Adin (Dec. 1, 1882–Dec. 14), U.S. horticulturist.
Blankfort, Isaac Moses (Feb. 5, 1846–July 6), U.S. educator.
Bloch, Jean-Richard (1884–March 15), French writer, politician.
Blythe, Samuel George (May 19, 1868–July 17), U.S. author.

Bonnard, Pierre (Oct. 3, 1867–Jan. 24), French painter, was born at Fontenay-aux-Roses, near Paris. He attended the Académie Julian and was afterward inscribed at the École des Beaux-Arts but did not attend there. He was a civil servant until 1899 when he resigned in order to devote himself to painting. He had first been attracted to decorative art, designing the covers of musical scores, screens and posters, and illustrating books. About 1890 he began to execute coloured lithographs and in 1895 exhibited stained-glass windows. His first paintings were exhibited at the Salon des Indépendants in 1891. An important exhibition at Durand-Ruel's gallery in 1896 made his work generally known.

Bonnard was a post-impressionist whose most characteristic pictures were of interiors with figures, although he painted many landscapes and still-life subjects. Together with his friend, Jean Edouard Vuillard, he was often described as an "intimist." Early in his career he was for a short time associated with the "Symbolist" painters led by Paul Gauguin in Brittany. Colour was his chief means of expression, in which he was influenced by Pierre Renoir, his design and drawing owing something to Hilaire Degas and Henri de Toulouse-Lautrec. In his charming and affectionately-treated interiors the quiet forms are resolved into colours whose brilliant and subtle patterns give them life.

The Tate gallery in London possesses four paintings by Bonnard and his work is represented in most large modern collections.

Boomer, Lucius Messenger (Aug. 22, 1878–June 26), U.S. hotel manager.
Booth, Fenton Whitlock (May 12, 1869–July 26), U.S. jurist.
Borg, Carl Oscar (March 3, 1879–May 8), U.S. artist.
Bowater, Sir Frank H. (April 3, 1866–Nov. 10), British politician.
Bowerman, Charles William (Jan. 22, 1851–June 11), British trades union official, politician.
Boyles, Robert E. (Feb. 18, 1899–Nov. 10), U.S. educator.
Bradbury, Samuel (April 30, 1883–Aug. 29), U.S. medical author.
Bradley, Frederick Van Ness (April 12, 1898–May 24), U.S. congressman.
Bradley, Walter Parke (July 7, 1862–Sept. 14), U.S. research chemist.
Bramham, William Gibbons (July 13, 1874–July 8), U.S. baseball executive.
Brauner, Olaf Martinius (Feb. 9, 1869–Jan. 3), U.S. portrait painter, educator.
Bridges, H. F. G. (1902?–Aug. 10), Canadian cabinet minister.
Brock, Sir Osmond de Beauvoir (Jan. 5, 1869–Oct. 14), British naval officer.
Brooks, Eugene Clyde (Dec. 3, 1871–Oct. 18), U.S. educator.
Brown, Sir William (Barrowclough) (1893–Feb. 11), British government official.
Browne, Charles (Sept. 28, 1875–Aug. 16), U.S. physician, congressman.
Browne, Charles Albert (Aug. 12, 1870–Feb. 3), U.S. chemist.
Browning, Sir Montague Edward (Jan. 18, 1863–Nov. 4), British naval officer.
Bruns, Henry Frederick (Nov. 24, 1889–Jan. 20), U.S. naval officer.
Bryant, William Letchworth (1871–June 10), U.S. palaeontologist, author.
Buck, Sir Percy Carter (1871–Oct. 3), British organist, music professor.
Buffington, Joseph (Sept. 5, 1855–Oct. 21), U.S. jurist.

Bullard, Robert Lee (Jan. 15, 1861–Sept. 11), U.S. army officer, was born at Youngsboro, Ala. For his early career, see *Encyclopædia Britannica*. General Bullard was commander of the U.S. 2nd army during World War I and led the celebrated counterattack in the second battle of the Marne (July 18) that turned defeat into victory.

In 1925 Bullard retired from active service with the rank of lieutenant general. He became head of the National Security league, advocated that preparedness was the best insurance against war, contributed articles on domestic and world affairs to the Hearst papers and, in 1935, alleged that "communists" were undermining the country's relief program.

General Bullard died at the Fort Jay hospital, Governors Island, N.Y.

Burgess, Ellis Beaver (Nov. 19, 1869–Dec. 20), U.S. Lutheran churchman.
Burgess, William Starling (Dec. 25, 1878–March 19), U.S. naval architect, engineer.
Burnham, Frederick Russell (May 11, 1861–Sept. 1), U.S. explorer.
Burruss, Julian Ashby (Aug. 16, 1876–Jan. 4), U.S. educator.
Burton, Sir Pomeroy (1868?–Oct. 15), British journalist.
Bute, John Crichton-Stuart, 4TH MARQUESS OF (June 20, 1881–April 25), British peer.

Butler, Nicholas Murray (April 2, 1862–Dec. 7), U.S. educator and publicist, was born at Elizabeth, N.J. For his early career, see *Encyclopædia Britannica*. Dr. Butler was associated with Columbia university for 60 years—the last 44 as president of the institution. Throughout his lifetime, he worked indefatigably for world peace and his efforts to promote international understanding were recognized in 1931 when he was named co-winner of the Nobel Peace prize.

Although a lifelong Republican, he aligned himself against the so-called "noninterventionists" in the party, and upheld the Rooseveltian foreign policy in the critical years preceding U.S. entry into World War II.

He was the author of *The Path to Peace* (1930), *Looking Forward* (1932), *Between Two Worlds* (1934), *Family of Nations* (1938), *Across the Busy Years* (1939), *Why War* (1940) *Liberty, Equality, Fraternity* (1942), and *The World Today* (1946).

After his retirement from the university in 1945, Dr. Butler became totally blind and he died in New York city, N.Y.

Cadoux, Cecil John (May 24, 1883–Aug. 17), British church historian.
Caithness, Norman Macleod Buchan, 18TH EARL OF (April 4, 1862–March 25), Scottish peer.

Caldecote, Thomas Walker Hobart Inskip, 1ST VISCOUNT (March 5, 1876–Oct. 11), British lawyer, educated at Clifton and King's college, Cambridge. He was called to the bar in 1899, and joined the western circuit where with his family's Bristol connections he soon developed a large practice. He made two unsuccessful attempts to enter parliament in 1906 and 1910, and during World War I was at the admiralty where he became head of the naval law branch. In 1918 he was elected Unionist member for Bristol Central, and in 1922 commenced his first term of office as solicitor general. With the fall of the government in Jan. 1924 he went out of office, only to return in November again as solicitor general. During 1928-29 he was attorney general until the general election when he lost his seat in the commons. Again solicitor general, 1931-32, having been elected for Fareham (Hants.), and attorney general, 1932-36, when he was appointed to the newly created post of co-ordination of defense.

As World War II approached he was succeeded by Admiral of the Fleet Lord Chatfield, and became dominions secretary. In Sept. 1939 he became lord chancellor, until May 1940 when for six months he returned to the dominions office. In October he was appointed lord chief justice of England. Because of ill-health he resigned in Jan. 1946. He always took a keen interest in the affairs of the church, and in 1927 and 1928 attracted public opinion in the debates on the revised prayer book and his efforts led to its eventual rejection. He was a member of the assembly of the Church of England and president of the National Church league. He took silk in 1914, and was raised to the peerage as Viscount Caldecote of Bristol in 1939. He died at Godalming, Surrey.

Caldwell, Otis William (Dec. 18, 1869–July 5), U.S. educator.
Callahan, William Washington (1864?–Aug. 6), U.S. jurist.
Cameron, Arnold Guyot (March 4, 1864–July 29), U.S. editor, author, educator.
Campbell, Robert Fishburne (Dec. 12, 1858–April 3), U.S. churchman.
Campbell, Wallace Ronald (Feb. 3, 1882–Aug. 10), Canadian motorcar executive.
Capart, Jean (1877?–June 16), Belgian archaeo'ogist, Egyptologist.

Capone, Alphonse ("SCARFACE AL") (Jan. 17, 1899–Jan. 25), U.S. gangster, earned the reputation as "public enemy No. 1" during the turbulent prohibition era (1920–33). He was born in Naples, Italy, was brought up in Brooklyn, N.Y., and did not get beyond the fourth grade in school.

By the time Capone was 19, he was reputed to have committed several robberies and was suspected of two murders.

He went to Chicago, Ill., to work for Johnny Torrio, owner of vice dens and distributor of bootleg whiskey, and soon became Torrio's right-hand man and partner. Torrio and Capone "muscled into" territory controlled by rival gangsters in the city and suburbs. They developed an enormous bootleg business and gained control of gambling, prostitution, dance halls and dog tracks.

In a gang war for undisputed control over the Chicago underworld area, the Capone gang slew Dion O'Bannion, a rival gang leader, in 1924. Torrio retired from the "business" in 1925, and Capone was left in control. The climax of the gang war was the St. Valentine's day massacre of 1929, during which Capone "troopers," disguised as policemen, slew seven members of the Moran gang in a Chicago garage.

In 1929, Capone entered the political arena and openly endorsed the candidacy of "Big Bill" Thompson for mayor.

The profits that flowed from Capone's activities were huge. Although the municipal authorities were powerless to bring him to trial for the 300-odd murders which he was said to have inspired, the federal government arrested him on charges of evading income taxes. Tried in Oct. 1931, he was convicted, sentenced to 11 years in federal prison and fined $50,000 and $20,000 for costs.

Capone was released in 1939, broken physically and mentally, a victim of paresis. He retired to his estate at Miami Beach, Fla., where he died.

Carey, Eben James (July 31, 1889–June 5), U.S. educator and anatomist, was born in Chicago, Ill. He received his degree of doctor of science at Creighton university, Omaha, Neb., in 1920 and his medical degree from Rush Medical college in Chicago, in 1925.

After six years on the faculty at Creighton, as an assistant professor of anatomy, he went to Marquette university, Milwaukee, Wis., in 1920 as director and professor of anatomy, becoming dean of Marquette's medical school in 1933.

Dr. Carey won international recognition for his research work on bone, muscles and nerves and in his later years he devoted much of his research to poliomyelitis under grants financed by the National Foundation for Infantile Paralysis.

He received numerous medals and awards from such institutions as the American Medical association, the Radiological Society of North America and the American Congress of Radiology. In 1939 Dr. Carey reported his discovery that vibration of a protoplasmic jelly inside the muscles is the secret of strength. He was the author of *Studies in Anatomy* (1924).

Dr. Carey died in Milwaukee, Wis.

Carey, Harry (Jan. 16, 1878–Sept. 21), U.S. stage and screen star, was born in New York city, N.Y., and was christened Henry De Witt Carey, 2nd. He grew up in the Bronx, played football on the New York university team and studied law at New York Law school. He gave up law for drama, entered motion pictures in 1908 and went to Hollywood three years later where he became one of the "kings of the saddle" of the silent film "horse operas."

The eastern born-and-bred star won great popularity in his western roles with his impersonation of the western drawl and bowlegged gait. Furthermore, he fitted in with the youthful preconception of what a "typical" cowboy looked like.

After the advent of the talking film, Carey's star declined temporarily but rose again when he was given the leading role in *Trader Horn* (1929).

Among later pictures in which he was either starred or featured were *Valiant is the Word for Carrie, Mr. Smith Goes to Washington, The Shepherd of the Hills, Sundown* and *Air Force.*

In 1940 he appeared on Broadway in *Heavenly Express.* He also played in the 1941 revival of Eugene O'Neill's *Ah, Wilderness!* and in *—But Not Goodbye* in 1944.

He died at his home in Brentwood, Calif.

Carey, William Gibson, Jr. (July 3, 1896–Oct. 4), U.S. industrialist.

Carlson, Evans Fordyce (Feb. 26, 1896–May 27), U.S. marine corps officer, was born at Sidney, N.Y., the son of a Congregationalist minister. Carlson joined the army at the age of 16, saw service in the Philippines and Hawaii

and was honourably discharged in 1915 as a top sergeant.

He was recalled to service during the Mexican border troubles, and during World War I he went overseas with the American expeditionary force. Upon the end of the war he had attained a captaincy and had been decorated by Italy and France. He also was cited by Gen. John J. Pershing.

Soon wearying of civilian life, he joined the marine corps as a private in 1922. The following year, he was commissioned as a second lieutenant and later served in China and Nicaragua. At the height of Japanese aggression in China, Carlson was appointed a military observer by Adm. Harry E. Yarnell, in which capacity he made a 2,000-mi. trip into the interior areas of China. He found much to praise in the tactics and fighting ability of the guerrilla forces and penned his experiences and observations in two books, *Twin Stars of China* and *The Chinese Army* (1940).

Carlson subsequently resigned from the marines and revisited China in 1940 and 1941 as a civilian. Convinced that Japanese policy in the far east would eventually lead to war with the United States, he rejoined the marines in 1941 as a major and set up a special raiding unit of 1,000 picked men, patterned in some respects on the guerrilla units he had observed in China.

Thoroughly schooled in guerrilla tactics, "Carlson's Raiders," as the force was known, made its first successful hit-and-run raid on Japanese-held Makin Island in Aug. 1942. Later, it participated in operations on Guadalcanal, the Gilbert Islands and Saipan. Carlson was promoted to lieutenant colonel in 1944, and became a brigadier general upon his retirement in July 1946.

After the war, Carlson joined the Progressive Citizens of America, of which he became national vice-chairman. He died at a camp on Mt. Hood, Ore.

Carmichael, Archibald Hill (June 17, 1864–July 15), U.S. congressman.
Carpenter, Ford Asham (March 25, 1868–Nov. 10), U.S. meteorologist, aeronaut.
Carrington, William John (Feb. 4, 1884–July 24), U.S. Kiwanis executive.

Cather, Willa Sibert (Dec. 7, 1876–April 24), U.S. author, was born at Winchester, Va. For her early career, see *Encyclopædia Britannica*. Miss Cather was pre-eminently famous for her early novels, including *O Pioneers!* (1913), *My Antonia* (1918), *A Lost Lady* (1923) and *Death Comes for the Archbishop* (1927). Among her later works are *Lucy Gayheart* (1935) and *Not Under Forty* (1936), a collection of essays. Her last published novel was *Sapphira and the Slave Girl* (1940). In her later years, Miss Cather avoided publicity and rarely appeared in public. In 1944, she received the gold medal of the National Institute of Arts and Letters for the high quality of her works.

She died at her home in New York city, N.Y.

Catt, Carrie Chapman (Jan. 9, 1859–March 9), U.S. suffragist leader, was born at Ripon, Wis. For her early career, see *Encyclopædia Britannica*. Militant champion of women's rights, Mrs. Catt was in the forefront of the suffragist leaders who brought about passage of the 19th (woman-suffrage) amendment. After ratification of the act in 1920, she devoted her considerable forensic and organizational talents to the cause of world peace; as head of the National Committee on the Cause and Cure for War, she agitated for disarmament and urged the United States to join the League of Nations. The outbreak of World War II led to the committee's dissolution and its replacement by the Women's Action Committee for Victory and a Lasting Peace, of which Mrs. Catt was made honorary chairman. She received numerous awards and medals for her services to women and for her crusading efforts in behalf of racial tolerance and international understanding. Mrs. Catt died in New Rochelle, N.Y.

Chadwick, Hector Munro (?–Jan. 2), British philologist.
Chadwick, Roy (1894–Aug. 23), British aircraft designer.
Chambliss, Alexander Wiles (Sept. 10, 1864–Sept. 30), U.S. jurist.

Champetier de Ribes, Auguste (1882–March 6), French lawyer and politician, played a not inconsiderable role in the political life of France's Third republic. A lawyer by profession, he was first elected a member of the French chamber of deputies (lower house) in 1924. He joined the political group known as *démocrates populaires* who, although steeped in Catholic tradition, represented in their social views the extreme left of the Conservative right. He moved to the senate (upper house) in 1934 where he led his group, and he held office in several governments, as minister of pensions and undersecretary for foreign affairs, the latter in Paul Reynaud's cabinet of 1940. In that cabinet, the last of the Third republic, he opposed the capitulation of June 1940. As an opponent of the Vichy regime that followed, he was arrested by the Germans in 1942, but escaped from prison and joined the French underground movement in the Pyrenean district which he had represented in the chamber. In the political regrouping which followed the liberation of French territory in 1944, he became a leading member of the new Catholic left, the *mouvement républicain populaire* (M.R.P.). He was France's chief prosecutor at the Nuernberg war crime trials until his election to the presidency of the Council of the French Republic, the new upper house under the French constitution of 1946. He held this office until his death in Paris.

Chandler, Frank Wadleigh (June 16, 1873–June 13), U.S. educator.
Chase, Frederick Starkweather (July 2, 1862–Dec. 5), U.S. industrialist.

Chase, Harold (Hal) (Feb. 13, 1883–May 18), U.S. baseball player, was born at Los Gatos, Calif. Starting his diamond career with Pacific coast teams, he went to the big leagues in 1905 as a first baseman for the New York Yankees in the American league. In late 1910 he managed the Yankees, but in 1913 he was traded to the Chicago White Sox.

Chase jumped the American league to play with Buffalo in the newly-formed Federal league during 1914 and 1915, but in the following year he was back in the major leagues as a member of the Cincinnati National league club. During his last year in big league baseball (1919) he played with the New York Giants.

Both a good fielder and batter, Chase was regarded by many as one of the best first basemen in baseball history.

While with the New York Giants in 1919, Chase was mysteriously dropped from the club. It was recalled that earlier that year he had been absolved temporarily of charges made by Christy Mathewson of the Reds that there were "irregularities" in his play with the Cincinnati team during the '17 and '18 seasons.

Arrested in 1921 in connection with the scandal involving the Chicago White Sox baseball team, he was subsequently cleared, although no major league team would hire him thereafter. He closed his career playing and managing small teams in the Arizona state league.

He died at Colusa, Calif.

Cheyney, Edward Potts (Jan. 17, 1861–Feb. 1), U.S. educator.
Chidester, Floyd Earle (Oct. 13, 1884–June 19), U.S. biologist, author.
Chilston Aretas Akers-Douglas, 2ND VISCOUNT, OF BOUGHTON MALHERBE (Feb. 17, 1876–July 25), British diplomat.

Christian X (1870–April 20), king of Denmark, of whom a biographical account will be found in the *Encyclopædia Britannica*, was the son of King Frederik VIII. His childhood was spent about the happy court of his grandfather, Christian IX, where there was a steady flow of visitors from all Europe. His father had three sisters, one who married Edward VII of England, the second who married Alexander II of Russia, and the third who married the Duke of Cumberland. An uncle became King George I of Greece, and a brother King Haakon VII of Norway.

Christian became crown prince in 1906 on the death of his grandfather, and king in 1912 on the death of his father. During his reign the Danish West Indies were sold to the U.S., much to his sorrow. Still more deeply did he regret the separation of Iceland, but he recognized the Icelanders' right to decide for themselves. On the more pleasant side, he saw northern Slesvig united with Denmark after the plebiscite of 1920. But the most important events of his reign were the two world wars. In 1914 and the years which followed he steered Denmark on a neutral course; in the years following 1939 he was forced to see Denmark occupied by German troops and himself a prisoner in his own land (after 1943).

The stanch and beloved king was a man of complete integrity and great courage, and was a steadying and powerful influence in the country. The people respected him fully, loved to watch their 6 ft. 5 in. sovereign ride his horse early in the morning through the streets of Copenhagen, and expressed their deep partriotism in homage to the king. During his reign the incipient republican spirit died out, for here stood a monarch more democratic than many a president or premier.

Christian X had a heart attack on Easter Sunday and died two weeks later, at the age of 76. He was buried at Roskilde cathedral.

Churchill, Winston (Nov. 10, 1871–March 12), U.S. novelist, was born in St. Louis, Mo. For his early career see *Encyclopædia Britannica*. It was not until publication in 1899 of *Richard Carvel*, an historical novel, that Churchill attained fame; this work was said to have sold in excess of 1,000,000 copies. It was followed in 1901 by *The Crisis*, the heroine of which is a descendant of Richard Carvel, the hero of the former volume. In 1917 Churchill gave up his career because he "got tired of writing novels," lived in virtual seclusion on his New Hampshire estate and did not produce another book until 1941 when *The Uncharted Way*, a psychological analysis of Christianity, was published.

Churchill was not related to Winston Churchill, the British statesman, but was frequently mistaken for him. It was said that early in their careers, the two Churchills came to a *modus vivendi* to avoid further confusion. The Britisher, who was three years younger, bowed to his U.S. namesake's seniority and agreed to insert the initial "S" between his two names.

Winston Churchill, the American, died in Winter Park, Fla.

Clark, Calvin Montague (Jan. 30, 1862–March 1), U.S. theologian.
Clark, Hubert Lyman (Jan. 9, 1870–July 31), U.S. zoologist.
Clarke, Sir Basil (1879–Dec. 12), British journalist.
Clayton, Sir Hugh Byard (1877–Sept. 27), British colonial official.
Cleary, Michael Joseph (Sept. 23, 1876–Feb. 22), U.S. insurance executive.
Clementi, Sir Cecil (Sept. 1, 1875–April 5), British colonial governor.
Clopton, Malvern Bryan (Oct. 8, 1875–April 21), U.S. surgeon.
Cobbett, Louis (1862–March 10), British pathologist, bacteriologist.
Cochran, John Joseph (Aug. 11, 1880–March 6), U.S. politician.

Cohen, Morris Raphael (July 25, 1880–Jan. 28), U.S. educator and philosopher, was born at Minsk, Russia. When he was 12 years old, his parents migrated to the United States and settled in New York city. There he attended public schools, receiving his B.S. degree from City college in 1900. Six years later, he took his Ph.D. degree at Harvard university. In 1902 he joined the staff of City college as mathematics teacher, becoming professor of philosophy in 1912.

His classes were considered among the most popular on the campus and his lectures an "intellectual adventure," as attested by the numerous requests of students to "sit in." He retired in 1938 as professor emeritus and joined the faculty of the University of Chicago as professor of philosophy, leaving the latter institution in 1942 to devote his remaining years to writing. He was the author of *Reason and Nature* (1931), *Law and the Social Order* (1933), *Preface to Logic* (1944) and *Faith of a Liberal* (1945). He was co-author of *An Introduction to Logic and the Scientific Method* (1934) and of *The Cambridge History of American Literature*, vol. 3 (1922); he also was the editor of the *Modern Legal Philosophy Series* and the *Jewish Social Studies*. At the time of his death five of his books were in the process of publication. They included: *The Meaning of Human History, A Dreamer's Journey* (autobiography), *Juristic Studies, Studies in Philosophy and Science* and *Reflections of a Wondering Jew*; a sixth book, *A Source Book in Greek Science*, was written in collaboration with I. E. Drabkin. Dr. Cohen died in Washington, D.C.

Colcord, Lincoln Ross (Aug. 14, 1883–Nov. 16), U.S. author.
Coleman, Frederick W. B. (May 17, 1874–April 2), U.S. diplomatist.
Collins, Sir William Henry (1873?–Nov. 30), British industrialist.
Colonna, Prince Marcantonio (July 25, 1881–March 9), Italian member of pontifical court.

Cook, Sir Joseph (1860–July 30), Australian statesman, was born at Silverdale, Staffordshire, England, and worked in a coal mine at the age of nine. In 1885 he emigrated to New South Wales where he became secretary of the Miners' association. He helped to create the Labour party in New South Wales and entered the state legislative assembly in 1891, but later joined the free trade party. In 1894 he became postmaster general and later held the portfolio of mines and agriculture. He entered federal politics, when in 1901 he was elected for Parramatta, and succeeded to the leadership of the Free Trade party. In 1909 he was minister of defense. Cook, as leader of the Liberal party, returned to office in 1913 as prime minister, but resigned in 1914. He was sworn of the privy council in 1914 and served during World War I as

minister for the navy and later as treasurer. In 1918 he went to England as a member of the imperial war cabinet and was appointed a Knight Grand Cross of St. Michael and St. George. He attended the peace conference in Versailles in 1919. He returned to London in 1921, where until 1927, he was high commissioner. In 1922 he was senior Australian delegate to the third assembly of the League of Nations and Australian delegate to the Genoa conference. (*See* also *Encyclopædia Britannica.*)

Coolidge, Marcus Allen (Oct. 6, 1865–Jan. 23), U.S. politician.
Coomaraswamy, Ananda Kentish (April 22, 1877–Sept. 9), Ceylon-born art expert, author.
Copley, Ira Clifton (Oct. 25, 1864–Nov. 2) U.S. publisher.
Cortesi, Filippo (Aug. 8, 1876–Feb. 1), Italian papal envoy.
Cortesi, Salvatore (April 24, 1864–March 3), Italian journalist.
Cosgrave, John O'Hara (July 11, 1864–Sept. 19), U.S. journalist.
Coulton, George Gordon (Oct. 15, 1858–March 4), British historian.

Courtauld, Samuel (1876–Dec. 1), British business man and patron of arts, was educated at Rugby school. He then began his connection with the family silk-weaving business, and after training at Krefeld, Ger., he soon became manager of the company's dyeing and finishing factory at Bocking, Essex. In 1904 the business was registered as a public company, and two years later began manufacturing rayon yarn by the viscose process. By 1915 he was elected to the board, and in the following year a joint managing director. On the death of H. G. Tetley in 1921 he became chairman of the company, which had by then become one of the largest textile concerns in the United Kingdom producing silk and rayon yarns.

At his home in Portman square, London, he built up a notable art collection, and on his wife's death in 1931 he transferred the house to the University of London as the Courtauld institute.

In 1923 he gave £50,000 for the purchase of paintings, and the Tate gallery was enriched by this gift with paintings by P. A. Renoir, H. G. E. Degas, V. van Gogh, P. Cézanne and A. Sisley. He was a trustee of the Tate gallery, 1927–34 and 1935–37; at the time of his death in London he was a trustee of the National gallery.

Cox, Theodore Sullivan (Aug. 17, 1894–May 10), U. S. educator.
Crabtree, Ernest Granville (Nov. 23, 1883–May 30), U.S. surgeon, urologist.
Crane, Frederick Evan (March 2, 1869–Nov. 21), U.S. jurist.
Cranston, Claudia (?–June 26), U.S. author, editor.
Croft, Henry Page Croft, 1ST BARON (June 22, 1881–Dec. 7), British politician.
Crosby, Franklin Muzzy (Jan. 16, 1875–June 29), U.S. industrialist.
Crowninshield, Frank (FRANCIS WELCH) (June 24, 1872–Dec. 28), U.S. editor.
Crowther, Samuel (1880?–Oct. 27), U.S. writer.
Cudahy, Joseph Michael (Sept. 12, 1878–Oct. 25), U.S. meat packing executive.
Cunliffe-Owen, Sir Hugo (Aug. 16, 1870–Dec. 14), British industrialist.
Curley, Michael Joseph (Oct. 12, 1879–May 16), U.S. Catholic archbishop.
Currick, Max Cohen (Sept. 1, 1877–May 23), U.S. religious leader.
Cushing, Harold Beveridge (April 6, 1873–Oct. 31), Canadian pediatrician.

Cutler, Elliott Carr (July 30, 1888–Aug. 16), U.S. surgeon, was born in Bangor, Me., and received his medical degree from Harvard university in 1913. During World War I Dr. Cutler was head of the first Harvard medical unit in Paris and by the end of that conflict he held the rank of a major and was in charge of a base hospital.

Returning to civilian life in 1919, Dr. Cutler became an instructor in surgery at the Harvard Medical school and resident surgeon of the Peter Bent Brigham hospital. He left Harvard in 1924 to become professor of surgery at Western Reserve Medical school, Cleveland, O., and director of surgery at Cleveland's Lakeside hospital. In 1932 he succeeded Dr. Harvey Cushing as Moseley professor of surgery at Harvard and chief surgeon at the Peter Bent Brigham hospital.

Credited with many innovations in surgery, Dr. Cutler in 1923 performed what was said to be the first successful operation on the valves of the human heart.

Dr. Cutler served in World War II, attaining the rank of brigadier general, and was chief consultant in surgery and later chief of professional services, office of the chief surgeon, in the European theatre of operations. In 1945 he was appointed consultant to the Veterans' administration. In 1939 Dr. Cutler and Dr. Robert Zollinger published an *Atlas of Surgical Operations*, a surgery manual.

He died at his home in Brookline, Mass.

Dabney, Richard Heath (March 29, 1860–May 16), U.S. educator.
Dainty, Ernest (1891?–Oct. 30), Canadian organist.
Damon, Alexander Martin (July 28, 1874–Nov. 26), U.S. Salvation Army officer.
Darewski, Herman (1883?–June 2), Russian-born composer.
Dark, Sidney (1874–Oct. 11), British author, journalist.
Davis, Harry (1873?–Aug. 11), U.S. baseball player.
Davis, Jackson (Sept. 25, 1882–April 15), U.S. educator.
Davis, James John (Oct. 27, 1873–Nov. 22), U.S. politician.
De Land, Clyde Osmer (Dec. 27, 1872–March 27), U.S. artist.

Dennett, Mary Ware (April 4, 1872–July 25), U.S. suffragist and writer, was born in Worcester, Mass. Educated at the School of Applied Design of the Boston Museum of Fine Arts, she became a general designer. Mrs. Dennett virtually abandoned her career as an artist in the early 1900s to join the suffragist movement, becoming secretary of the National Suffrage association in New York from 1910 to 1915 and acting president of the Twilight Sleep association, 1913–14.

She also crusaded for free and unfettered dissemination of sex information and birth control literature and was one of the three founders of the National Birth Control league. In 1916 she took an active role in peace movements, managed "anti-preparedness" mass meetings in the midwest and served with women's groups campaigning to re-elect Pres. Woodrow Wilson for a second term.

Her propagandizing in behalf of birth control brought Mrs. Dennett into the national spotlight in 1925 when she was convicted and fined $300 for having sent through the mails an educational pamphlet on sex, which she had written for the guidance of her two sons. The case aroused widespread interest after Mrs. Dennett announced that she would rather go to jail than pay the fine. The conviction was reversed in 1930 by a circuit court of appeals.

In her later years Mrs. Dennett helped found the World Federalists in 1941, serving as chairman of the organization until 1944 when failing health compelled her to resign.

She died at Valatie, N.Y.

Deverell, Sir Cyril John (Nov. 9, 1874–May 12), British army officer.
De Vore, Harry S. (July 27, 1891–Oct. 14), U.S. educator, churchman.
Dewar, Peter Menzies (1871?–June 3), British whiskey distiller.
Diaz, Salvador Bueitrago (1883?–April 5), Nicaraguan politician.
Digges, Dudley (1879?–Oct. 24), U.S. actor.
Ditzen, Rudolf (HANS FALLADA) (July 21, 1893–Feb. 6), German novelist.
Dodd, Charles J. (1873?–July 24), U.S. jurist.
Drake, Joseph Horace, Sr. (May 18, 1860–Aug. 4), U.S. educator.
Drane, Herbert Jackson (June 20, 1863–Aug. 11), U.S. congressman.
Ducane, Sir John (Philip) (May 5, 1865–April 5), British army officer, colonial official.
Dunbar, Seymour (Oct. 9, 1866–April 18), U.S. historian.
Duncan, Luther Noble (Oct. 14, 1875–July 26), U.S. educator.
Dunnells, Clifford George (July 8, 1875–April 15), U.S. educator, civil engineer.
Dupree, Minnie (Jan. 19, 1875–May 23), U.S. actress.

Durant, William Crapo (Dec. 8, 1861–March 18), U.S. industrialist and financier, was born in Boston, Mass. His family moved to Flint, Mich., where he attended school until he was 17 years old, later working as a grocery clerk, millhand, patent medicine salesman and real estate agent. Durant and J. Dallas Dort, a hardware clerk, joined forces in 1886 and borrowing $2,000 from friends, they secured control of a wagon works. The Durant-Dort carriage company met with astounding success, producing as many as 150,000 buggies in a peak year.

In 1904 Durant went into the motor car business. Obtaining control of a tottering plant that produced only 28 cars yearly, he got the patent rights to the Buick automobile, capitalized the Buick Motor Car Co. in 1905 for $10,000,000 and reaped a fortune.

Three years later (1908), Durant purchased the Cadillac, Oakland, Oldsmobile and Northway motor car companies and together with the Buick company formed the General Motors Co. At the time, the giant merger was derided as "Durant's folly," but in the second year of operation it showed a profit of $10,500,000.

Ousted from controlling position in the company in 1910, he regained it with the help of the Du Ponts in 1915 and added Chevrolet (which he had organized earlier) to General Motors but finally lost control of the combine after the 1920 postwar depression.

In 1921 he re-entered the automotive field with a new enterprise, the Durant Motors, Inc. When he retired in 1926 from the motor car business, he had amassed a new fortune estimated at $20,000,000. But he lost all of it in the Wall street crash of 1929 and in the ensuing depression years. He later became a real estate broker in Newark, N.J., owner of a bowling alley in Flint, and was fairly well-to-do at the time of his death in New York city.

Du Shane, Donald (June 5, 1885–March 10,) U.S. educator.
Dutton, Emily Helen (Sept. 29, 1869–June 18), U.S. educator.

Edison, Mina (MRS. THOMAS ALVA EDISON) (July 6, 1865–Aug. 24), second wife, and widow, of U.S. inventor Thomas Alva Edison, was born in Akron, O., and attended schools in her native city and in Boston. She married Edison on Feb. 24, 1886.

Distinguished in her own right, Mrs. Edison was a daughter of Lewis Miller, co-founder of the Chautauqua institution, of which she was a trustee and active member for more than a score of years. She was also a leader of the U.S. temperance movement, and stumped for Herbert Hoover during the latter's first presidential campaign in 1927.

Mrs. Edison occasionally stirred up heated controversy with her outspoken opinions on contemporary issues. A case in point was a broadcast in 1930 in which she declared that U.S. women ought to return to their "homemaking" and quit trying to be career women, a statement that roused considerable indignation among U.S. feminists.

Four years after the death of her inventor husband, she married (in 1935), Edward Everett Hughes, a retired steel executive and one of her childhood friends. In 1940 she was widowed again and resumed the name of her first husband.

She died in New York city, N.Y.

Eigenmann, Rosa Smith (1858?–Jan. 12), U.S. ichthyologist.
Elkus, Abram I. (Aug. 6, 1867–Oct. 15), U.S. diplomat, lawyer.
Elliott, Harriet Wiesman (July 10, 1884–Aug. 6), U.S. educator and government official.
Ellis, Edgar Clarence (Oct. 2, 1854–March 15), U.S. lawyer, politician.
Elsa, Princess of Liechtenstein (Jan. 6, 1875–Sept. 28), widow of Prince Franz I.
Emerson, Rollins Adams (May 5, 1873–Dec. 8), U.S. geneticist.
Emmett, Arthur Donaldson (Dec. 19, 1878–June 11), U.S. scientist, vitamin authority.
Engel, Edward J. (July 28, 1874–March 30), U.S. railway president.
Ennis, William Duane (Jan. 6, 1877–Oct. 14), U.S. educator, engineer.
Epp, Franz Xaver Ritter von (Oct. 10, 1868–Feb. 7), German politician, army officer.
Estrada, Juan M. (1871?–July 11), Nicaraguan politician.

Eugen, Prince (Aug. 1, 1865–Aug. 17), Swedish prince and duke of Närke, son of King Oscar II and Queen Sophia, and younger brother of King Gustavus V of Sweden, was born at the chateau of Drottningholm. He studied at Uppsala university and entered the army as a commissioned officer but, showing little taste for either a military career or life in the royal court, he left Stockholm to study painting in Paris.

In the French capital, Prince Eugen specialized in landscapes and soon came to be regarded as a competent painter. He rarely sold his canvasses and generally donated them to museums, schools, or friends.

More famous than his own work was his private collection of art works housed in his estate at Valdemarsudde, Sweden, where he died.

Evans, Curtis Alban (April 20, 1879–May 3), U.S. surgeon, educator.

Evans, Sir Thomas John Carey (1884–Aug. 25), British surgeon.

Evers, John J. ("Johnny") (July 23, 1881–March 28), U.S. baseball player, was born in Troy, N.Y. He started his professional baseball career with the Troy minor league team and joined the Chicago Cubs of the National league in 1902 as a second baseman. Small, wiry, and weighing hardly more than 90 lb., Evers was not an impressive batter. But what he lacked in hitting power, he more than made up in fielding ability and baseball guile.

A member of the celebrated "Tinker-to-Evers-to-Chance" infield combination of the Chicago team, Evers was in large measure responsible for depriving the New York Giants of the championship in the celebrated Cub-Giant game on which the pennant depended, at the end of the 1908 season. On that occasion the alert Evers noticed that Fred Merkle, Giant first baseman, had forgotten to tag second base. Calling frantically for the ball, Evers tagged the base, which made Merkle automatically out. Merkle's "boner" necessitated a replay of the game, which the Cubs won.

At the peak of his career, Evers brought up his weight to about 130 lb. While still unable to hit the ball with much power, he proved an able place hitter and a daring base runner. He played with the Cubs from 1902 to 1914, with the Boston Braves between 1914 and 1917 and wound up his active playing days with the Philadelphia National league team in 1917. Thereafter, he served as coach with several teams, managed the Chicago White Sox in 1923 and was assistant manager of the Boston Braves in 1929. Subsequently he was associated with the Albany minor league team and operated a sporting goods store. He died in Albany, N.Y.

Fairburn, William Armstrong (Oct. 12, 1876–Oct. 1), U.S. inventor, industrialist.
Fairlie, John Archibald (Oct. 30, 1872–Jan. 23), U.S. educator.
Farnsworth, Charles Hubert (Nov. 29, 1859–May 22), U.S. speech and music educator.
Farthing, John Cragg (Dec. 13, 1861–May 6), Canadian Anglican cleric.
Fay, William George (Nov. 12, 1872–Oct. 27), Irish actor, producer.
Fedorenko, Yakov Nikolayevich (1896–March 27?), soviet army officer.
Feldman, Herman (March 20, 1894–Oct. 16), U.S. educator.
Ferris, David Lincoln (Dec. 31, 1864–June 9), U.S. Episcopal bishop.
Ffoulkes, Charles John (June 26, 1868–April 22), British armour and heraldic expert.
Finletter, Thomas Dickson (Oct. 20, 1862–Feb. 4), U.S. jurist.
Fish, Walter George (June 3, 1874–Dec. 21), British newspaper editor.
Fisher, Edwin (1883–Jan. 27), British banker.

Fisher, Irving (Feb. 27, 1867–April 29), U.S. political economist, was born at Saugerties, N.Y. For his early career, see *Encyclopædia Britannica*. Dr. Fisher, who taught at Yale university for more than 45 years, retired as emeritus professor of political economy in 1935.

Champion of the 100% money system, Dr. Fisher campaigned to standardize the dollar and to require banks to maintain an actual money reserve of 100% for all funds liable to transfer by check, the assumption being that the chief inflations and deflations were of check-book money.

Commenting on economic problems that arose after the close of World War II, Dr. Fisher on his 80th birthday derided as "naive" the assumption that the inflationary trends of early 1947 resulted solely from the "vicious spiral" of wages and prices inflated by organized labour, and warned against repeating the error of 1920 when a deflation was employed to liquidate an inflation. Dr. Fisher died in New York city.

Fitzalan of Derwent, Edmund Bernard Fitzalan-Howard, 1ST VISCOUNT (June 1, 1855–May 18), British peer, third son of Henry Granville, earl of Arundel, who succeeded as 14th duke of Norfolk in 1856. He was educated at the Oratory school, Edgbaston, where he came under the influence of Cardinal Newman; in later years he was regarded as the leading and representative Roman Catholic layman in England. In 1875 he received a commission in the 11th Hussars, and in the following year took the name and arms of Talbot in compliance with the will of the 17th earl of Shrewsbury, who had made him heir of his estates in 1856. He was known as Lord Edmund Talbot for the greater part of his life; in 1921 he was raised to the peerage as Viscount Fitzalan of Derwent and reverted to his real surname of Fitzalan-Howard.

In 1894 he entered parliament as a Unionist member for Chichester, a seat which he held until he was raised to the peerage. His influence in the house grew during the years after 1906, when the Unionist party was in opposition, and in 1913 he became Unionist chief whip. In 1921 he was appointed viceroy of Ireland under the act of 1920, and held office while the Irish Free state was set up in the same year. He died at Windsor, England.

Fitzgerald, Desmond (1890?–April 9), Eire government official.
Fitzgerald, Walter James (Nov. 17, 1883–July 19), Alaskan clergyman, educator.
Fitzgerald, William Joseph (March 2, 1887–May 6), U.S. congressman.
Flagg, Ernest (Feb. 6, 1857–April 10), U.S. architect.
Flett, Sir John Smith (1869–Jan. 28), British geologist.

Forbes, George William (March 12, 1869–May 18), New Zealand statesman, was born at Lyttelton, New Zealand, and educated at the Boy's High school, Christchurch, N.Z. He entered active politics in 1908, when he was elected to the New Zealand parliament. In 1912 he became the Liberal party's chief whip. When the party declined, he became in 1925 leader of the National party. The new party and other Liberals merged in 1928 into the United party which carried the elections, Forbes becoming minister of lands and agriculture. In 1930, he became leader of the United party, in succession to Sir Joseph Ward whom, a little later, he succeeded as prime minister and minister of external affairs. Forbes attended the Imperial conference in London in 1930 and pleaded for increased empire trade and reinforced empire preferences. He also represented his country at the World Economic conference in London in 1932 and, again, at King George V's silver jubilee in 1935. His party relinquished power in the same year and Forbes led it in opposition until 1936. In that year he handed over the leadership of the party, though he continued to sit in parliament until 1943.

Ford, Henry (July 30, 1863–April 7), U.S. motor car manufacturer, was born on a farm near Dearborn, Mich. For his early career, see *Encyclopædia Britannica*. He started the Ford Motor Co., which in the 1920s grew to become one of the great industrial empires of the era. At the peak of his career, Ford was believed to have been worth $2,000,000,000.

The depression that followed the Wall street crash of 1929 made the first deep inroads into the Ford fortune, and in one depression year it was estimated that he had lost about $68,000,000. The Ford interests also lost a considerable sum in attempting to stave off the Detroit banking crisis in Feb. 1933 although the amount was never publicly divulged.

An ardent foe of the New Deal and organized labour, Ford fought union attempts to organize his plants. However, after the United Automobile Workers (C.I.O.) secured 70% of the votes in an election held under National Labor Relations board auspices in June 1941, Ford signed contracts with the union and acquiesced to the majority of its demands.

Ford, who had retired as active head of the Ford Motor Co. in 1918 leaving his son, Edsel, in the presidency, resumed active management in 1943 after the latter's death. In late 1945 he retired anew, handing over the controls of the company to his grandson, Henry Ford II. Henry Ford senior died in his home at Dearborn, Mich.

Forster-Cooper, Clive (April 3, 1880–Aug. 23), British zoologist.
Forteviot, John Dewar, 2ND BARON (March 17, 1885–Oct. 24), British industrialist.
France, Wesley George (June 19, 1892–Dec. 4), U.S. research chemist.

Frazier, Lynn Joseph (Dec. 21, 1874–Jan. 11), U.S. politician, was born in Steele county, Minn., the son of a midwestern farmer. He attended the University of North Dakota, Grand Forks, N.D., from 1897 to 1901.

In 1916 he ran for governor of North Dakota on the Republican ticket; support of the Non-Partisan league gave him victory and he was re-elected in 1918 and 1920, but a coalition of Republicans and Democrats defeated him on his try for a fourth term in 1921.

The following year (1922), he was elected to the U.S. senate, again with the aid of the Non-Partisan league, and he was re-elected in 1928 and 1934. After his first year in the upper house, the Republicans alleged that Frazier had repudiated their policy and read him out of the party.

During his 18-year tenure in the senate, Frazier was regarded as the farmer's champion and helped introduce the various Frazier-Lemke bills dealing with farm mortgages. While the first of the measures was declared unconstitutional by the supreme court in 1935, the second was upheld. A third was defeated in congress on grounds that it would lead to inflation.

Frazier also gained notice for his ardent support of the prohibition amendment and the cash-bonus for veterans of World War I. In foreign policy, he was a confirmed noninterventionist and before the outbreak of World War II, he proposed a constitutional amendment that would bar the U.S. from participating in armed conflicts.

He lost his bid for a fourth senate term in 1940. He died after a long illness, at a hospital in Riverdale, Md.

Frolich, Finn Haakon (Aug. 13, 1868–Sept. 5), U.S. sculptor, artist.
Funck-Brentano, Frantz (July 15, 1862–June 13), French historian.

Fyffe, Will (1885–Dec. 14), Scottish comedian, was born in Dundee, Scotland. The preparation for his career as one of the most popular character comedians of British stage and screen began when, at the age of seven, he acted in a stock company started by his father. Later, as a young man, he toured with other companies, always acting "straight" parts. He made his debut as a comedian in a touring revue; his character sketches became so popular that in 1921 he scored an immediate success at the London Pavilion and was given a place in the next Royal Variety performance. From that time onward his popularity was ensured. He added to it in the 1930s by appearing in serious screen parts; the most successful was that of the Scottish shepherd of *Owd Bob*, in which he showed the strong acting ability that underlay his music-hall achievements. His services in the entertainment of the troops in World War II were rewarded by his being appointed a C.B.E. (Commander, Order of the British Empire). He died in St. Andrews hospital after an accident.

Gaffney John Jerome (March 5, 1891–Nov. 21), U.S. naval officer.
Gardner, Oliver Max (March 22, 1882–Feb. 6), U.S. politician, government official.

Garvin, James Louis (1868–Jan. 23), British journalist and editor, was for 35 years the influential editor of the London Sunday paper *Observer*. During his early youth in Cheshire, his mother who intended him for a career in the civil service, succeeded, at the cost of much sacrifice, in providing him with courses in science and the languages. Garvin began to earn a living in business as bookkeeper and foreign correspondent clerk. He had mastered French and Spanish, to which two languages he later added German. He entered journalism at the age of 17 with a letter he sent to the editor of the *Eastern Morning News* at Hull. The paper printed it as a special signed article, and other contributions followed. At the age of 23, he became proof-reader of the *Newcastle Chronicle* and later a member of that paper's editorial staff. But not before he started, in 1900, to contribute regular articles to *The Fortnightly Review*, the London Liberal monthly, did his writings reach wider circles. Many of these articles were devoted to foreign affairs and published under various pseudonyms of which "Calchas" became best-known. After an introduction to the proprietor of the London *Daily Telegraph*, he became leader writer on that paper. For a short time, he edited *The Outlook*, a weekly paper of some influence, but of insecure finances. His great opportunity came in 1908 when Lord Northcliffe, who had bought the Sunday paper *Observer* in 1905, but failed to make a success of it, took him into partnership and made him editor. Garvin turned it into one of the most influential and one of the most successful British Sunday papers. Until 1942, despite a change of ownership in 1915, Garvin's long leaders were of considerable importance both in reflecting opinion held in circles close to the government of the day, and, conversely, in shaping that opinion. When Garvin left the *Observer* in 1942, for a time he transferred his leader to the *Sunday Express*, but finally returned to the *Daily Telegraph* with a weekly article on world affairs.

Garvin's activities were not, however, confined to editing the *Observer*. From 1926 to 1932, he was, with Franklin Hooper of New York, joint editor of the 14th edition of *Encyclopædia Britannica*. He also wrote a book on British empire problems under the title *Economic Foundation of the Empire* (1914) and a *Life of Joseph Chamberlain* in four volumes, of which three had appeared at the time of his death.

Geiger, Roy Stanley (Jan. 25, 1885–Jan. 23), U.S. marine corps officer, was

born in Middleburg, Fla. He studied law at Stetson university, DeLand, Fla., graduating in 1907, but instead of taking up a legal career, he enlisted in the marine corps. Commissioned as a 2nd lieutenant in 1909, he served in Cuba, Panamá, the Philippines, China, Haiti and Nicaragua. Geiger took up flight training and was the 5th marine officer to win his wings. He commanded a squadron in the 1st marine aviation group in France during World War I and was awarded the navy cross. Later, he served as director of marine aviation (1931–35) and in the autumn of 1941, he was commanding general of the 1st marine air wing.

In World War II Geiger held many important commands in the Pacific theatre. At Guadalcanal (1942), he organized and led the 1st marine air wing and had over-all command of aviation units of the combined services. He was awarded the gold star for his distinguished service in that campaign. Later, he was recalled to Washington to take up his former post as head of marine aviation. Returning to active duty in Nov. 1943, Geiger participated in the amphibious operations during the battle for Bougainville, succeeding Lt. Gen. Alexander A. Vandegrift as commander of army and marine forces in that area. In the summer of 1944 he commanded the expeditionary force that reconquered Guam and the following April, headed marine corps divisions in the Okinawa landings. Promoted to the rank of lieutenant general in June 1945; Geiger was made commander of the Pacific fleet marine force later that month (June 22, 1945). His last assignment was as commander of the fleet marine force. General Geiger, who was expecting to retire Feb. 1, 1947, died at Bethesda, Md.

George II (July 20, 1890–April 1), king of the Hellenes, was born at Tatoi near Athens, the eldest son of King Constantine, and succeeded to the throne for the first time in 1922. Deposed on March 25, 1924, after a series of uprisings, he spent the next 11 years in exile until his recall by the Greek assembly in 1935. For his biography, see *Encyclopædia Britannica*. On Oct. 28, 1940, the day that Italy began the invasion of Greece, George assumed command of the army. On April 23, 1941, when nazi troops approached Athens, George fled with his government to Crete. A month later he left for Cairo, and finally reached London, via South Africa, on Sept. 22, 1941, where he established his government-in-exile. With the approach of Germany's defeat, the resistance movement in Greece showed itself opposed to George's unconditional return to the throne, and in Dec. 1944 he consented to the appointment of Archbishop Damaskinos as regent. A plebiscite was held in Sept. 1946 which resulted in a majority in favour of his return, and at the end of September he resumed his reign for the third time. He died suddenly in Athens and was succeeded by his brother Paul.

Gerlach, Charles L. (Sept. 14, 1895–May 5), U.S. congressman.
Gibson, Sir John Watson (Aug. 9, 1885–March 19), British civil engineer.
Gifford, Charles L. (March 15, 1871–Aug. 23), U.S. congressman.
Gilbert, Samuel T. (Aug. 29, 1881–March 4), U.S. business executive.
Gill, Mac Donald (1884–Jan. 14), British artist, architect, cartographer.
Gillespie, William (Nov. 3, 1870–Sept. 13), U.S. mathematician.
Glaser, Rudolph W. (1888?–Sept. 4), U.S. zoologist.
Gleichen, Lady Helena (1873?–Jan. 28), British painter, sculptor.
Glover, Robert Hall (Oct. 17, 1871–March 23), U.S. clergyman.
Goldschmidt, Victor Moritz (1888–March 20), Norwegian mineralogist.
Gomberg, Moses (Feb. 8, 1866–Feb. 12), U.S. chemist.

Goodland, Walter Samuel (Dec. 22, 1863–March 12), U.S. editor, publisher and politician, was born at Sharon, Wis. A student at Lawrence college, Appleton, Wis., he later taught in district schools and studied law in his spare time. He was admitted to the Wisconsin bar in 1885 and set up practice at Wakefield, Mich. But two years later, he decided upon a venture in the newspaper business and founded the *Wakefield Bulletin*. In succeeding years, he was associated with a number of small-town Wisconsin newspapers as owner, publisher or editor.

During his lifetime, Goodland was active in Republican politics. He was mayor of Racine, Wis., 1911–15; a delegate to several national conventions; member of the state senate, 1926–30, 1930–34 and was elected lieutenant governor for the 1938, 1940 and 1942 terms.

Upon the death of Governor-elect Orland Loomis, Goodland became acting governor of Wisconsin on Jan. 3, 1943, and was elected governor for the 1945–47 term. His tenure was marked by a program of strict economy, and he also gave his support for greater aid to the state's welfare and educational institutions. He died at Madison, Wis.

Goodspeed, Charles Barnett (Feb. 8, 1885–Feb. 23), U.S. civic leader, politician.

Gore, Howard Mason (Oct. 12, 1887–June 20), U.S. politician and government official was born at Clarksburg, W.Va., and was graduated from West Virginia university, Morgantown, W. Va., in 1900 with a B.A. degree. Assistant secretary of agriculture in President Calvin Coolidge's cabinet during 1923–24, he was appointed in Nov. 1924 secretary of agriculture, which post he held until March 4, 1945, when he was sworn in as governor of West Virginia.

Gore died in Clarksburg.

Gott, Edgar Nathaniel (May 2, 1887–July 17), U.S. aeroplane manufacturer.
Gottlieb, Leon A. (Nov. 15, 1878–Jan. 13), U.S. Yiddish author, journalist.

Goudy, Frederic William (March 8, 1865–May 11), U.S. type designer, was born in Bloomington, Ill. He developed his interest in typography while working in a Chicago bookshop and spent long hours in studying type. After several unsuccessful ventures in printing establishments, he began designing his own type faces.

In the early 1900s, he and his wife founded their own type firm, the Village Press, in Park Ridge, Ill., a Chicago suburb. The venture was not a success financially, and the Goudys moved east, finally locating their press in an old mill in Marlboro, N.Y.

Devoting all of his efforts after 1913 to pure design, Goudy made the Village Press one of the most celebrated presses in the country. Its editions, extremely limited in number, were set in types of his own design.

The outstanding artistry of Village Press issues soon established Goudy as one of the great contemporary masters of type designing. He created more than 100 type faces, many of which were ranked by experts with the most beautiful ever moulded. Among these were *Goudy Old Style*, *Goudy 30*, *Village*, *Bertham*, *Kennerly* and *Forum*, as well as a new Hebrew type face made for the University of Palestine.

Unfortunately, the mill which housed his Marlboro plant burned to the ground in 1939 and with it were destroyed 75 or more of his original type designs.

Goudy, who received many national and international awards for his work in beautifying modern typography, wrote the following books: *The Alphabet* (1918), *Elements of Lettering* (1921), *Typologia* (1940) and an autobiography, *A Half-Century of Type-Design and Typography* (1946).

He died at his home in Marlboro, N.Y.

Gower, Pauline Mary de Peauly (1911?–March 2), British aviatrix.
Grant, George Washington (1870?–April 4), U.S. sports promoter.
Gray, Finly H. (July 24, 1864–May 8), U.S. congressman.
Greene, Roger Sherman (May 29, 1881–March 27), U.S. physician.
Greer, Sir Harry (Sept. 18, 1876–March 20), British M.P., industrialist.
Greig, Sir Robert Blyth (March 23, 1874–Nov. 29), British agricultural authority.
Gretton, John Gretton, 1ST BARON OF STAPLEFORD (Sept. 1, 1867–June 2), British peer.
Grzesinki, Albert Carl Wilhelm (1879–Dec. 31), German politician, police official.

Gustavus Adolphus, PRINCE OSCAR FREDERIC ARTHUR EDMOND (April 22, 1906–Jan. 26), hereditary prince of Sweden, was born in Stockholm, the eldest son of Crown Prince Gustavus Adolphus and his first wife, Princess Margaret of Connaught. A versatile athlete, the prince was a member of the Swedish Olympic equestrian team at the 1936 games in Berlin. He was an outstanding steeplechase rider and a champion fencer and was chairman of various motor and aviation as well as athletic organizations. On Oct. 20, 1932, he married Princess Sibylle of Saxe-Coburg-and-Gotha, a second cousin. (Both were descendants of Queen Victoria and Prince Albert.) Prince Gustavus Adolphus was killed in an aeroplane crash near Copenhagen. His death placed his nine-month-old son Prince Carl Gustavus, second in line of succession to the throne of Sweden.

Hagan, James (? –Sept. 1), U.S. playwright.
Hahn, Reynaldo (Aug. 9, 1874–Jan. 27), French composer.
Hallett, George Hervey (Dec. 30, 1870–Aug. 12), U.S. educator, mathematician.
Halliday, John (Sept. 14, 1880–Oct. 17), U.S. actor.

Hamilton, Sir Ian Standish Monteith (Jan. 16, 1853–Oct. 12), British army officer, was born at Corfu and educated for a military career at Wellington and Sandhurst. He served with distinction with his regiment on active service in India, Africa and Burma, and in several staff appointments in India until 1898. He fought in the South African War and was later appointed chief of staff to Lord Kitchener. He returned to England having been appointed a K.C.B. and promoted to lieutenant general. He was later appointed adjutant general at the war office and in 1910 was promoted to G.C.B. On the outbreak of World War I he was given a command in England, and in 1915 was sent to command the expedition to the Dardanelles. He was recalled in Oct. 1915 and received no further command. In 1919 he received the G.C.M.G. and many foreign orders. After retiring in 1920 he became chief representative of the British legion in the metropolitan area. From 1932–35 he was lord rector of Edinburgh university. He was for many years the colonel of his old regiment, the Gordon Highlanders.

His publications included: *A Staff Officer's Scrap Book* (1906-07), *The Millennium?* (1918), *Gallipoli Diary* (1920), *When I Was a Boy* (1939), *Listening for the Drums* (1944); and in 1942 he wrote *Jean*, a memoir of his wife whom he had married in 1887. He died in London. (*See* also *Encyclopædia Britannica*.)

Hammer, Trygve (Sept. 6, 1878–June 28), U.S. painter, sculptor.
Hannah, John (Nov. 27, 1921–June 7), British aviation hero of World War II.

Harbord, James Guthrie (March 21, 1866–Aug. 20), U.S. army officer, was born in Bloomington, Ill. For his early career, see *Encyclopædia Britannica*. Gen. Harbord, who was Gen. John J. Pershing's chief of staff during World War I, retired from the army with the rank of lieutenant general. He was president of the Radio Corporation of America from 1923 to 1930 and chairman of the board from 1930 until his death in Rye, N.Y.

Harcourt, George (Oct. 11, 1868–Oct. 1), British painter.
Harding, Arthur McCracken (Sept. 3, 1884–Dec. 24), U.S. educator.
Hardt, (Friedrich Wilhelm) Ernst (May 9, 1876–Jan. 9?), German author.
Harewood, Henry George Charles Lascelles, 6TH EARL OF (Sept. 9, 1882–May 24), British peer.
Harley, John Hunter (1865–Jan. 11), British author, journalist.

Harper, George McLean (Dec. 31, 1863–July 14), U.S. educator, was born in Shippensburg, Pa., and was educated at Princeton university (receiving his Ph.D. degree in 1891) and at the Universities of Göttingen and Berlin.

After a brief fling at journalism in 1884 as copy reader and reporter for a New York paper and as an assistant editor on *Scribner's* magazine (1887–89), he returned to Princeton in 1889 as a French instructor. By 1895 he held the Woodhull chair in the romance languages department, and in 1900 he was appointed Holmes professor of belles-lettres and English language and literature. A quarter of a century later, he was made Woodrow Wilson professor of literature, retiring as professor emeritus in 1932. A close friend and supporter of President Wilson, Dr. Harper edited Wilson's speeches for publication in 1918.

Dr. Harper's works include: *Masters of French Literature* (1901), *The Life of Charles Augustin Sainte-Beuve* (1909), *William Wordsworth, His Life, Works and Influence* (1916), *John Morley and Other Essays* (1920), *Wordsworth's French Daughter* (1921), *Dreams and Memories* (1922), *Spirit of Delight* (1928) and *Literary Appreciations* (1937).

He died at Princeton, N.J.

Harris, Sir (Charles) Alexander (June 28, 1855–March 26), British colonial official.
Harris, Paul Percy (April 19, 1868–Jan. 27), U.S. lawyer.
Hartog, Sir Philip Joseph (March 2, 1864–June 27), British educator.
Hawes, Harry Bartow (Nov. 15, 1869–July 31), U.S. politician.

Haynes, George Henry (March 20, 1866–Oct. 30), U.S. educator.

Hecht, Selig (Feb. 8, 1892–Sept. 19), U.S. biophysicist and authority in the field of vision, was born in Glogow, Austria, and was taken to the United States in childhood. He was graduated with a B.S. degree from City college, New York City, N.Y., in 1913, and obtained his Ph.D. degree from Harvard university in 1917.

Until his appointment to the faculty of Columbia university, New York City, in 1926, Dr. Hecht was a national research fellow in physical chemistry and physiology and did work at laboratories in the U.S., England and Italy.

An authority in a wide range of scientific fields, Dr. Hecht was a member of the American Society of Naturalists, the American Society of Zoologists, the American Physiological society and the Optical Society of America.

His fame rested principally on his work in measuring the minimum number of light quanta detectable by the human eye and his research in colour discrimination and the theory of colour vision. For his work in the field of optics, he was awarded the Frederic Ives medal in 1941; he also received the Townsend Harris medal the following year for his scientific accomplishments.

During World War II, Dr. Hecht worked on vision problems for the armed forces and in 1946, he was made a member of the Emergency Committee of Atomic Scientists, headed by Dr. Albert Einstein. In the latter capacity, Dr. Hecht lectured on atomic energy, and his work *Explaining the Atom* (1947) was lauded by critics as a lucid exposition of nuclear energy for the layman.

He died of coronary thrombosis at his home in New York City, N.Y.

Heinrichs, Jacob (March 2, 1860–Aug. 30), U.S. missionary, educator.
Hellinger, Mark (March 21, 1903–Dec. 21), U.S. writer, film producer.
Hellman, Milo (March 26, 1872–May 11), U.S. orthodontist and anthropologist.
Hely-Hutchinson, Victor (Dec. 26, 1901–March 11), British composer, pianist, conductor.
Henderson, Lucius (1860?–Feb. 18), U.S. actor, producer.

Henson, Herbert Hensley (Nov. 8, 1863–Sept. 27), bishop of Durham from 1920 to 1939, was born at Broadstairs. In the year that he took his degree at Oxford he was elected to a fellowship at All Souls; after seven years in a large industrial parish in Barking, Essex, and five in charge of St. Mary's hospital, Ilford, he was nominated to a canonry of Westminster and the rectory of St. Margaret's, where he became a defender of modernism. In 1917, in spite of the protests of those who considered him too extreme a modernist, he was appointed as bishop of Hereford, and in 1920, after establishing himself as a successful bishop at Hereford, he was translated to the famous see of Durham. At the age of 76 he retired, but in 1940 was reinstated by the prime minister as a canon of Westminster. He died at his home near Ipswich. (*See* also *Encyclopædia Britannica.*)

Herbert, Henry (1878?–Feb. 20), U.S. actor.
Hermine, Princess (Dec. 17, 1887–Aug. 7), wife of Kaiser Wilhelm II.
Hetzel, Ralph Dorn (Dec. 31, 1882–Oct. 3), U.S. educator.
Hickman, Emily (July 12, 1880–June 12), U.S. historian, educator.
Higgins, Edward John (1864–Dec. 14), British leader of Salvation Army.
Hill, Arthur Dehon (June 25, 1869–Nov. 29), U.S. lawyer.

Hill, Grace Livingston (April 16, 1865–Feb. 23), U.S. novelist, was born in Wellsville, N.Y., the daughter of a Presbyterian minister. She studied at the Cincinnati Art school and Elmira college, Elmira, N.Y. Mrs. Hill wrote novels for a hobby until the death of her husband in 1899 left her with two small children and no income. She then converted her "hobby" into a livelihood. A prolific writer, she turned out more than three books a year. In her lengthy career as an author, she produced more than 100 novels and her publishers reported that more than 4,000,000 copies of her works had been sold in the U.S. alone. Many of these books were highly sentimentalized and carried sugar-coated "moral" messages. At one point in her career she quit a publisher who had asked her to "soften" or diminish the quantity of moralizing in her books. One of her most widely-read novels was *The Enchanted Barn* (1918). Among her other works are *A Chautauqua Idyl* (1887), *Marcia Schuyler* (1908), *The War Romance of the Salvation Army* (1918), *The Challengers* (1932), *The Sound of the Trumpet* (1943) and *All Through the Night* (1945). Under the pseudonym of Marcia Macdonald she wrote *The Honor Girl* (1927), *Found Treasure* (1928), *Out of the Storm* (1929) and *The White Lady* (1930). Mrs. Hill died at her home in Swarthmore, Pa.

Hodges, Frank (April 30, 1887–June 3), British politician, labour leader.
Hoffenstein, Samuel (1890?–Oct. 6), U.S. writer.
Hogarth, Alfred Moore (June 29, 1876–March 12?), British entomologist.
Hogate, Kenneth Craven (July 27, 1897–Feb. 11), U.S. publisher.
Holland, Sir Thomas Henry (Nov. 22, 1868–May 15), British geologist, mineralogist.

Homer, Louise (April 28, 1871–May 6), U.S. operatic singer, was born Louise Dilworth Beatty in Sewickley, Pa., near Pittsburgh. For her early career, see *Encyclopædia Britannica.* Mme. Homer, who made her debut in Vichy, France, in 1898, became one of the stars of the Metropolitan Opera Company in New York.

Retiring from the Metropolitan after the 1918–19 season, she played with the Chicago Civic Opera in 1920, the San Francisco and Los Angeles Opera companies in 1926 and again returned to the Metropolitan in 1927, continuing thereafter to give recitals throughout the country. During her later years, she resided in Winter Park, Fla., where she died.

Hooley, Ernest Terah (1858?–Feb. 11), British financier.

Hopkins, Sir Frederick Gowland (June 30, 1861–May 16), British biochemist, was born in Eastbourne, East Sussex, England, and was educated at private schools. For his early career, see *Encyclopædia Britannica.* A pioneer in vitamin research, Sir Frederick and Dr. Christiaan Eijkman were joint winners of the Nobel Prize for physiology and medicine in 1929.

Although best known for his studies in vitamins, Sir Frederick, together with Sir Walter Fletcher, made important contributions to the understanding of chemical changes accompanying muscular contractions; he also isolated the glutathione substance, an important factor in power of living tissues to use oxygen.

He was elected president of the Royal society in 1930 and of the British Association for the Advancement of Science in 1933. On his retirement in 1943 at the age of 82, he attributed the long span of his working ability largely to his vitamin-buttressed diet. He died at Cambridge, England.

Horta, Baron Victor (1861?–Sept. 8), Belgian architect.
Houghton, Will H. (1887?–June 14), U.S. clergyman.
Howard, Sir Albert, (Dec. 8, 1873–Oct. 20), British agricultural scientist.
Howe, Arthur Millidge (June 28, 1867–Oct. 13), U.S. editor.
Howell, Williamson S., Jr. (1891?–May 22), U.S. diplomat.
Hubbard, John W. (1863?–June 3), U.S. industrialist.
Huberman, Bronislaw (Dec. 19, 1882–June 16), U.S. violinist.

Huch, Ricarda (July 18, 1864–Nov. 17), German poet and historical novelist, was born at Brunswick, Germany. For her early career, see *Encyclopædia Britannica.* Considered by critics as one of Germany's greatest women writers, Frau Huch received the Goethe prize in 1931. Among her later works were studies of Garibaldi; of the Italian revolutionary Count Federico Confalonieri, who was condemned to life imprisonment for his participation in the Piedmontese revolt of 1821; and of Martin Luther. She died in Frankfort-on-Main, Germany.

Huhner, Max (June 30, 1873–Nov. 8), U.S. urologist.
Hunloke, Sir Philip (1868–April 1), British yachtsman.
Huntington, Ellsworth (Sept. 16, 1876–Oct. 17), U.S. geographer.
Huntoon, Louis Doremus (Jan. 28, 1869–Feb. 22), U.S. mining engineer, educator.
Hutchings, Richard Henry (Aug. 28, 1869–Oct. 28), U.S. psychiatrist.
Isham, Mary Keyt (Aug. 20, 1871–Sept. 28), U.S. psychoanalyst, neurologist.
Jackson, Sir (Francis) Stanley (Nov. 21, 1870–March 9), British cricketer and politician.
Jaggard, William (1867?–April 27), British Shakespearean authority.
James, Henry (1879–Dec. 13), U.S. author.
Jelf, Sir Arthur Selborne (Oct. 10, 1876–Feb. 26), British colonial official.
Jennings, Herbert Spencer (April 8, 1868–April 14), U.S. zoologist, geneticist.
Jervey, James Postell (Nov. 14, 1869–March 12), U.S. army officer, mathematician.
Jewell, Edward Alden (March 10, 1888–Oct. 11) U.S. art critic.
Job, Thomas (Aug. 10, 1900–July 31), U.S. playwright, educator.
Johns, Joshua L. (Feb. 27, 1881–March 16), U.S. lawyer, banker, politician.
Johnson, Irving Peake (Nov. 5, 1866–Feb. 28), U.S. clergyman.
Johnson, Treat Baldwin (March 29, 1875–July 28), U.S. chemist, educator.
Johnston, George Napier (Aug. 1867–April 3), Canadian army officer.
Jones, Grinnell (Jan. 14, 1884–June 23), U.S. educator, chemist.
Jordan, Elizabeth (1867?–Feb. 24), U.S. author.
Kaplanoff, Prince Irban-Khan (1887?–Oct. 10), Russian tzarist army officer.
Kaufman, Herbert (March 6, 1878–Sept. 6), U.S. author, editor.
Kay, Sir Robert Newbald (Aug. 6, 1869–Feb. 24), British M.P., church leader.
Keeble, Glendinning (Feb. 24, 1887–July 20), U.S. educator.
Kennet, Lady Kathleen (?–July 25), British sculptress.
Kenward, Sir Harold (1894?–Aug. 28), British motorcar manufacturer.
Keppel, Sir Colin (Richard) (Dec. 3, 1862–July 9), British naval officer.
Kerrigan, J. Warren (1880?–June 9), U.S. motion-picture actor.
Ketcham, Victor Alvin, Sr. (Aug. 7, 1883–July 20), U.S. educator.
Keyser, Cassius Jackson (May 15, 1862–May 8), U.S. educator, mathematician.
Khan, Sir Shafa'at Ahmad (1893–July 18), Indian political leader.
Kilvert, Margaret Cameron (Dec. 21, 1867–Feb. 4), U.S. author.
King, Caroline Blanche (1867?–Dec. 2), U.S. editor, author.
Kirby, C. Valentine (1875–Sept. 27), U.S. art educator.
Kirk, Raymond V. (May 3, 1901–May 27), U.S. Catholic leader, educator.
Knight, Howard Roscoe (June 23, 1889–Oct. 7), U.S. social worker.
Kraus, Rene Raoul (Nov. 3, 1902–July 16), Austrian writer, politician.

La Guardia, Fiorello H. (Dec. 11, 1882–Sept. 20), U.S. politician, was born in Manhattan's lower east side, of Italian-Jewish parentage. He passed his boyhood in an army post in Arizona where his father, an army bandmaster, was stationed and finished high school in Prescott, Ariz.

At the age of 19, La Guardia worked in U.S. consulates in Budapest, Hungary, and Trieste, Austria, and was consular agent at Fiume, Hungary, when he was 22. Returning to New York soon afterward, he worked as an interpreter at Ellis Island, meanwhile studying law.

In 1916, La Guardia was elected to the U.S. house of representatives on the Republican ticket. During World War I, he served with the U.S. army air forces on the Italian front, was wounded twice, was promoted to the rank of major and received the Italian war cross.

On his return home, La Guardia in 1919 was elected president of New York's board of aldermen, but gave up the post in 1922 to run again for the house of representatives, to which he was elected. In congress he aligned himself with Republican liberals and the La Follette progressives and when he was re-elected in 1924, it was as the nominee of the Socialist and Progressive parties.

La Guardia was defeated by Tammany and old-line Republicans in his first try for the New York mayoralty in 1929, but in 1934, he was elected on a Republican-Fusion ticket and was re-elected in 1937 and 1941. He did not run for re-election in 1945.

The new mayor broke Tammany's grip in the city and succeeded largely in giving New York an honest administration. But his efforts were also colourful and the peppery and aggressive "Little Flower," rushing to fires or tongue-lashing politicos, made excellent newspaper copy not only in New York but all over the country.

La Guardia was director of the Office of Civilian Defense during World War II, and from March to Dec. 1946 he was director-general of the United Nations Relief and Rehabilitation administration. He died at his home in Riverdale, the Bronx, N.Y.

Lamotte, Arthur (1871?–July 17), U.S. explosives expert.
Langdon, William Chauncy (April 21, 1871–April 11), U.S. historian, librettist.
Langworthy, William Franklin (1864?–July 23), U.S. biologist.
Larimore, Earle (Aug. 2, 1899–Oct. 23), U.S. actor.

Larkin, James (1878–Jan. 30), Irish labour leader, was born in Liverpool, and worked as a dock labourer. In 1906 he successfully organized the dock workers of Belfast. He increased demands for better pay and conditions, and his campaign eventually led to his trial and sentence for sedition in 1913 in

Dublin. Soon afterward released, he visited England but was not welcomed by English labour leaders. He spent most of World War I in the United States. In 1917 he was found guilty of criminal anarchy, was imprisoned and, in 1922, deported. On his return to Ireland he raised a dockers' strike. He visited Moscow in 1924 but later denied that he was communist. He was elected to the Dail in 1927 but his seat was made vacant because he had been declared bankrupt in 1925. He was again elected in 1937 and took his seat, his bankruptcy being soon afterward annulled. Though still titular head of the Workers' Union of Ireland, in his later years he had ceased to be active. He died in Dublin.

Latham, George W. (1870?–Feb. 25), Canadian educator.

Lawes, Lewis Edward (Sept. 13, 1883–April 23), U.S. penologist, was born at Elmira, N.Y., son of Harry Lewis Lawes, an employee of the state reformatory.

Running away from home at the age of 17, he joined the army. Upon completing his "hitch" three years later, he returned to New York state and, following in his father's footsteps, became a guard at Clinton prison, Dannemora, N.Y. He later worked at the Auburn and Elmira penal institutions, was superintendent of New York city's reformatory on Hart's Island and in 1919 Gov. Alfred Smith appointed him chief warden of Sing Sing prison in Ossining, N.Y.

At Sing Sing, Lawes initiated the principle that prisons should rehabilitate rather than punish its inmates, a concept then regarded as novel and dangerously radical. He destroyed class distinctions among prisoners and forced all inmates to wear the same prison uniform regardless of their status or wealth in the outside world. He also instituted prison theatricals, installed safety devices in prison workshops, encouraged athletics, particularly baseball and football, and arranged moving picture performances. Later he arranged to have each cell equipped with individual radio earphones.

Lawes was sternly opposed to capital punishment and was honorary president of the American League to Abolish Capital Punishment. His reputation as a constructive penologist grew rapidly and he served as delegate at several international prison congresses in Europe. Retiring as warden of Sing Sing in 1941, Lawes thereafter devoted himself to lecturing and writing. Among his works are *Man's Judgment of Death* (1923); *Life and Death in Sing Sing* (1928); *20,000 Years in Sing Sing* (1932); *Cell 202, Sing Sing*; *Invisible Stripes*, *Meet the Murderer* (1940) and *Stone and Steel* (1941).

He died at his home in Garrison, N.Y.

Lawrence, Arabella Susan (1871–Oct. 24), British politician.

Leclerc de Hautecloque, Jacques Philippe (1902–Nov. 28), French soldier, was born in 1902 near Amiens and studied at the military school of Saint-Cyr. On leaving it in 1924 he became a cavalry officer, but later returned as an instructor. At the outbreak of World War II he served in France as a captain; he was wounded and taken prisoner in 1940, but escaped to England to join the Free French movement under General Charles de Gaulle. He was almost immediately sent to the Cameroons and then to the Chad territory. His famous march from Fort Lamy in Equatorial Africa to join the British 8th army for the attack on the Mareth line in 1943 distinguished him as one of the outstanding young commanders of the war. After the North African campaign he went to England to raise and train the French 2nd armoured division, which took part, under his command, in the invasion of Normandy in June 1944. Again he made a spectacular march, this time leading the division into Paris. Later, as part of the French army, troops of the same division were the first to enter Strasbourg on Nov. 23, 1944; General Leclerc was governor of the city early in 1945. In the same year he was appointed commander-in-chief of French Indo-China, and officially changed his name from Philippe, Vicomte de Hautecloque, to Leclerc de Hautecloque, using his wartime pseudonym. He died in an aircraft accident in French North Africa, where from April 1947 he had held the appointment of inspector of the forces of land, air and sea.

Lecomte du Noüy, Pierre (1883?–Sept. 22), French scientist.

Lee of Fareham, Arthur Hamilton Lee, 1ST VISCOUNT (Nov. 8, 1868–July 21), British statesman, was born at Bridport, England. He had a military education at the Royal Military academy, Woolwich, served in the royal artillery and later became professor of strategy and tactics at the Royal Military college of Canada. He was military attaché with the U.S. army during the Spanish-American War of 1898 and later served as military attaché in Washington. Having retired from the army in 1900, he was elected Unionist (Conservative) member of parliament for Fareham, Dorset.

He became private secretary to the secretary of state for war and, in 1902, civil lord of the admiralty, a post he held until Nov. 1905. During World War I, he served as staff colonel with the British expeditionary forces in France. In 1915 he joined the ministry of munitions then under David Lloyd George. He continued to serve in Lloyd George's administration as director general of food production, 1917–18, minister of agriculture and fisheries 1919–21, and first lord of the admiralty, 1921-22. He retired from active political life in 1922 upon the resignation of Lloyd George. In 1917 he presented Chequers, his country house in Buckinghamshire, to the nation, as the official country residence of the British prime minister; in 1921 the house and the estate of about 1,500 ac. were put at the government's disposal. In 1940 he published a volume of memoirs under the title *A Good Innings*.

Le Gallienne, Richard (Jan. 20, 1866–Sept. 14), British poet and critic.

Lehman, Philip (Nov. 9, 1861–March 21), U.S. investment banker.

Leonard, Benjamin (Benny) (April 7, 1896–April 18), U.S. pugilist, was born as Benjamin Leiner, and grew up in the slums of Manhattan's east side. He entered the professional boxing ring in 1912. Agile in footwork and a talented defensive fighter, Leonard defeated Freddie Welsh, British world's lightweight champion, in a nondecision fight in 1915. Rematched with the Briton two years later (1917), he upset predictions that his "powder-puff" punch would result in his defeat and knocked out the champion.

Leonard successfully defended his crown for eight years, meeting all comers. His most famous ring encounters were with Lew Tendler, whom he met twice, and with Johnnie Dundee, perennial contender, who battled Leonard eight times. His fights with Tendler were regarded as ring classics and Tendler later claimed that on one occasion he was "talked out" of the championship by Leonard.

Abiding by his mother's wishes, Leonard retired from the ring in 1925, undefeated. Having lost most of his fortune in the 1929 crash, he attempted a comeback as a welterweight in 1932. But Leonard's age and long absence from the ring tripped up his ambitions and he was knocked out by Jimmy McLarnin, welterweight champion.

During World War II, Leonard served as a lieutenant commander in the U.S. maritime service. He died suddenly of a heart attack while refereeing a bout in a New York city arena, April 18.

Leonard, Veador (1888?–Sept. 11), U.S. physician, research chemist.
Lerch, Archer Lynn (Jan. 12, 1894–Sept. 11), U.S. army officer.
Letts, Ira Lloyd (May 29, 1889–Nov. 24), U.S. jurist.
Lever, Sir (Samuel) Hardman (April 18, 1869–July 1), British financial authority.
Lewin, Kurt (Sept. 9, 1890–Feb. 12), U.S. educator, psychologist.
Lewis, Ernest Irving (Feb. 11, 1873–July 1), U.S. government official, journalist.
Lillie, Frank Rattray (June 27, 1870–Nov. 5), U.S. zoologist.
Lion, Leon M. (March 12, 1879–March 28), British actor, author, producer.
Lloyd, Francis Ernest (Oct. 4, 1868–Oct. 17), U.S. botanist.
Lloyd, Sir John Edward (May 5, 1861–June 20), British historian.
Lofting, Hugh (Jan. 14, 1886–Sept. 26), Anglo-U.S. writer.
Lonergan, Augustine (May 20, 1874–Oct. 18), U.S. lawyer, politician.

Loring, John Alden (March 6, 1871–May 8), U.S. naturalist, was born in Cleveland, O. Educated at the Owego Free academy, Owego, N.Y., he also studied at zoological gardens in Europe.

He was field naturalist for the U.S. biological survey from 1892 to 1897 and curator of animals at the New York Zoological park from the latter year to 1901. He was also field naturalist for the U.S. National museum at which time he was commissioned to collect specimens of European birds and mammals. Travelling throughout the continent on this mission, he collected 913 mammal specimens, two of which were at that time unknown to scientists.

Accompanying President Theodore Roosevelt during the latter's expedition and hunting trip to Africa in 1909–10, as field naturalist representing the Smithsonian institution, he penned his adventures and experiences in *Through Africa with Roosevelt.*

He died in Owego, N.Y.

Lowrey, Bill Greene (May 25, 1862–Sept. 2), U.S. educator, congressman.

Lubitsch, Ernst (Jan. 29, 1892–Nov. 30), U.S. motion picture director, was born in Berlin, Germany. After receiving his early training under Max Reinhardt, Lubitsch became an actor in the pioneer cinema days. Later, however, he found that his forte was directing and by 1918 he had become one of the best-known of the continental directors.

Unfettered by romantic traditions, Lubitsch turned out in European studios such sturdy film fare (for his epoch) as *Passion* and *Gypsy Blood* and developed such actors as Emil Jannings and Pola Negri, whom he later introduced to U.S. audiences.

In 1922, he went to the United States at the invitation of Mary Pickford to direct one of her productions. He thereafter remained in the U.S., soon becoming one of Hollywood's top directors.

In March of 1947, Lubitsch was awarded a special "Oscar" at the annual presentation of awards by the Academy of Motion Picture Arts and Sciences for his "contributions to the industry in twenty-five years as a director."

Among his better-known productions were: *Madame Dubarry, The Marriage Circle, The Student Prince, The Patriot, Love Parade, Monte Carlo, The Smiling Lieutenant, Merry Widow, Ninotchka, Design for Living, Bluebeard's Eighth Wife, Shop Around the Corner, Heaven Can Wait, Desire, Royal Scandal* and *Cluny Brown.*

He died at his home in Bel Air, Calif.

Lucas, Robert H. (Aug. 8, 1888–Oct. 13), U.S. politician.

Lytton, Victor Alexander George Robert Lytton, 2ND EARL OF (Aug. 9, 1876–Oct. 25), British diplomat and government official, was born in Simla, India. He was educated at Eton and Trinity college, Cambridge, and married Pamela Chichele-Plowden in 1902. He was appointed civil lord of the admiralty in 1916, and thereafter held numerous responsible government positions. He was undersecretary of state for India (1920–22), governor of Bengal (1922–27) and viceroy and acting governor of India (1925).

Lord Lytton headed the Indian delegation to the League of Nations assemblies in 1927 and 1928, later was appointed British delegate to the league, and in Jan. 1932 was named chairman of the League of Nations commission which went to Manchuria to investigate the controversy between China and Japan. The report of the Lytton commission included proposals for a solution to the problem which were adopted by the league assembly, and this led to the withdrawal of Japan from league membership.

Lord Lytton was the author of *Life of Edward Bulwer, First Lord Lytton* (1913), *Old Treasure* and *New Treasure* (1934), *Anthony Viscount Knebworth—A Record of Youth* (1935), *The Web of Life* (1938), *Pundits and Elephants* (1942) and *Love Incarnate* (1945). He died at his home in Knebworth, Hertfordshire, Eng.

McAfee, Joseph E. (April 4, 1870–March 14), U.S. educator.
McCartan, Edward (Aug. 16, 1879–Sept. 20), U.S. sculptor.
McCollum, Earl (June 7, 1889–Feb. 4), U.S. newspaper publisher.
McConathy, Osbourne (Jan. 15, 1875–April 2), U.S. musician.

MacGill, Helen Gregory (1870?–Feb. 27), Canadian jurist and welfare worker, was born in Hamilton, Ont., and was educated at the University of Toronto. The only woman in her class, she received her M.A. degree in 1888. In her early career, she was a newspaper reporter, and one of her assignments took her to Japan to write a series of articles on social conditions in that country. Later, she returned to the United States to continue her newspaper work, and carried on a campaign for reform of state institutions and for laws to improve the conditions of women and children in industry. At the time of the death in 1900 of her first husband, Dr. F. C. Flesher, she was employed on a large St. Paul daily. She was remarried in 1902 to J. H. MacGill, a former classmate, and moved to Vancouver to practise law. In 1917, Mrs. MacGill became the first woman in British Columbia ever to hold the dual position of juvenile court judge and justice of the peace. She held this post until 1929, and was reappointed to it in 1934. Named a member of the British Columbia Minimum Wage board in 1918, she helped draft the board's first regulations. She was also chairman of the Greater Vancouver Mothers

Pension board, 1920-21. Mrs. MacGill, who retired as judge of the Vancouver juvenile court in Jan. 1945, died in Chicago.

McGovney, Dudley Odell (June 23, 1877–Oct. 15), U.S. educator, law authority.
Machado, Manuel (1874–Jan. 19), Spanish poet.
Machen, Arthur (1863–Dec. 15), British author.
Mackay, J. Harold (1875?–March 18), Canadian photographer.
McKeever, Emmet G. (1893?–July 9), U.S. oil industrialist.
Mackensen, Hans-Georg Viktor von (1883–Oct. 20?), German diplomatist.
Mackinder, Sir Halford John (Feb. 15, 1861–March 6), British geographer, parliamentarian, economist.

McLaughlin, Andrew Cunningham (Feb. 14, 1861–Sept. 24), U.S. historian and educator, was born in Beardstown, Ill. Graduated from the University of Michigan in 1882, he taught history there until 1906 when he joined the University of Chicago as chairman of the history department, a post he held until 1927.

Upon retiring from active academic life, Dr. McLaughlin devoted several years to writing his opus, *A Constitutional History of the United States*, which appeared in 1935 and which won the Pulitzer prize the following year. Among his other publications are *A History of the American Nation* (1899), *The Confederation and the Constitution* (1905), *The Courts, the Constitution and Parties* (1912), *America and Britain* (1918) and *Steps in the Development of American Democracy* (1920).

Dr. McLaughlin was at various times president of the American Historical association, managing editor of the *American Historical Review* and director of the Carnegie institution's bureau of historical research. He died at his home in Chicago, Ill.

McLean, Evalyn Walsh (Aug. 1, 1886–April 26), U.S. society woman, was born in Colorado, the daughter of an Irish millwright who discovered one of the richest gold veins in the state. She inherited the fortune left by her father, and in 1907 married Edward Beale McLean, heir of the family that published the *Cincinnati Enquirer* and the *Washington Post*.

In 1909, McLean gave his wife the Hope diamond, a 44½-carat Indian blue stone which is believed to be a portion of the Regent or Pitt diamond that was stolen with other crown jewels during the French Revolution.

Legend has it that ownership of the Hope diamond brings disaster and tragedy to its possessors. Accordingly, Mrs. McLean's divorce, the death of her eldest son in an auto accident, the death of her daughter from an overdose of sleeping tablets, subsequent confinement of her husband in a mental institution and sundry other misfortunes that befell the family were attributed by some to the Hope "jinx." While Mrs. McLean during her lifetime refused to give credence to the popular superstition surrounding the stone, wearing it on many occasions, a provision of her will stipulated that the gem was to be left in trust for her grandchildren; it would therefore not be worn for at least 20 years after her death.

She died at her home in Washington, D.C.

McMurtrie, Edith (?–May 30), U.S. painter, art teacher.

MacNair, Harley Farnsworth (July 22, 1891–June 22), U.S. educator and authority on far eastern affairs, was born in Greenfield, Pa., and received his Ph.D. degree from the University of California in 1922. Dr. MacNair was on the faculty of St. John's university in Shanghai for 20 years, starting as an instructor and rising to dean of the department of history and government. In the early 1920s he was dean of the East China summer school, a contributing editor of two important English language reviews on China and was a member of the editorial staff of the *Chinese Recorder*.

Returning to the U.S., he joined the University of Washington, Seattle, Wash., as associate professor of far eastern government and diplomacy, and became professor of far eastern history and institutions at the University of Chicago in 1928.

An authority on China and far eastern affairs, Dr. MacNair was a consultant for the far eastern section of the Office of Strategic Services during World War II.

Among his books are: *China's New Nationalism and Other Essays* (1925), *China's International Relations and Other Essays* (1926), *China in Revolution* (1931), *Modern Far Eastern History* (1934) and *The Real Conflict Between China and Japan* (1938). Dr. MacNair died in Chicago, Ill.

McNaugher, John (Dec. 30, 1857–Dec. 11), U.S. theologian.
MacNeil, Hermon Atkins (1866–Oct. 2), U.S. sculptor.
McNicoll, Sir Walter Ramsay (May 27, 1877–Dec. 25), Australian army officer.
McQuillan, Hugh (1898?–Aug. 26), U.S. baseball player.
Maidstone, Leslie Owen, SUFFRAGAN BISHOP OF (Feb. 4, 1886–March 2), British clergyman.
Malisoff, William Marias (March 14, 1895–Nov. 16), U.S. biochemist.
Manchester, William Angus Drogo Montagu, 9TH DUKE OF (March 3, 1877–Feb. 9), British peer.
Mann, Albert Russell (Dec. 26, 1880–Feb. 21), U.S. educator, agricultural economist.
Mannheim, Charles (1893–Jan. 9), Hungarian sociologist.
Mansfield, Joseph Jefferson (1861?–July 12), U.S. congressman.
Marlow, Georges (1872–April 10?), Belgian poet.
Marquet, Albert (March 27, 1875–June 14), French painter.
Marston, William Moulton (May 9, 1893–May 2), U.S. psychologist.
Martin, Francis (Oct. 3, 1878–June 1), U.S. jurist.
Martinez Sierra, Gregorio (May 6, 1881–Oct. 1), Spanish writer.
Martini, Arturo (Aug. 11, 1889–March 22), Italian sculptor.
Mathers, Frederick Francis (Oct. 17, 1871–April 14), Nova Scotian government official.
Mattirolo, Oreste (Dec. 7, 1856–Dec. 5), Italian botanist.
Maurey, Max (1870?–Feb. 27), French playwright.
Maxwell, George Lawrence (July 11, 1896–Jan. 3), U.S. educator.
Michener, Edward (Aug. 18, 1867–June 16), Canadian politician.
Mildmay of Flete, Francis Bingham Mildmay, 1ST BARON (April 26, 1861–Feb. 8), British sportsman, M.P.
Miles, Vincent Morgan (Oct. 16, 1885–Aug. 20), U.S. government official.
Mitchell, Abe (1887?–June 11), British golfer.

Mitscher, Marc Andrew (Jan. 26, 1887–Feb. 3), U.S. naval officer, was born in Hillsboro, Wis. A graduate of the U.S. Naval academy at Annapolis, Md. (1910), he took up naval aviation in Oct. 1915, and in 1919 attempted the first naval transatlantic flight, but was forced down in the Azores. In the years preceding World War II, he continued his association with the navy's aviation section and by 1941 had risen to the rank of rear admiral. The following year, he commanded the aircraft carrier "Hornet" from which Gen. James Doolittle's army bombers took off to bomb Tokyo, April 18, 1942.

Adm. Mitscher participated in most of the important naval engagements in the Pacific war theatre, including the Midway battle (June 1942) and the Battle for the Solomons (1943). In 1944 he was given command of Task Force 58, then described as "the most powerful and destructive naval unit in the history of sea warfare." During that year, Mitscher's force took part in the Marshall Islands invasion, the attack on Truk, the Marianas invasion and the battles of the Philippine sea and Leyte gulf. On May 11, 1945, Adm. Mitscher, who was directing naval-air operations off the Ryukyus, narrowly escaped death when two Japanese Kamikaze planes crashed on the deck of the carrier "Bunker Hill," his flagship, taking the lives of at least 373 crew members.

Relieved of his active command in July 1945, he was returned to Washington as deputy chief of naval air operations. The following December he was promoted to the rank of a full admiral and on Sept 21, 1946, he was made commander in chief of the U.S. Atlantic fleet. He died at the Norfolk Naval Station hospital, Norfolk, Va.

Moldenhauer, Paul (Dec. 2, 1876–Feb. 19?), German economist, politician.
Monahan, Peter Joseph (1882–May 6), Canadian Catholic cleric.
Monroe, Paul (June 7, 1869–Dec. 6), U.S. educator.

Monsky, Henry (Feb. 4, 1890–May 2), U.S. Jewish leader, was born in Omaha, Neb. Graduated from Creighton university, Omaha, in 1912 with an LL.B. degree, he was admitted to the Nebraska bar the same year. He joined the B'nai B'rith lodge, eventually becoming international president of the Jewish fraternal order. He was also a member of the board of trustees of Father Flanagan's "Boys' Town" in Nebraska and chairman of the Juvenile Delinquency board set up by Tom Clark, U.S. attorney general.

An ardent Zionist, Monsky was one of the leaders in the campaign for establishing a national Jewish homeland in Palestine. As chairman of the Interim committee of the American Jewish conference, he pleaded for establishment of such a state in testifying before the Anglo-American Committee of Inquiry in its Washington sessions in early 1946.

In 1945 Monsky served as consultant to the United States delegation at the United Nations conference in San Francisco. He died of a heart attack in New York city, N.Y.

Montgomery-Massingberd, Sir Archibald (Armar) (Dec. 6, 1871–Oct. 13), British army officer.

Monzie, Anatole de (1876–Jan. 11), French lawyer, politician and author.
Moody, Paul Dwight (April 11, 1879–Aug. 18), U.S. educator, churchman.

Moore, Grace (Dec. 5, 1901–Jan. 26). U.S. operatic and concert singer, was born in Jellico, Tenn. At the age of 17, she sang in a concert with the celebrated Giovanni Martinelli. Though critics gave her high praise, this appearance did not provide her with an immediate entree into opera.

In 1926 she went to Europe where she studied under Richard Barthelemy and Mary Garden. After appearing at La Scala in Milan, she was signed to appear at the Metropolitan opera in New York. Her debut in the role of Mimi in *La Bohème* in 1928 was widely publicized in advance. Critical acclaim emphasized the sparkle and vivacity of her acting.

Remaining with the Metropolitan for three seasons, she gave notable performances in the role of Juliet in *Romeo and Juliet*, of Marguerite in *Faust*, Michaela in *Carmen* and in the title role of *Manon Lescaut*. On July 15, 1931, she was married to Valentin Parera.

After a disappointing first venture in motion pictures, Miss Moore scored a box-office success in *One Night of Love*. Her subsequent films were also well received.

In 1935 Miss Moore appeared in London and gave a command performance for Queen Mary, and during World War II, she toured U. S. army camps under the auspices of U. S. O. Camp Shows, Inc.

In July 1946 Miss Moore went to Europe on a prolonged tour. It was during this itinerary that she boarded a plane at the airport near Copenhagen, Denmark, intending to fly to Sweden. The plane, however, crashed shortly after its take off and Miss Moore and 21 other occupants were killed.

Moore, John Bassett (Dec. 3, 1860–Nov. 12), U.S. jurist, was born in Smyrna, Del. For his early career, see *Encyclopædia Britannica*. One of the country's leading authorities on international law, Moore was professor of international law and diplomacy at Columbia university from 1891 to 1924, a member of the Permanent Court of Arbitration at The Hague (1912–38), and a judge of the Permanent Court of International Justice (1921–28). A confirmed pessimist regarding the chances for maintaining universal peace, Dr. Moore argued in 1933 that the cost of guaranteeing peace was so great that unless a nation were willing to sacrifice all its manpower and resources in the effort, it had better adhere to its own neutrality.

Author of numerous works in his field, Dr. Moore wrote *Pending Neutrality Proposals, Their False Conceptions and Misunderstandings* (1936). The *Digest of International Law*, a monumental eight-volume work of which he was editor, was published in 1937.

He died at his home in New York city, N.Y.

Mora, Jo (Joseph Jacinto) (Oct. 22, 1876–Oct. 10), U.S. sculptor, author.
Morales, Carlos Alberto (April 26, 1888–Dec. 11), Nicaraguan politician.
Morgan, William A. (1872?–May 27), U.S. financier, industrialist.
Morriss, Hilda (1888?–June 12). U.S. author.
Mortimer, Stanley Grafton (Dec. 11, 1890–April 5), U.S. racquets player.

Mottistone, John Edward Bernard Seely, 1ST BARON OF (May 31, 1868–Nov. 7), British soldier, politician and author, was educated at Harrow and Trinity college, Cambridge. For his early career, see *Encyclopædia Britannica*. After retiring from the army and active politics, Lord Mottistone produced a number of books including *Adventure* (1930), *Fear and Be Slain* (1931), *Launch* (1932), *For Ever England* (1932), *My Horse Warrior* (1934) and *Paths of Happiness* (1938). He died at his home in London.

Moulton, Warren Joseph (Aug. 30, 1865–May 7), U.S. educator, theologian.
Muller-Ury, Adolfo (March 28, 1864–July 6), U.S. artist.

Munson, Edward Lyman (Dec. 27, 1868–July 7), U.S. army medical officer.
Murray, Sir (George) Evelyn (Pemberton) (July 25, 1880–March 30), British government official.
Musser, John Herr (June 9, 1883–Sept. 5), U.S. physician, educator.

Nagano, Osami (1880–Jan. 5), Japanese naval officer, was born in June at Kochi, Japan. After graduating from the naval academy in 1900, he attended the naval staff college. In 1913 he was a language officer in the U.S., where he studied law at Harvard university and took courses at the War college. As naval attaché in Washington, 1920–23, he participated in the Washington Naval conference of 1921–22 and later represented his country at other international conferences, including the London Naval conference in 1935–36, and the Geneva Naval Limitations conference. At the London meeting, Nagano withdrew his delegation in protest over the proposed 5–5–3 ratio and rejected Pres. Franklin D. Roosevelt's proposal of a 20% naval reduction. In 1936 Nagano became navy minister in Premier Koki Hirota's cabinet and was named naval chief of staff in April 1941. Early Japanese naval successes after Pearl Harbor earned Nagano a reputation as a naval strategist, but subsequent reverses at the hands of the U.S. fleet led to his ouster as chief of staff, Feb. 21, 1944. Interviewed by a U.S. correspondent after the war, Nagano declared that he took full responsibility for the Pearl Harbor attack. He was one of 28 Japanese officials formally accused in April 1946 of war crimes and was standing trial in Tokyo before the International War Crimes Tribunal at the time of his death.

Nash, Philip Curtis (Aug. 28, 1890–May 6), U.S. educator.

Neilson, Nellie (April 5, 1873–May 26), U.S. historian and educator, was born in Philadelphia, Pa., and was graduated with an A.B. degree from Bryn Mawr college, Bryn Mawr, Pa., in 1893. Miss Neilson, who also received her Ph.D. from Bryn Mawr, taught history there from 1902 to 1903 and then joined the faculty at Mt. Holyoke college, South Hadley, Mass., as history professor. Later appointed chairman of the history department, she wrote a number of important historical works dealing with economic and social conditions of mediaeval England. She was active in the American Historical association, and was elected president of that body in 1943, the first woman ever to hold that position. Miss Neilson also was the first woman to have a volume published in the *Oxford Studies in Social and Legal History*, the first to edit a yearbook for the Selden society and the first to have an article published in the *Harvard Law Review*.

She retired from Mt. Holyoke in 1939, becoming professor emeritus. Miss Neilson's works, published in the United States or England, include: *Economic Conditions on the Manors of Ramsey Abbey* (1899), *Customary Rents* (1910), *The Terrier of the Fleet* (1920), *The Cartulary of Bilsington* (1927) and *Medieval Agrarian Economy* (1936).

Miss Neilson died in South Hadley, Mass.

Nelson, Thomas Horatio Nelson, 4TH EARL (Dec. 21, 1857–Sept. 30), British peer.
Newstead, Robert (Sept. 11, 1859–Feb. 16), British entomologist.
Nichols, Spencer Van Bokkelen (July 30, 1882–June 30), U.S. author, publicist.
Nicholson, Meredith (Dec. 9, 1866–Dec. 21), U.S. novelist, diplomat.
Nicholson, Sir Sydney Hugo (Feb. 9, 1875–May 30), British organist.

Nordhoff, Charles Bernard (Feb. 1, 1887–April 12), U.S. author, was born in London, England, of American parents who returned to the United States while he was still a child. Graduated from Harvard university in 1909, he served in World War I and was successively an ambulance driver in France, a pilot in the Lafayette escadrille and, after the United States entered the conflict, an aviator in the U.S. army.

Following the armistice, Nordhoff and James Norman Hall, also a member of the French flying corps, collaborated in writing a history of the escadrille. Continuing their collaboration, Nordhoff and Hall went to Tahiti. Nordhoff married a native woman whom he divorced in 1941.

Meanwhile the Nordhoff-Hall combination produced a number of books, starting with *Faery Lands of the South Seas* (1921). Their most popular work, however, was *Mutiny on the Bounty* (1932), which was subsequently made into a successful moving picture.

Other Nordhoff-Hall books were *Falcons of France* (1929), *The Hurricane* (1935), *The Dark River* (1938), *Botany Bay* (1941) and *The High Barbaree* (1945). Nordhoff also wrote four books by himself, all of which were published between 1919 and 1928.

He died during the night of April 11–12 in Santa Barbara, Calif.

Norman, Fred (March 21, 1882–April 17), U.S. congressman.
Obici, Amedeo (July 15, 1877–May 21), U.S. business executive.

O'Brien, Howard Vincent (July 11, 1888–Sept. 30), U.S. journalist and author, was born in Chicago. After graduating from Yale university (1910), he edited several magazines and took a flier in advertising. In World War I he served as a lieutenant in the U.S. field artillery.

In 1928, O'Brien joined the Chicago *Daily News* as book editor and four years later he started a column, entitled "All Things Considered." The column was given a choice spot on the editorial page and replaced the "Sharps and Flat" daily feature, the title of which had been originated by Eugene Field.

Although he wrote a number of books, O'Brien was particularly known in the midwest as a columnist. He touched on a wide variety of subjects with a simple, humble sincerity that won him a wide readership. Especially famous was his column entitled, "So Long, Son," written as a tribute to his son who had been killed in World War II. The tribute was reprinted in pamphlet form and was dramatized on the air. His books include: *New Men for Old* (1912), *Trodden Gold* (1922), *The Thunderbolt* (1923), *Wine, Women and War* (1926) and *An Abandoned Woman* (1930).

Bedridden the last year of his life, O'Brien persisted in writing his column from "Cell 308," the name he gave his hospital room, until his illness became so acute that he could no longer continue.

O'Brien died in Evanston, Ill.

O'Donnell, John Hugh (June 2, 1895–June 12), U.S. educator, was born in Grand Rapids, Mich. A year after his graduation from Notre Dame university, Notre Dame, Ind., in 1916, he entered the Congregation of the Holy Cross, the religious society which conducts the university, and was ordained a priest in 1921.

From 1922 to 1940, with the exception of a three-year period (1931–34), when he served as president of St. Edward's university in Austin, Tex., Father O'Donnell was associated with Notre Dame in teaching or administrative posts.

He was prefect of discipline and director of student welfare at Notre Dame from 1923 to 1930, vice-president of the university from 1934 to 1940 and acting president from Jan. to July 1940. In the latter month he was chosen as president.

Father O'Donnell, who retired from the university's presidency in July 1946, died in South Bend, Ind.

O'Leary, John (July 18, 1881–Oct. 27), U.S. labour official.

Orczy, Emmuska, BARONESS (MRS MONTAGUE BARSTOW) (1865–Nov. 12), British novelist, was born in Tarnaörs, Hungary, the only child of Baron Felix Orczy. She was educated in Brussels and Paris, and at the age of 16 went to London to study painting at the Heatherley school of art, exhibiting at the Royal academy while still a student.

She began writing in 1900 with a series of detective stories for the *Royal Magazine*, and in 1905 produced the novel *The Scarlet Pimpernel* from one of her own short stories. This story of romantic adventure during the French revolution was to make her reputation as a popular novelist, but it had no success until she and her husband cast it in the form of the play which ran in London for four years. Immense sales of the novel followed; from that time forward she wrote many successful tales of adventure. Besides other stories of the Scarlet Pimpernel, some of her best-known books were *Beau Brocade*, (1908), *The Laughing Cavalier* (1914), and *The Honourable Jim* (1924), all written in the same sword-and-cloak tradition. Her last book, *Will-o'-the-Wisp* appeared in 1947; her memoirs were published in 1946. She died in London.

Orsini, Prince Domenico Napoleone (Nov. 7, 1868–March 21), Italian nobleman, Vatican lay official.
Osgood, Wilfred Hudson (Dec. 8, 1875–June 20), U.S. naturalist.

Owen, Derwyn Trevor (July 29, 1876–April 9), primate of the Anglican Church in Canada, was born in Twickenham, England. Educated at Trinity university, Toronto, Ont., Canada, he was ordained a deacon in 1900 and a priest the following year. He served as curate, rector and dean of several Anglican churches in Toronto and Hamilton from 1902 to 1925 and was consecrated bishop of Niagara in 1925, bishop of Toronto in 1932, becoming archbishop of Toronto and Anglican primate of all Canada in 1934. The archbishop, who had long crusaded for a united church became the first president of the Canadian Council of Churches in 1944.

He died of a heart attack in Toronto.

Owen, Robert Latham (Feb. 3, 1856–July 19), U.S. politician, was born in Lynchburg, Va., and studied at Washington and Lee university. Owen was of part Cherokee blood, and his energetic espousal of Indian causes won him national publicity. He was active in checking efforts to dispossess Cherokees and other tribes of their land in the Indian Territory in what is now Oklahoma. Largely through his efforts, the national Banking act was extended over the Indian territory, and he was responsible also for establishing the U.S. court in the territory.

In the 1890s Owen, acting as lawyer for various Indian tribes which had instituted actions against the government, succeeded in recovering large sums for the eastern and western Cherokees, the Choctaws and Chickasaws.

In 1901 Owen authored the act of congress that gave citizenship to the 70,000-odd Indians in the territory and also was instrumental in securing its passage.

When Oklahoma was admitted to statehood in 1907, Owen was elected to the U.S. senate. He remained in the senate until 1925, where he led the fight for ratifying the League of Nations covenant and participated in the drafting of the Federal Reserve act and the Farm Loan act. He died in Washington, D.C.

Padway, Joseph Arthur (July 25, 1891–Oct. 8), U.S. labour lawyer, was born in Leeds, Yorkshire, Eng. Emigrating to the United States in his youth, he studied at Marquette university, Milwaukee, Wis., graduating in 1912, and practised law in Milwaukee. Padway became general counsel to the Wisconsin State Federation of Labor in 1915, and achieved national prominence during the strike against the Kohler factory in 1934. In 1938, he was engaged by the American Federation of Labor as full-time general counsel and thereafter was recognized as its spokesman.

When he assumed this position, the A.F. of L. was engaged on a program to amend the Wagner act which it had regarded as partial to the C.I.O. Padway subsequently brought much of the litigation between the two unions before the U.S. supreme court. He also found himself in opposition to the investigation of the building trades unions proposed by Thurman Arnold (then head of the justice department's antitrust division), and to the antitrust action brought against James C. Petrillo, head of the Musicians union, an A.F. of L. affiliate.

During World War II, he represented the A.F. of L. during army and navy conferences on hiring policy and he opposed such wartime legislation as the Smith-Connally antistrike law, the Ball-Burton-Hatch labour bill and also attacked the constitutionality of the Lea bill which threatened to curb Petrillo's activities. Padway was one of the counsels for John L. Lewis during the latter's trial in 1946 when the federal government obtained an injunction against the coal strike and won its case.

Mr. Padway was addressing the A.F. of L. annual convention in San Francisco, Calif., when he suffered a stroke, and died a few hours later.

Pardo, Jose (Feb. 24, 1864–Aug. 4), Peruvian statesman.
Parker, Frank (Sept. 21, 1872–March 13), U.S. army officer.
Parmelee, Cullen Warner (July 27, 1874–Aug. 20), U.S. ceramics expert.

Passfield, Sidney James Webb, 1ST BARON (July 13, 1859–Oct. 13), British statesman and political economist, was born in London. Although he was a cabinet member in two Labour governments, he was never a conspicuous public figure; the works of historical research, political propaganda and public service for which he and his wife were responsible formed the greater part of his achievements. For his early life, see *Encyclopædia Britannica*.

After his resignation from the government in 1931, he retired from active politics and turned to the completion of his studies and investigations. In

1943, with the death of Lady Passfield, his long and remarkable partnership with "Beatrice Webb" came to an end. He died at Liphook, Hampshire.

Paterson, Sir Alexander (Nov. 20, 1884–Nov. 7), British penologist.

Patiño, Simón Iturí (June 1, 1862–April 20), Bolivian multimillionaire industrialist and "tin king," was born on June 1 in Cochabamba, of poor parents. While working in a general store, he acquired ownership of a mine from an Indian who could not pay a $250 debt. Believing that the mine contained rich silver lodes, Patiño was disappointed when he discovered that it consisted only of tin. However, European agents seeking new sources of tin to replace the worked-out lodes of Cornwall and Saxony, offered him a $5,000 loan to work his mine.

The European and North American demand for tin increased enormously, and Patiño's "wall of tin" became a source of immense wealth. Eventually he became owner of the largest tin deposits in the world, as well as other mining properties, banks and railroads.

He went abroad in 1922 and never returned to Bolivia. However, he was considered an important political factor in that country, because tin was the chief source of its income. He was Bolivian minister to Spain, 1920–26. and to France, 1926–41. During World War II, he lived for a short while in the United States and then moved to Buenos Aires, Arg., where he died.

Patterson, John Henry (Nov. 10, 1867–June 20?), British army officer.
Peale, Arthur Lincoln (1868?–March 1), U.S. writer.
Pelletier, George (1882?–Jan. 20), Canadian newspaper executive.
Penrose, Stephen Beasley Linnard (Dec. 20, 1864–April 29), U.S. educator.
Pepper, William (May 14, 1874–Dec. 3), U.S. medical educator.
Perkins, Maxwell Evarts (Sept. 20, 1884–June 17), U.S. editor, publisher.

Perry, James De Wolf (Oct. 3, 1871–March 20), U.S. Episcopal bishop, was born in Germantown, Pa. Graduated from Harvard university in 1892 with an M.A. degree and with a B.D. from the Cambridge Theological school, Cambridge, Mass., in 1895, he entered the Episcopal Church as a deacon in the latter year and was advanced to the priesthood in 1896. After serving as rector in several eastern seaboard churches, he was consecrated in 1911 as seventh bishop of Rhode Island. Elected presiding bishop of the church in 1930 for a temporary period, Dr. Perry was re-elected in 1931 for the full six-year term. The position of presiding bishop, analogous to that of the archbishop of Canterbury in England, made Dr. Perry the ranking Episcopal churchman in the United States. In 1933 Bishop Perry made a five-month tour of Episcopal missions in the orient to investigate charges of maladministration; on his return to the United States, he asserted that the "copious criticisms" levelled at the missions abroad were not justified. Dr. Perry, who was overseer at Harvard from 1937 to 1943, died in Summerville, S.C.

Petit de Julleville, Pietro, CARDINAL (Nov. 22, 1876–Dec. 10), French Catholic prelate, was born at Digione, son of Louis Petit de Julleville, French historian of literature. Ordained in 1903, Msgr. Petit de Julleville served as chaplain with the French army during World War I, and was elevated to the rank of bishop in 1927. Nine years later, he was named archbishop of Rouen and primate of Normandy. During World War II, Msgr. Petit de Julleville refused to leave Rouen and remained in the city during the German occupation. On Feb. 18, 1946, he was proclaimed a cardinal at the Vatican consistory. He died in Rouen.

Petkov, Nikola Dimitrov (1889–Sept. 23), Bulgarian democratic leader, was from the beginning of his career in politics a member of the Agrarian National Union which, after World War I, supported and sought to represent politically the large peasant class of Bulgaria. Its leader, Alexander Stambolisky, was murdered in 1923, and from that time until World War II its leading members, among whom was Petkov, fought an unequal battle against arbitrary government; Petkov himself spent many years in prisons or concentration camps because of his bold opposition. He was interned during the early years of World War II, but later became one of the leaders of the Bulgarian resistance movement. When underground activity had enabled the party to seize power in Sept. 1944, he signed the Moscow armistice that ranked Bulgaria among the Allies. He became deputy prime minister but his efforts to co-operate with his Communist colleagues were unsuccessful, and in Aug. 1945 he and his fellow-agrarians resigned, going into public opposition. The elections of autumn 1946, although discredited by the western powers because of the open intimidation exercised over the voters, nevertheless resulted in a total for the Agrarian party of one-third of the votes; Petkov's public conclusion that the country should therefore be governed by a Communist-Agrarian coalition aroused the full hostility of his opponents, and he was presently arrested in June 1947 and charged with plotting a military coup d'état.

His trial in Sofia in August resulted in a sentence of death. Representations from the British and U.S. governments asking for a suspension of the sentence were rejected, giving rise to serious protest in both countries. Petkov's appeal to the Bulgarian supreme court was dismissed. He was hanged in the Sofia central prison. (*See* also BULGARIA.)

Phillimore, Godfrey Walter Phillimore, 2ND BARON (Dec. 29, 1879–Nov. 28), British peer.
Phillips, Oscar L. ("SANTA CLAUS") (1890?–April 5), U.S. postal employee.
Pickford, Sir Alfred Donald (May 20, 1872–Oct. 7), British government official.
Pierce, Henry J. (Aug. 29, 1859–Aug. 7), U.S. utilities executive.

Planck, Max (April 23, 1858–Oct. 3), German physicist, was born at Kiel. His father, who was professor of constitutional law at Kiel university and later at Göttingen, was joint author of the Prussian civil code. At 17 he began his studies at Munich, and three years later attended courses at Berlin university, where his attention was first directed to thermodynamics by the teachings of Gustav Kirchhoff. After five years as an assistant at Munich he became professor of physics at Kiel; in 1889 he left Kiel for Berlin as professor extraordinarius, and in 1892 succeeded Kirchhoff in the chair of experimental physics, where he remained for the rest of his teaching life.

Planck shares with Albert Einstein the main credit for having initiated the revision of physical concepts which has been in progress during the 20th century. His great discovery of the quantum of action was announced in a paper "On the Distribution of Energy in a Normal Spectrum" to the German Physical society on Dec. 14, 1900, and from that time his reputation as a physicist grew until he was regarded as the *doyen* of international science. In 1912 he was appointed permanent secretary to the Prussian Academy for Science, and in the year 1913–14 was rector of Berlin university. The Nobel prize for physics was awarded to him in 1918. In 1929, after having been a foreign member for three years, he was awarded the Royal Society's Copley medal; and in 1930 he became president of the Kaiser Wilhelm society, the highest academic post in Germany.

He died at Göttingen. (See *Encyclopædia Britannica*).

Plant, James Stuart (Aug. 3, 1890–Sept. 7), U.S. psychiatrist.
Plunket, Benjamin John (Aug. 1, 1870–Jan. 27), Irish clergyman.
Popham, Sir Henry Bradshaw (Aug. 1, 1881–April 15), British colonial official.
Porter, Henry Hobart (March 12, 1865–Feb. 9), U.S. public utility executive.
Post, Alice Thacher (June 8, 1853–Feb. 2), U.S. editor, author.
Pott, Francis Lister Hawks (Feb. 22, 1864–March 7), U.S. educator.
Potter, John Milton (Oct. 22, 1906–Jan. 9), U.S. educator.
Powell, John Benjamin (April 18, 1886–Feb. 28), U.S. journalist.
Powerscourt, Mervyn Richard Wingfield, 8TH VISCOUNT (July 16, 1880–March 21), British peer.
Preston, Frances Folsom (Cleveland) (July 21, 1864–Oct. 29), widow of President Grover Cleveland.
Previté-Orton, Charles William (Jan. 16, 1877–March 11), British historian.
Priest, George Madison (Jan. 25, 1873–Feb. 18), U.S. educator.
Puddester, Sir John Charles (Oct. 4, 1881–April 22), Newfoundland government official.

Raczkiewicz, Wladyslaw (Jan. 29, 1885–June 6), Polish statesman, was born in Kutaisi, Georgia, the son of a distinguished lawyer. He took up law, graduating at Tarbu (Dorpat) university in Estonia, and shortly afterward established a practice at Minsk. A conscript in the Russian army in 1914, he served as lieutenant until the 1917 March revolution. He then took a leading part in the organization of a Polish army on the eastern front. After the restoration of Polish independence in 1918 he helped to organize the administration of the eastern provinces. In the Polish republic he was four times minister of the interior, *voyevod* (governor) of the Wilno province (1926–30) and, until 1939, *voyevod* of the province of Pomorze. When President Ignacy Moscicki resigned at Kuty, on Sept. 17, 1939, he appointed Raczkiewicz as his successor. The latter, on reaching Paris on Sept. 30, 1939, formed a new Polish government with Gen. W. Sikorski as prime minister. On June 21, 1940, after the collapse of France, he went to London. As president of the republic he showed extreme devotion to his constitutional duties and upheld the interests of the Polish nation with wisdom and dignity. When on July 5, 1945, Great Britain and the United States recognized the new Polish government formed in Moscow, Raczkiewicz refused to resign, declaring that he would do so only at the wish of a freely elected and representative Polish *sejm* (parliament). He died at Ruthin Castle nursing home, Wales.

Raeburn, Henry Raeburn Macbeth (Sept. 24, 1860–Dec. 6?), British artist.
Ramsden, Walter (1859?–March 26), British biochemist.
Ramuz, Charles Ferdinand (1878–May 23), Swiss novelist.

Rayleigh, Robert John Strutt, 4TH BARON (Aug. 28, 1875–Dec. 13), British physicist, was the eldest son of the third Baron Rayleigh, the discoverer of argon. He was educated at Eton and Trinity college, Cambridge, and for several years did successful research work at the Cavendish laboratory there. In 1908 he became professor of physics at the Imperial College of Science and Technology, South Kensington. Giving up this post in 1919, he devoted the rest of his life to research, carried out in the private laboratory at his home at Terling, Essex. His work covered a wide range, but his most important contributions to science were made in studies in radioactivity and spectroscopy. Among the public offices to which he was elected by virtue of his eminent position in British science were those of chairman of the executive committee of the National Physical laboratory, president of the 1938 meeting of the British association, president of the Physical society (1934–36) and foreign secretary of the Royal society (1929–34). He also served on the advisory council of the Department of Scientific and Industrial Research. He died at Terling.

Read, Thomas Thornton (Feb. 10, 1880–May 29), U.S. mining engineer, educator.
Reed, Albert Alison (May 5, 1866–Nov. 28), U.S. educator.
Reed, Henry Morrison (Sept. 16, 1880–Aug. 12), U.S. industrialist.
Reeves, James Aloysius Wallace (Feb. 8, 1892–March 7), U.S. ecclesiast and educator.

Reid, Ogden Mills (May 16, 1882–Jan. 3), U.S. newspaper editor, was born in New York city, the son of Whitelaw Reid, editor in chief and part owner of the *New York Tribune*. Young Reid studied politics, economics and law at the University of Bonn and at Yale university, receiving his law degree from the latter institution in 1907. The following year, he joined the staff of the *Tribune* as a cub reporter, and after "learning the ropes" he was made managing editor in 1912 and editor a year later. It was generally said that Reid insisted on one fundamental principle—that of writing news "straight" without favouring either the paper's editorial or advertising policy. In 1924 the *Tribune* acquired the *New York Herald* from Frank A. Munsey. The purchase price was said to have been $5,000,000. The two papers were fused and the new daily became the *New York Herald Tribune*. Reid was editor of the *Herald Tribune* and president of the Herald Tribune company. He died in New York city.

Reynolds, Thomas (1879?–Jan. 25), British theatrical producer, director.

Riach, Nancy (1927–Sept. 15), Scottish swimming champion, was born April 6, 1927, in Motherwell. She first attracted attention when in 1938 at the age of 11 she won a schoolgirls' championship at Motherwell, competing against girls 4 years her senior. When she was 15 she broke her first Scottish record, and 2 years later 28 records; Scottish native, Scottish all-comers and British were standing to her credit. At the time of her death seven of her times remained unbeaten. Her remarkable successes were the result of a strict training schedule. In 1947 she was granted leave from her teaching at the Hamilton academy in order to train for the 100-yd. free-style European championship at Monte Carlo, Monaco, but while there she was taken ill with infantile paralysis and died in her 21st year.

Richardson, Ernest Gladstone (Feb. 24, 1874–Sept. 5), U.S. clergyman.
Richardson, James Parmelee (May 29, 1878–March 24), U.S. educator.
Riess, Ernst (Nov. 19, 1865–June 12), U.S. educator.
Rikhter, Andrei (1871?–April 2), soviet plant physiologist.

Robbins, Leonard H. (April 2, 1877–June 24), U.S. writer.
Roberts, Kingsley (Dec. 29, 1893–Nov. 21), U.S. medical economist, surgeon.
Robertson, Alexander George Morison (Sept. 3, 1867–Aug. 21), Hawaiian jurist, government official.
Robinson, John Wesley (Jan. 6, 1866–May 30), U.S. Methodist bishop, missionary.
Robinson, Victor (Aug. 16, 1886–Jan. 8), U.S. medical historian.

Rodriguez, Manuel (Manolete) (July 5, 1917–Aug. 29), Spanish matador, was born in Córdoba, Spain. The son of a bullfighter, he absorbed the atmosphere and drama of the arena from his earliest youth and was schooled in technique and tactics by his father. Manolete, as he was later known, began his professional career at the age of 17, became a full-fledged matador at 19 and before he was 30, was ranked by many experts as the equal of such famed matadors as Juan Belmonte and Joselito.

An individual stylist, Manolete disdained the dramatic flourish and operated with a minimum of movement in the *corrida*. Opinions on the personality of Manolete varied. Some sources decried his apparent arrogance and attempted to minimize his technique; others maintained that his so-called conceit was merely confidence, which they described as the basic requisite of the successful bullfighter. Manolete's popularity with the crowds was unquestioned, however, as witnessed by the fortune he amassed (estimated at $1,000,000) during his 13-year career as a matador in Spain and Mexico.

He was wounded in a bullfight in Linares, Spain, by a ferocious Miura bull, who gored the matador in the thigh. Manolete died the following morning from shock and loss of blood.

Roerich, Nikolai Konstantinovich (Oct. 10, 1874–Dec. 13), Russian-born Orientalist, scientist and painter, was born in St. Petersburg, Russia, where he studied law and painting. For his early career, see *Encyclopædia Britannica*. A prolific artist, Roerich produced more than 3,000 paintings in his lifetime, of which 1,006 are exhibited in the Roerich museum in New York city. Other of his canvases are hung in the Louvre, the Victoria and Albert museum in London and in other famous art galleries throughout the world.

Also an Orientalist of considerable distinction Prof. Roerich excavated prehistoric burials in Pondichéry, French India, in 1930 and headed the U.S. department of agriculture's expedition into central Asia (1934–35) in search of drought-resisting plants.

Among his publications, which have appeared also in Russian, Japanese and Spanish, are *Complete Works* (1914), *The Messenger* (1925), *Himalaya* (1926), *Joys of Sikkim* (1928), *Altai Himalaya* (1929), *Heart of Asia* (1930), *Realm of Light* (1931), *Fiery Stronghold* (1933) and *Gates into the Future* (1936).

His death at Kulu, in the Punjab area of India, was announced in a dispatch from Bombay.

Roffo, Angel H. (1882–July 24), Argentine cancer specialist.
Rogers, James Gamble (March 3, 1867–Oct. 1), U.S. architect.
Romano, Santi (1875–Nov. 3), Italian jurist.
Ronnebeck, Arnold (May 8, 1885–Nov. 14), U.S. sculptor.

Rothschild, Henri de, BARON (July 26, 1872–Oct. 12), French physician, financier and playwright, was born in Paris, the son of Baron James Rothschild. He was one of the first Rothschilds to depart from the family tradition of international finance, to become a scientist and playwright.

In science, he devoted himself to a study of infantile diseases and later employed part of his inheritance to set up free milk stations for French workers. He also founded the Pierre Curie institute in Paris, to promote the cure of cancer with radium.

As a playwright, he wrote under the pseudonym André Pascal, producing several successful plays, notably *La Rampe* (1909), *Le Caducée* (1921) and *Héritage* (1924). He also built the Théâtre Pigalle, one of the most modern and luxurious houses in Paris.

After World War I, the baron was active in the Zionist movement. He fled to Brazil when the Germans invaded France in 1940, and the Vichy regime confiscated his extensive land and art holdings and revoked his French citizenship. However, after Allied forces liberated France, the new government restored both his citizenship and property. He died at his estate, Castel Beau Cidre, in Jouxtens, Switz.

Rowell, Ross Erastus (Sept. 22, 1884–Sept. 6), U.S. marine corps officer.
Ruediger, William Carl, (March 29, 1874–July 4), U.S. educator.

Rushbrooke, James Henry (July 29, 1870–Feb. 1), British clergyman, studied at Midland and University colleges, Nottingham, and at Berlin and Halle universities and received his M.A. degree from the University of London. Dr. Rushbrooke, who was minister of churches in Derby and London in 1902, became Baptist commissioner for Europe in 1929. Thereafter, he was associated with the Baptist World alliance, serving that group as its eastern secretary, 1925–28, general secretary, 1928–39 and president, 1939–47. During his long connection with the Baptist Church, he travelled throughout the world, participated in many international conferences and organized Baptist World congresses in Toronto, 1928, in Berlin, 1934, and Atlanta, Ga., 1939. Pledging himself to help eliminate religious repression, he made personal appeals to heads of state in many lands in behalf of religious freedom. After the war, he was named chairman of the Special Committee for Baptist Reconstruction in Europe. Dr. Rushbrooke was the author of *The Baptist Movement in the Continent of Europe* (1915), *Some Chapters of European Baptist History* (1929); co-author of *Baptists in Europe* (1920) and editor of *The Peacemaker* (1908–14) and of *Goodwill* (1915–20). He died in Bristol, England.

Russell, John Henry (Nov. 14, 1872–March 6), U.S. marine corps officer.
Russell, Thomas Hendrick (April 12, 1885–April 5), U.S. surgeon, educator.

Ryan, James Hugh (Dec. 15, 1886–Nov. 23), U.S. prelate, was born in Indianapolis, Ind. He studied at universities in the U.S. and Rome, receiving his Ph.D. degree from the Roman academy in 1908 and his S.T.D. degree from the College of Propaganda in Rome a year later.

He was ordained in 1909, but not before he received a special dispensation from the Catholic authorities in Rome because of his extreme youth—he was only 22 at the time. He then served as professor of psychology at St. Mary of the Woods college, Indiana, from 1911 to 1921 and was executive secretary of the National Catholic Welfare conference, 1920–28.

In 1922, he joined the Catholic university in Washington, D.C., as an instructor of philosophy, becoming a full professor in 1929 and serving as rector from the latter year until 1935 when he was appointed bishop of Omaha. Ten years later he became the first archbishop of Omaha.

Known as an able statesman, Msgr. Ryan went to South America in 1939 at the behest of Pres. Franklin D. Roosevelt to seek "a closer cultural relationship between the countries of this hemisphere."

Msgr. Ryan was the author of *A Catechism of Catholic Education* (1922), *An Introduction to Philosophy* (1924), *The Encyclicals of Pope Pius XI* (1927) and *The Peace Points of Pope Pius XII* (1942). He died in Omaha, Neb.

Saint-Auban, Emile de Bruneau de (June 19, 1858–May 2), French attorney.

Salisbury, James Edward Hubert Gascoyne-Cecil, 4TH MARQUESS (Oct. 23, 1861–April 4), British politician, was educated at Eton and University college, Oxford. He entered the house of commons in 1885 as member for Darwen, Lancashire. He lost that seat in 1892, but from 1893 until 1903 represented Rochester, Kent. He served in the South African War, but in 1900 entered the government headed by his father, Lord Salisbury (3rd marquis), as undersecretary of state for foreign affairs. Upon his father's death in 1903, he succeeded to the marquisate and entered the house of lords and became lord privy seal.

He took an active part in defense of Conservative politics, opposing, in particular, the radical reform budget of 1909. During World War I, Lord Salisbury served in the army reaching the rank of major general. He was lord president of the council and deputy leader of the house of lords (1922–Jan. 1924). In Nov. 1924 Lord Salisbury returned to office as lord privy seal. and in 1925, became Conservative leader of the house of lords, a post he held until 1931. He served on the committee of imperial defense and also, in 1934, on the parliamentary joint committee on Indian constitutional reform. Lord Salisbury was succeeded by his eldest son, Viscount Cranborne. *See* also *Encyclopædia Britannica*.

Salotti, Carlo, CARDINAL (July 25, 1870–Oct. 24), Italian prelate, was born in Grotte di Castro, Italy. Completing his ecclesiastical studies in the Roman seminary, he received degrees in civil and canonical law and in letters, and in ensuing years established a reputation as philosopher, author and lawyer.

In 1930, Mgr. Salotti was elevated to the titular bishopric of Palestrina and on Dec. 16, 1935, he was proclaimed a cardinal. His church titles included advocate of saints and consistorial lawyer, under-promoter of the faith, promoter general of the faith and prefect of the Congregation of Rites. He had promoted more than 100 causes for canonization, including that of Joan of Arc in 1920. On the other hand, he had also had the duty of marshalling all possible arguments against a proposed canonization so as to make sure that no unworthy candidate would receive sanctificatory approbation.

Cardinal Salotti founded many religious clubs, and was active in Catholic missionary work. He died in Rome.

Sampson, Emma Speed (Dec. 1, 1868–May 7), U.S. author.

Sanatescu, Constantin (1885–Nov. 8), Rumanian politician and army officer, served as military attaché in Paris and London in the '20s and was promoted to the rank of a general in 1935.

After the outbreak of World War II, Sanatescu was chief of the Rumanian delegation to Moscow in 1940. He then went into temporary eclipse until Aug. 26, 1944, when King Michael, confronted with the need of cleansing his government of pro-fascist elements before the arrival of the red army, arrested Marshal Antonescu and set up a government with Sanatescu as premier.

The soviet occupation authorities tolerated the Sanatescu regime until the autumn of 1944 when it complained that the premier had failed to carry out the armistice terms, to purge pro-fascist elements and to restore movable soviet property taken by Rumanians during their occupation of the Ukraine.

Under Russian pressure, Sanatescu reformed his cabinet on Nov. 4, 1944, and placed Communists in key posts. His government was short-lived, lasting only 28 days, and he resigned Dec. 2. He died in Bucharest.

Satterlee, Herbert Livingston (Oct. 31, 1863–July 14), U.S. lawyer.
Saunders, Margaret Marshall (April 13, 1861–Feb. 15), Canadian author.
Schoellkopf, Paul Arthur (March 7, 1884–Sept. 30), U.S. utilities executive.
Schultz, John Richie (Dec. 12, 1884–Aug. 11), U.S. educator.
Schwarz, Franz Xaver (Nov. 27, 1875–Dec. 14?), German politician.
Scott, Duncan Campbell (Aug. 2, 1862–Dec. 18), Canadian writer.
Scott, John Adams (Sept. 15, 1867–Oct. 26), U.S. educator.

Scott, William Berryman (Feb. 12, 1858–March 29), U.S. geologist and educator, was born in Cincinnati, O., a great-great-grandson of Benjamin Franklin on his mother's side. After receiving his A.B. degree from Princeton university in 1877, he spent several years studying abroad, returning to Princeton in 1883 as an assistant in geology. The following year, he became professor of geology and palaeontology, a post he held for 46 years.

One of the leading vertebrate palaeontologists in the United States, Dr. Scott was a recognized authority on fossil mammals and travelled to such remote areas as Zululand and Patagonia in search of fossil remains. He was awarded numerous medals from geological societies abroad as well as in the United States for his achievements and continued his research after his retirement from Princeton in 1930 as professor emeritus. Dr. Scott was the author of *An Introduction to Geology* (1897), *A History of Land Mammals in the Western Hemisphere* (1913), *The Theory of Evolution* (1917) and *Physiography* (1922). He died at Princeton, N.J.

Scrymgeour, Edwin (July 28, 1866–Feb. 1), British prohibitionist.
Seitz, George Albert (March 13, 1897–Oct. 24), U.S. naval officer.
Seldte, Franz (June 29, 1882–April 1), German politician.

Selfridge, Harry Gordon (Jan. 11, 1864–May 8), British businessman, was born at Ripon, Wis. For his early career, see *Encyclopædia Britannica*. Retiring as an executive of Marshall Field & Co. in Chicago after amassing a fortune, he went to London in 1906 and there organized the firm of Selfridge & Co., Ltd., which eventually became the largest and most successful department store in England. By the time he retired from active management of Selfridge's in 1939, he had developed his company into a massive organization employing 13,000 people and operating a $50,000,000 chain of department stores in the principal shopping centres of Britain. Selfridge, who acquired British citizenship in 1937, died in London.

Senn, Thomas J. (Dec. 21, 1871–Feb. 11), U.S. naval officer.
Severinghaus, Willard Leslie (Jan. 28, 1882–Aug. 28), U.S. physicist.
Shankland, Sherwood Dodge (April 6, 1874–May 27), U.S. educator.
Shaw, Albert (July 23, 1857–June 25), U.S. editor, writer.
Shaw, William Edward (July 2, 1869–Feb. 22), U.S. educator.
Sheehan, Robert Francis, Jr. (Dec. 5, 1879–April 16), U.S. psychiatrist.
Shelley, Harry Rowe (June 8, 1858–Sept. 12), U.S. composer, organist.
Shepard, James Edward (Nov. 3, 1875–Oct. 6), U.S. educator.
Shiel, Matthew Phipps (July 21, 1865–Feb. 17), British novelist.
Shonle, Horace Abbot (May 14, 1892–Feb. 24), U.S. research chemist.
Shutts, Frank Barker (Sept. 11, 1870–Jan. 7), U.S. newspaper publisher, lawyer.
Simpson, W. S. (1870?–March 28), Canadian grain expert.
Sinnock, John Ray (July 8, 1888–May 14), U.S. designer, engraver.
Sladen, Douglas (Brooke Wheelton) (Feb. 5, 1856–Feb. 12), British novelist, biographer.

Smith, Gipsy Rodney (March 31, 1860–Aug. 4), British evangelist, was born in England of parents of gipsy stock. He had no formal schooling, was mostly self-educated and developed his fluent command of English by constant reading of the Bible. At the age of 16, he became a convert to Methodism and developed into an impassioned and persuasive evangelist.

Smith roamed the world on his evangelical missions, exhorting sinners of all races and creeds on five continents to eschew their ways of evil for the good life. He preached in barns and meadows, warehouses and tents, churches and halls and attracted huge congregations; some of the throngs that attended his sermons were said to have numbered more than 100,000 persons.

At one time in his career, he was associated with Gen. William Booth but broke with the latter, who eventually developed his mission into the Salvation Army.

As "special missioner" of the National Free Church council (1897–1912), Smith started the evangelical journeys on the "sawdust trail" that led him twice around the world. During World War I, he spent three and one half years among British troops on the western front for which service he received the Order of the British Empire. He continued his roving evangelical assignments until he was well past 80.

He was the author of several works, including an autobiography, *Gipsy Smith, His Life and Work* (1906); *As Jesus Passed By* (1905); *Your Boys* (1918); *Real Religion* and *Evangelistic Talks* (1929); and *The Beauty of Jesus* (1932).

He died on board the vessel "Queen Mary."

Smith, Harold Dewey (June 6, 1898–Jan. 23), U.S. government official.
Smith, Harriet Lummis (?–May 9), U.S. novelist.
Smith, June C. (March 24, 1876–Feb. 7), U.S. jurist.
Smith, Marion (Nov. 16, 1884–Sept. 9), U.S. lawyer.
Smith, Roy E. (1883?–Feb. 11), U.S. soil chemist, educator.
Snell, Earl Wilcox (July 11, 1895–Oct. 28), U.S. politician.
Snow, William Josiah (Dec. 16, 1868–Feb. 27), U.S. army officer.
Sowell, Ingram Cecil (Aug. 3, 1889–Dec. 21), U.S. naval officer.
Spaulding, Oliver Lyman (June 27, 1875–March 27), U.S. army officer.

Speer, Robert Elliott (Sept. 10, 1867–Nov. 23), U.S. clergyman, was born at Huntingdon, Pa. A graduate of Princeton university, 1889, he entered its Theological seminary the following year, but before completing his studies was named to the secretaryship of the Presbyterian Board of Foreign Missions. He held that post until his retirement in 1937 after which he devoted his remaining years to writing.

Although a layman, he rose to top position in the church—that of moderator—in 1927 and was a leading authority on foreign missions. He travelled to posts in the near east and the Orient and spent three years in South America.

Dr. Speer was the author of *Missions and Modern History* (1904), *Christianity and the Nations* (1910) and *Race and Race Relations* (1924). He died in Bryn Mawr, Pa.

Spencer, John Oakley (1858?–May 24), U.S. educator.

Spilsbury, Sir Bernard Henry (1877–Dec. 17), British pathologist, was educated at Manchester grammar school and Magdalen college, Oxford; he received his medical training at St. Mary's hospital, London, and after qualifying in 1905 became a research worker under Sir Almroth Wright. Lectureships held by him included those in morbid anatomy and histology at St. Bartholomew's hospital, London, and in medicine and toxicology in the London School of Medicine for Women and University College Hospital Medical school, London. He was knighted in 1923.

Spilsbury's contributions to the solution of crime by scientific methods gained him a world-wide reputation; his first important appearance as a scientific witness for the crown took place in 1910, when his examination of evidence played a vital part in the notorious Dr. Hawley Crippen case. In 1922 the new office of pathologist to the home office was created for him and he figured prominently in many murder trials and other famous cases until the end of his life; in 1934, the year of his retirement, he became honorary pathologist. He was found dead in his laboratory in the department of pharmacology, University college, London.

Stanton, Charles Spelman (March 13, 1868–July 31), U.S. editor.
Starbuck, Edwin Diller (Feb. 20, 1866–Nov. 18), U.S. educator, author, philosopher.
Stein, Leo (1872?–July 29), U.S. author, art critic.
Stephen, Campbell (March 29, 1884–Oct. 24), British Labourite M.P.
Stephenson, Sir Henry Kenyon (Aug. 16, 1865–Sept. 20), British industrialist, educator, politician.
Stewart, Robert Wright (March 11, 1866–Feb. 24), U.S. corporation executive, industrialist.
Stoddard, Henry Luther (Oct. 7, 1861–Dec. 13), U.S. journalist.
Stone, Julius Frederick, Sr. (June 1, 1855–July 25), U.S. manufacturer.
Stradbroke, George Edward John Mowbray Rous, 3RD EARL OF (Nov. 19, 1862–Dec. 19), British army officer.

Street, Julian (April 12, 1879–Feb. 19). U.S. novelist, essayist and gastronomical authority, was born in Chicago, Ill. Educated at Ridley college, St. Catharines, Ont., Canada, he joined the staff of the *New York Mail and Express* in 1899 and was the paper's dramatic editor, 1900–01. He went to Europe in 1902 and spent many years in France, shuttling between the Riviera and Paris. He became renowned as an authority on French cooking and wines. As several of his books were devoted to popularizing the French gastronomical arts, the French government bestowed upon him the Legion of Honour for his efforts in this direction. Street was elected to the National Institute of Arts and Letters in 1924 and the next year (1925), he was awarded an O. Henry Memorial prize of $500 for one of his short stories. He spent the latter years of his life in the United States and was a member of the board of directors of a wine importing firm. Among his works are *Abroad at Home* (1914), *Mysterious Japan* (1921), *Rita Coventry* (1922), *Where Paris Dines* (1929), *Wines* (1933), *Men, Machines and Morals* (1942) and, in collaboration with Booth Tarkington, *The Country Cousin*. Street died at his home in Lakeville, Conn.

Streeter, Edward Clark (1875?–June 17), U.S. medical authority, curator.
Stubbs, Sir Reginald Edward (Oct. 13, 1876–Dec. 7), British colonial officer.
Suardo, Count Giacomo (Aug. 25, 1883–May 19), Italian fascist politician.
Sullivan, Daniel Giles (1882–April 8), New Zealand commerce minister.

Sultan, Daniel Isom (Dec. 9, 1885–Jan. 14), U.S. army officer, was born in Oxford, Miss. After graduating from the United States military academy in 1907, he joined the army, spending most of his 40 years in service as an engineering officer. He served in the Philippines, 1916–17, where he helped to build the defenses at Corregidor. During most of World War I, he was stationed in Washington, but toward the close of the conflict was assigned to the A.E.F. general staff in France. After his return, he attended the Command and General Staff school and later served in Nicaragua where over a ten-year period (1921–31), he surveyed and inspected the route for a projected canal. During this time, he also was a member of the board of engineers for rivers and harbours at Washington, 1926–29, and in 1934 he was named engineer-commissioner for the District of Columbia.

At the start of World War II, Gen. Sultan was commander of the 38th division at Camp Shelby, Miss., later becoming chief of the 8th army corps. In Jan. 1944 he was named deputy commander under Gen. Joseph W. Stilwell in the China-Burma-India theatre of war. The following October, he was made commander in chief of the Burma-India theatre—one of two commands that had made up the former C.B.I. One of his chief contributions in that theatre was his speed-up of supplies to China by land, river and air transport.

Lt. Gen. Sultan (promoted Sept. 1944), was made inspector general of the army after his return to the United States in 1945. He died in Washington, D.C.

Summerlin, George Thomas (Nov. 11, 1872–July 1), U.S. diplomat.
Surles, Alexander Day (Aug. 14, 1886–Dec. 6), U.S. army officer.
Sussman, Otto (Jan. 31, 1879–Feb. 3), U.S. mining executive.
Sutton, Sir George Augustus (Sept. 21, 1869–Nov. 7), British newspaper executive.
Tai Hsu (1889–March 17), Chinese Buddhist leader.
Talbot, Benjamin (1864–Dec. 16), British inventor.

Tanguay, Eva (1878–Jan. 11), U.S. vaudeville and musical comedy star, who was born in Marbleton, Que., Canada, went to the U.S. with her parents at an early age. An expressive child, she showed a talent for acting and obtained her first footlight role at the age of eight in *Little Lord Fauntleroy*. She later went "through the mill," acting in variety, stock troupes and musical comedies and by the time she was 20, she was regarded as a finished comedienne. At the turn of the century, Miss Tanguay shocked Victorian audiences with her daring costume—or lack of costume—and her risqué songs, and by 1910 she was an established and popular star on Broadway. Her earnings were phenomenal but she lost her fortune during the stock market crash of 1929. Simultaneously her health and vision failed, bringing her career to an abrupt end. She spent the last two decades of her life a virtual recluse, bed-ridden and mostly forgotten. She died at her Hollywood, Calif., cottage.

Tate, Mavis Constance (1893?–June 5), British M.P.
Taussig, Joseph Knefler (Aug. 30, 1877–Oct. 29), U.S. naval officer.
Taverner, Percy A. (1876?–May 9), Canadian ornithologist.

Tello, Julio César (April 11, 1880–June 4), Peruvian scientist, was born in Huarochiri, Peru. He received his doctor of medicine degree from the University of San Marcos in Lima in 1909, a master of arts degree in 1911 from Harvard, and a doctor of science degree from San Marcos in 1918 and then studied at the University of Berlin.

Dr. Tello, who was a professor of anthropology successively at the University of San Marcos and the Catholic University of Lima, was also editor of the review *Inca*, official organ of the archaeological museum of the University of San Marcos. He was director of the Peruvian Archaeological museum, honorary curator of Andean archaeology at Harvard university and a fellow of the Royal Anthropological institute of London.

Internationally known for his studies and discoveries of prehistoric Andean civilization, Dr. Tello was co-leader of a scientific expedition to the Pisco region of Peru in 1925. During its trip to the Paracas peninsula, the expedition found evidences of a civilization existing in Peru at least 1,000 years before Christ.

Representative for Peru to many international scientific congresses, Dr. Tello was a recognized authority on Peruvian history. Among his works are *Introducción a la historia antigua del Perú* (1921) and *Antiguo Perú* (1929). He died in Lima.

Thaw, Harry Kendall (Feb. 11, 1871–Feb. 22), U.S. millionaire.
Thomas, Albert Ellsworth (Sept. 16, 1872–June 18), U.S. author.
Thomas, Cecil Vincent (Sept. 17, 1892–Nov. 28), U.S. educator.
Thomas, William Isaac (Aug. 13, 1863–Dec. 5), U.S. sociologist.
Thomson, Robert Boyd (Sept. 16, 1870–July 31), Canadian botanist.
Thomson, Sir William (Dec. 31, 1856–Aug. 6), South African educator.
Thwaites, Sir William (June 9, 1868–June 22), British army officer.
Timmermans, Felix (1886–Jan. 24), Belgian writer.

Tiso, Josef (1887–April 18), Slovakian politician and ecclesiast, became a Catholic priest in 1909, joined the Slovak autonomy movement after World War I and became one of the leading figures in the profascist Hlinka guard.

When the Prague government granted autonomy to the Slovaks after the Munich pact in the fall of 1938, Father Tiso was made prime minister of Slovakia. Ousted from this post on March 10, 1939, he was reinstated within a fortnight by the Germans.

After the reich severed Slovakia from the body politic of Czechoslovakia and gave it complete independence, Tiso was elected first president of the new state, Oct. 26, 1939.

During World War II, he allied Slovakia with Germany, instituted repressive measures against left-wing and liberal elements among both Czechs and Slovaks and ordered Slovak troops to help Germans in quelling the partisan uprising in the spring of 1944.

Arrested by U.S. 3rd army troops on May 21, 1945, he was turned over to the reconstituted Czechoslovak government which ordered his imprisonment to await trial as a traitor.

After a long trial, which opened in Bratislava Dec. 2, 1946, Tiso was found guilty of: conspiring against the Czechoslovak republic, suppressing democratic freedom and establishing a fascist dictatorship, warring against Poland and the soviet union and committing war crimes. He was sentenced to death.

In its 215-page verdict, the national court made a clear distinction between Tiso's political and religious activities and made no statements involving the church in his guilt.

He was hanged in the Bratislava jail.

Todorov, Kosta (Konstantin) (July 13, 1889–March 17?), Bulgarian diplomatist, writer.

Toler, Sidney (April 28, 1874–Feb. 12), U.S. actor.

Towns, Charles B. (1861?–Feb. 20), U.S. authority on drug addiction.

Treadway, Allen Towner (Sept. 16, 1867–Feb. 16), U.S. politician.

Treadwell, Aaron Louis (Dec. 23, 1866–June 24), U.S. biologist, educator.

Trip, Leonardus Jacobus Anthonius (1876–March 5), Netherlands banker.

Trocchi, Tito (May 1, 1864–Feb. 12), Italian papal diplomat.

Truman, Martha Ellen (Nov. 25, 1852–July 26), mother of Harry S. Truman, 33rd president of the United States, was born on the Parrish farm, the site of which is now part of Kansas City, Mo. She was the daughter of Solomon Young, a freighter who ran emigrant trains along the Overland trail.

In 1863 Solomon Young and his entire family were exiled by Jayhawkers from their homestead because of their Confederate sympathies and sent to the Platte country. A year after the end of the Civil War, the Youngs were permitted to return to their farm.

Solomon Young became a wealthy freighter during the reconstruction era and Martha therefore was spared many of the hardships associated with the life of western frontierswomen. She was an excellent horsewoman and a good dancer and attended the Baptist College for Women in Lexington, Ky. She married John Anderson Truman on Dec. 28, 1881, and went with her husband to Lamar, Mo., where he became a stock trader and ran a large farm.

Her son, Harry, was born on the Lamar farm. She had two other children, a son, J. Vivian, and a daughter, Mary Jane. The children were deeply attached to their mother and it was said that Harry Truman, when beset by difficulties during his political career, often sought and abided by her counsel.

She took a critical view of his acceptance of the vice-presidential nomination in 1944, complaining that it was a shame that he was abandoning his job as senator when he was doing so well at it.

After he succeeded to the presidency in 1945, Mrs. Truman was quoted as saying: "I never wished for Harry to be president some day as all American mothers are supposed to do. I never even thought he might be considered for vice-president."

Mrs. Truman held positive convictions which she would utter frankly at interviews. After President Truman was sworn in, his mother visited the White House. It was reported that when her son offered to let her sleep in Abraham Lincoln's bed, she exclaimed: "I wouldn't sleep in the bed that that man used."

Mrs. Truman never fully recovered from the effects of a fractured hip that she suffered during a fall in her home in Feb. 1947. Although the casts had been removed by May, her condition became worse and she died at her home in Grandview, Mo., as the president was flying to her bedside.

Tully, James (Jim) (June 3, 1891–June 22), U.S. author, was born on June 3 near St. Marys, O., one of six children. Orphaned in his childhood, he lived in an asylum until he was 11 and spent the next seven years as a farmhand. At the age of 18, Tully took to hoboing. In the next decade he was successively a prize fighter, circus roustabout, tree surgeon and general handyman at any job that would pay the price of a meal.

Despite his lack of formal schooling, he read voraciously, became self-educated, wrote verse, some of which was published when he was 20, and worked as a reporter for an Akron newspaper. His first novel, *Emmett Lawler* (1922), was well received by critics. In this and in succeeding books, Tully established a reputation as one of the minor leaders of the realistic school, better than most but not quite measuring up to the so-called "giants of the age"—Theodore Dreiser, Ernest Hemingway, John Steinbeck and James Farrell.

His principal failing, according to critics, was his lack of subtlety. Nevertheless, by the close of the twenties, Tully was an established novelist and a prosperous scenario writer. His books made money but were not attuned to the new stream of political and social developments ushered in by the New Deal era and his works were virtually ignored by the incoming younger generations. Making his home in Hollywood in the later years of his life, he was somewhat of a celebrity in the film capital and his truculent but always trenchant comments on the state of the country and the literary world, as well as his propensity for mauling Hollywood actors, made good newspaper copy.

Among his works are *Beggars of Life* (1924), *Circus Parade* (1927), *Shadows of Men* (1929), *Blood on the Moon* (1931), *Men in the Rough* (1933), *A Hollywood Decameron* (1937), *Children of Thieves* (1939), *Men I Remember* (1940), *Biddy Brogan's Boy* (1941), *A Dozen and One* (1942) and *Rave Lafferty* (1943).

He died in Hollywood, Calif.

Turbay, Gabriel (1901–Nov. 17), Colombian diplomat.

Tygel, Zelig (July 30, 1890–March 12), U.S. Yiddish writer.

Tyrrell, William George Tyrrell, 1ST BARON (Aug. 17, 1866–March 14), British diplomatist.

Underwood, Elmer (1860?–Aug. 17), U.S. photographer.

Vacaresco, Helene (1866–Feb. 17), Rumanian writer.

Valentin, R. J. M. Veit (1885–Jan. 12), German historian.

Van Boeijen, Hendrik (May 23, 1889–March 30), Netherlands politician.

Vanderpool, Frederick William (May 8, 1877–Feb. 14), U.S. composer.

Vannest, Charles Garrett (June 7, 1880–May 23), U.S. author, educator, historian.

Varenne, Alexandre (? –Feb. 16), French politician, diplomat.

Velloso, Pedro Leão (Jan. 13, 1887–Jan. 16), Brazilian diplomat.

Victor Emanuel III (Nov. 11, 1869–Dec. 28), king of Italy 1900-1946, was born at Naples, the son of King Humbert I and Margherita of Savoy-Genoa. He ascended the throne of Italy on Aug. 9 and 11, 1900, after the assassination of King Humbert. See *Encyclopædia Britannica*.

After the coming to power of fascism in 1922, King Victor Emanuel was overshadowed by Benito Mussolini, the duce. It was not until July 25, 1943, that the king broke away from this subjection when, after a vote of no confidence, moved by Count Dino Grandi, was passed in the fascist grand council against Mussolini, the king dismissed Mussolini and had him arrested. He appointed Marshal Pietro Badoglio as prime minister in his place. Negotiations were opened secretly with the Allies, and the signing of an armistice on Sept. 3 was publicly announced on Sept. 8. On the same day the king fled by car from Rome, just as the Germans were entering the city, to reach southern Italy under the protection of the Allied armies.

His reign came to an end on June 5, 1944, the day after the liberation of Rome, when he transferred his royal powers to his son Prince Humbert as lieutenant governor of the realm; but he retained the title of king of Italy until May 9, 1946, when he formally abdicated, three weeks before a referendum which turned Italy into a republic. His exile was spent in Egypt, and it was in a suburb at Alexandria that he died from congestion of the lungs.

Villeneuve, Jean-Marie Rodrigue, CARDINAL (Nov. 2. 1883–Jan. 17), Canadian prelate, was born at Sacré-Coeur de Montreal, Que., the son of a French-Canadian shoemaker. Studying for the priesthood, he was ordained in 1907 at the age of 23—the earliest age under which ordainment is permissible under Catholic canon law. He taught morals, philosophy, liturgy and canon law at the University of Ottawa, at which institution he served as professor of philosophy from 1907 to 1913 and of theology from 1913 to 1920.

In 1930 Mgr. Villeneuve was named bishop of Gravelbourg in Saskatchewan, and the following year he became archbishop of Quebec. Two years later (1933) he was elected to the College of Cardinals.

Soon becoming a power in Canadian politics because of his role as the spiritual leader of the country's more than 5,000,000 Catholics, he served on several occasions as mediator in labour-management disputes. More frequently, he took a leading role in pressing anticommunist activities in Quebec; he was also a stanch foe of the Social Credit movement. The cardinal was strongly opposed to "absolute freedom of the press" insofar as that concept furnished "revolutionaries" with an opportunity to air their ideas. He also objected to woman suffrage on grounds that it would destroy family life and paternal authority.

Mgr. Villeneuve was a noninterventionist before World War II, but after Canada's entry into the conflict, he changed his stand, urging French Canadians to enlist in the armed forces and register for the draft. He died in Alhambra, Calif.

Volpi di Misurata, Count Giuseppe (Nov. 19, 1877–Nov. 16), Italian industrialist and politician, was born in Venice, Italy. For his early career, see *Encyclopædia Britannica*. One of Italy's wealthiest prewar industrialists and financiers, Count Volpi was a member of the Italian senate, a one-time minister of finance and president of the fascist chamber of manufacturers under Mussolini.

Volpi left the government in 1928 to attend to his private fortunes and the following year he helped organize the European Electric corporation, a combine of U.S., Swiss and Italian interests.

Shortly after the Axis conquest of Yugoslavia in 1941, Volpi served Mussolini as president of the Italian-Croatian economic mission. His enthusiasm for Mussolini waned, however, under successive Allied military triumphs and in the spring of 1943, he was suspected of plotting with Italian industrialists to break with Hitler and conclude a separate peace. When these rumours reached the ears of Mussolini, the duce ousted Volpi from the chamber of manufacturers. Volpi fled to Switzerland where he lived until a week before his death. He returned to Rome to enter a nursing home and died there.

Volstead, Andrew J. (1860–Jan. 20), U.S. politician and lawyer, was born in Goodhue county, Minn. Educated at St. Olaf's college and Decorah institute, he was admitted to the bar in 1884. He practised law in Granite Falls, Minn., where he was, at one time, president of the board of education, town attorney and mayor. Volstead was Republican representative to congress from Minnesota from 1903 to 1923. An unobtrusive back-bencher, he was catapulted into the national limelight as the author of the Volstead prohibition act, which was passed over a presidential veto in Oct. 1919 and became the 18th amendment to the constitution. (It was repealed in 1933.) He lost his campaign for re-election to the house in 1922 and after expiration of his term returned to private practice in Granite Falls where he died. (See *Encyclopædia Britannica*.)

Walker, Meriwether Lewis (Sept. 30, 1869–July 29), U.S. army officer.

Wall, Frank Jerome (May 8, 1886–Nov. 18), U.S. railway executive.

Walsh, Arthur (Feb. 26, 1896–Dec. 13), U.S. politician.

Walsh, David Ignatius (Nov. 11, 1872–June 11), U.S. politician, was born in Leominster, Mass. Graduated in 1893 from Holy Cross university with an A.B. degree and from Boston University Law school four years later, he entered politics and built up a following in the predominantly Irish Catholic areas of industrial Massachusetts. He served as lieutenant governor of the state in 1913 and as governor in 1914 and 1915. In 1918 he was elected to the United States senate. Although defeated by the Republican landslide of 1924, he was elected two years later to fill a two-year vacancy and was re-elected in 1928, 1934 and 1940. During the national elections of Nov. 1946, he was submerged in another Republican landslide, losing to Henry

Cabot Lodge, his Republican opponent, by about 325,000 votes.

During his first term, Walsh's senatorial opponents dubbed him "Ireland's senator" because of his vigorous support of the Irish independence movement. Later Walsh regarded himself as a progressive and friend of organized labour. While he supported Roosevelt during his first two terms, he frowned upon the third term and looked upon the fourth term with acute distaste. He favoured wage-and-hour legislation, but denounced the president's supreme court reorganization plan. A noninterventionist in the prewar years, Walsh battled the administration on foreign policy, lend-lease and trade of 50 over-age destroyers for British bases. He died in Boston, Mass.

Walsh, Edward J. (1877–March 22). U.S. clergyman, educator.
Warfield, William (Dec. 4, 1891–March 16), U.S. engineer, geologist.
Washburn, Ives (May 24, 1887–Feb. 5), U.S. publisher.
Watson, Hugh Hammond, (Nov. 10, 1885–May 24), U.S. consular official.
Watt, Robert J. (July 16, 1894–July 24), U.S. labour leader.
Wauchope, Sir Arthur Grenfell (March 1, 1874–Sept. 14), British army officer.
Weaver, Rufus Washington (June 3, 1870–Jan. 31), U.S. clergyman.
Webster, Benjamin (June 2, 1864–Feb. 26), British actor.
Weed, Clarence Moores (Oct. 5, 1864–July 18), U.S. naturalist, educator.
Weller, Ovington E. (Jan. 23, 1862–Jan. 5), U.S. politician.
Wells, Harry Edward (1874?–May 24), U.S. chemist, educator.
White, William Charles (Sept. 3, 1874–Aug. 11), U.S. tuberculosis authority.

Whitehead, Alfred North (Feb. 15, 1861–Dec. 30), British mathematician and philosopher, was born at Ramsgate, Kent, and was educated at Sherborne school and Trinity college, Cambridge, where he was elected a fellow in 1887 and in due course became senior mathematical lecturer. In 1903 he was elected a fellow of the Royal society. After he had been made lecturer in applied mathematics and mechanics at University college, London, in 1911, and later reader in geometry, he was appointed professor of applied mathematics at the Imperial College of Science, London, in 1914 and held the post until he accepted the chair of philosophy at Harvard university in 1924. This he held until 1937 and made the United States his home. He was president of the Mathematical association in 1915–16, and of Section A of the British association in 1916. In 1922 he was the first recipient of the James Scott prize of the Royal society of Edinburgh; in 1925 he was awarded the Royal society's Sylvester medal and in 1930 the Butler medal of Columbia university; he was elected a fellow of the British academy in 1931. In 1945 he received the Order of Merit.

Whitehead's main interest and most important work lay where the fields of mathematics, logic and philosophy converged. His first important work was *A Treatise on Universal Algebra* (1898). In collaboration with Bertrand (later Earl) Russell he published *Principia Mathematica* in three volumes (1910–13), an outstanding work in the history of logic and of mathematics. Among other works he published *The Principle of Relativity* (1922), giving an alternative interpretation to that of Albert Einstein, and worked out his philosophy in *Science and the Modern World* (1926), *Process and Reality* (1929), *Adventures of Ideas* (1933), extending it in *Religion in the Making* (1926), *Nature and Life* (1934) and *Modes of Thought* (1938). His philosophical thought was remarkable and important for its reconciliation of metaphysics with science. He died at Cambridge, Mass.

Whitfield, Arthur (Oct. 13. 1868–Jan. 31), British dermatologist, educator.
Whitman, Charles Seymour (Aug. 28, 1868–March 29), U.S. lawyer, politician.
Whitmore, Frank Clifford (Oct. 1, 1887–June 24), U.S. educator, scientist.
Wickenden, William Elgin (Dec. 24, 1882–Sept. 1), U.S. educator.

Wilkinson, Ellen Cicely (1891–Feb. 6), British politician, was the daughter of a Manchester cotton operative, and worked her way by scholarships to Manchester university, where she took an M.A. degree. She became a schoolteacher, but soon took to political journalism, joining the Independent Labour party in 1912. In 1913 she became an organizer of the National Union of Women's Suffrage Societies and later of the workers in the distributive and allied trades. During World War I she endorsed the pacifist attitude of the Independent Labour party. She joined the Communist party on its formation in Britain in 1920, went to Moscow in 1921 and in 1923 was elected a Communist member of Manchester city council. She had left the Communist party when, in 1924, she was first elected to parliament as a Labour member for the Middlesborough East constituency, which she held until 1931. She returned to parliament in 1935 as Labour member for Jarrow. In 1936 she headed the Jarrow unemployed in their hunger march to London. During World War II she joined Winston Churchill's government as parliamentary secretary, first to the ministry of pensions and later to the ministry of home security. In the latter capacity, she did much to develop and improve air raid protection and the fire-watching organization. In Clement Attlee's Labour government, she became minister of education. She was not only an able debater in the commons, but also proved a capable administrator. She even achieved success as a legislator, in securing, in 1938 as a private member, the passage of a useful act to curb abuses in hire-purchase sales contracts.

Willard, Frederic Wilson (April 16, 1881–Aug. 11), U.S. metallurgist.
Williams, Clement Clarence (Feb. 21, 1882–Feb. 20), U.S. educator, engineer.
Williams, Sir John Fischer (Feb. 26, 1870–May 17), British jurist.
Willshire, Sir Gerard (Arthur) Maxwell- (Aug. 21, 1892–April 1) British actor.
Wilson, Carroll Atwood (May 12, 1886–June 27), U.S. Lawyer, industrialist.

Wilson, James (Jimmy) (July 23, 1900–June 1), U.S. baseball player and manager, was born in Philadelphia, Pa. He joined the Philadelphia Phillies baseball team in 1923 as a catcher and played with the team until 1928 when he was traded to the St. Louis Cardinals. He returned to Philadelphia as a manager in 1934 and went to Cincinnati as a player-coach five years later (1939). The hero of the 1939 world series in which the Cincinnati Reds beat the Detroit Tigers, Wilson was given, on the strength of this performance, the job of managing the Chicago Cubs in late 1940.

As his record with the Chicago team was only mediocre, he was retired in May 1944, and he returned to Cincinnati as coach. Later he entered the citrus produce business in Florida.

He died in Bradenton, Fla.

Wilson, Lachlan Chisholm (July 11, 1871–April 9), Australian army officer.

Winant, John Gilbert (Feb. 23, 1889–Nov. 3), U.S. diplomatist and government official, was born in New York city. He studied history at Princeton under Woodrow Wilson and after graduating from the university, he became a teacher at a prep school in Concord, N.H.

In 1917, Winant was elected to the New Hampshire house of representatives, but upon entry of the U.S. into World War I, he left the legislature to join the army. In 1921, he was elected to the state senate and two years later, he was returned to the state lower house. In 1925, Winant was elected governor of the state. His tenure ended in 1926, but he was elected again in 1931, and held office for two consecutive terms.

During the second period of his governorship, Winant acted with marked vigour to neutralize the effects of the depression. His administration introduced old-age benefits, minimum wages and emergency relief and was especially active in taking measures to prevent farm and home foreclosures.

In 1935, Pres. Franklin D. Roosevelt appointed the liberal New England Republican to head and organize the newly-created Social Security board. Later Winant became assistant director and then director of the International Labour Office.

In 1941, Roosevelt named Winant as U.S. ambassador to Great Britain, a position that Winant held throughout World War II. Pres. Harry S. Truman in Jan. 1946 appointed him to the additional post of U.S. representative on the U.N. Economic and Social council. Winant later relinquished his ambassadorial post to devote all of his time to his U.N. duties.

An account of his tenure as ambassador and an evaluation of the United Nations was contained in his work, *Letter from Grosvenor Square*, which appeared about 15 days after Mr. Winant shot and killed himself in his home at Concord, N.H.

Winship, Blanton (Nov. 23, 1869–Oct. 9), U.S. army officer.
Wissler, Clark (Sept. 18, 1870–Aug. 25), U.S. anthropologist.
Wood, John Wilson (Aug. 4, 1866–Aug. 7), U.S. missionary.
Woodruff, Lorande Loss (July 14, 1879–June 23), U.S. biologist, educator.

Woolley, Mary Emma (July 13, 1863–Sept. 5), U.S. educator, was born at South Norwalk, Conn. Educated at Brown university—the first woman to receive an A.B. degree there (1894)—she joined the Wellesley college faculty in 1895, becoming head of the department of biblical history and literature four years later; in 1900, Miss Woolley was made president of Mt. Holyoke college, a post she held until her retirement 37 years later.

An energetic and militant pacifist, Miss Woolley was appointed by Pres. Herbert Hoover as one of the U.S. delegates to the Geneva Disarmament conference in 1932. At the time she declared: "Women rush in where diplomats fear to tread and do a lot to make this world a better place to live in." She was reappointed to the Geneva post by Pres. Franklin D. Roosevelt in 1933.

Miss Woolley wrote a number of books, including *Early History of the Colonial Post Office* (1894) and *Internationalism and Disarmament* (1935), and she was co-author of *A Hundred Years of Mt. Holyoke College* (1940). She died at Westport, N.Y.

Woolworth, Charles Sumner (Aug. 1, 1856–Jan. 7), U.S. merchant, was born in Rodman, N.Y. When his brother, Frank W. Woolworth, first conceived the idea for a "five-and-ten-cent" store, the two went into business in Lancaster, Pa., where Charles Woolworth became manager of the first such establishment to bear the Woolworth name. The venture did not fare well and the brothers moved to Scranton, where in 1881 they established another store on a partnership basis. Charles Woolworth bought out his brother's interests and branched out with a chain of stores in New York, Pennsylvania and Maine. In 1912, his company and several other chain businesses, with a total of nearly 600 stores, were incorporated in New York as the F. W. Woolworth Co., with Frank Woolworth as president and Charles as vice-president. The latter succeeded to the presidency after his brother's death in 1919, and expanded the Woolworth chain to approximately 2,000 stores across the country and in Canada and Cuba. At the time of his death he was honorary chairman of the board of directors; he had retired as board chairman in 1944. Woolworth died in Scranton, Pa.

Worcester, David (1908?–June 20?), U.S. educator.

Wright, Sir Almroth Edward (Aug. 10, 1861–April 30), British bacteriologist, studied at Trinity college, Dublin, where he took his degree in 1882. His main field of study was then modern literature. He later turned to law, but having accepted a medical travelling prize from Dublin university, he studied medicine at Leipzig, Strasbourg and Marburg and took his M.B., B.Ch. and M.D. in Dublin in the 1880s. He became a demonstrator of pathology at Cambridge university in 1887, and went to Sydney university as professor of pathology in 1889. After his return to England in 1892, he became professor of pathology at the army medical school at Netley, a post he held for ten years. During this period, he started the study of antityphoid vaccines and together with Surgeon Major D. Semple, began a series of successful inoculations against typhoid. Despite opposition from professional quarters his method of immunization was tested on a large scale during the South African war when among the troops inoculated the typhoid rate was less than one-sixth of that recorded among troops not so inoculated. Further tests in India proved conclusive, the typhoid and mortality rates among unprotected troops being about 11 to 12 times higher than among those inoculated. In 1902 Wright became pathologist at St. Mary's hospital, London, and later directed its institute of pathology and research. He was also appointed professor of pathology at London university. During World War I, he was consulting physician to the British forces and co-operated with the Belgian and French army medical services in practically stamping out typhoid fever in the Allied armies. At St. Mary's, Sir Alexander Fleming, the discoverer of penicillin, was one of Wright's outstanding pupils. Wright held many distinctions and honorary degrees, both British and foreign. Apart from numerous scientific papers, he was the author of a sharp attack on female suffrage published in 1913 under the title *The Unexpurgated Case against Woman Suffrage.* (*See* also *Encyclopædia Britannica.*)

Wright, Arthur Davis (March 24, 1885–May 10), U.S. educator.
Wright, James Harris (Feb. 21, 1907–Sept. 28), U.S. foreign service officer.
Yaw, Ellen Beach (Sept. 18, 1869–Sept. 10), U.S. concert singer.
Zeligowski, Lucien (1865?–July 10?), Polish army officer.
Zivkovitch, Petar (1879–Feb. 3), Yugoslav politician, army officer.

Obstetrics: *see* GYNAECOLOGY AND OBSTETRICS.

Occupational Therapy for the Wounded: *see* MEDICAL REHABILITATION OF DISABLED VETERANS.

Occupied Areas, Administration of.

In military-occupied areas, the year 1947 was marked by a gradual transition from concern with ordinary control matters to a consideration of factors affecting long-range plans for the future of Germany and Japan. In Austria and Korea, the United States government endeavoured unsuccessfully to reach an agreement for withdrawal of all occupation forces in compliance with previous pledges to the government and people of liberated countries. The military occupation of the Venezia Giulia area of Italy all but came to an end, with only a small detachment of about 2,500 U.S. army specialists remaining on the Italian mainland and in the international city of Trieste.

Lack of agreement on a peace treaty for Germany as well as failure to agree on a date for the withdrawal of troops from Austria and Korea reflected the larger area of disagreement between the United States and the Union of Soviet Socialist Republics which dominated nearly all developments in foreign affairs during the year. Nowhere was the sharp conflict between U.S. and Russian interests more pronounced than in the occupied areas, where unity at the top diplomatic and military levels was an indispensable prerequisite for successful implementation of immediate and long-range policies.

Failure to reach an agreement with the Soviet Union on economic unification of Germany, as provided by the Potsdam pact of 1945, led the United States and Great Britain to effect an economic merger of their zones, effective Jan. 1, 1947.

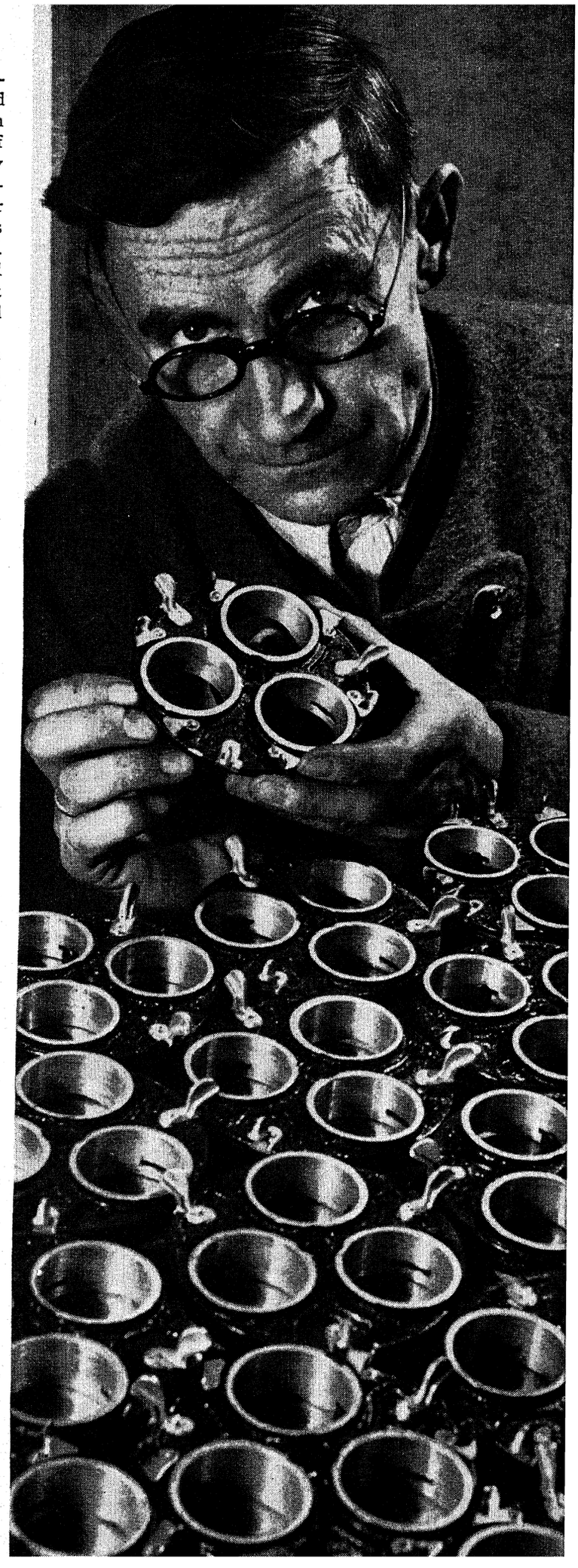
No progress was made, however, toward the treatment of all Germany as an economic unit. In Japan, occupation was confined almost exclusively to U.S. troops, with administrative authority vested in the Supreme Commander for the Allied Powers (S.C.A.P.) and policy-making responsibility in the Far Eastern commission (F.E.C.). Korea remained divided at the 49th parallel of latitude, with soviet troops in the north and U.S. army personnel in the south. Austria continued under quadripartite occupation by U.S., Russian, British and French troops, although the country was treated as a single entity with a popularly elected government.

Two meetings of foreign ministers, convened to deal specifically with German and Austrian affairs, were held during the year. The first, at Moscow from March 10 to April 24, ended in almost complete disagreement. The second began in London on Nov. 24, and ended Dec. 15 with no further progress. Efforts initiated by the United States in 1947 for a Japanese peace treaty conference were thwarted by disagreements among the powers as to membership in the conference and voting procedure. No peace treaty was required for Korea, but a decision on the simultaneous withdrawal of troops from that country was pending in the United Nations.

Swift progress was made in both Germany and Japan in the prosecution of top-ranking war leaders. American prosecutors, singly and often in combination with representatives of other occupying powers, pressed their cases against German and Japanese war lords.

The United States government continued its policy of returning to German, Japanese, Austrian and Korean hands the fullest measure of control over their own affairs consistent with the safety and security of the Allied Powers. Accordingly, the year saw broad expansion of local administrative power in all occupied areas.

Operating under an appropriation of $600,000,000 for the 1948 fiscal year (July 1, 1947–June 30, 1948),—supplemented by a deficiency appropriation of $340,000,000—the state de-



GERMAN CAMERA MANUFACTURER, whose output was blocked in 1947 for lack of lenses from the Russian zone Zeiss works while his turrets (above) accumulated awaiting freer zonal trade movement

partment and the army were able to assure a modest standard of living only with the assistance of foreign relief funds. Food and housing conditions in Germany ranged from adequate in the rural areas to poor in the bombed-out urban developments. The U.S. zone of Austria, poor in indigenous food sources, was sustained only by foreign relief from the United States and the United Nations Relief and Rehabilitation administration, which was discontinued. The civilian population of Japan was not able to attain an adequate standard of living from its own resources. In Korea, a serious food shortage existed, requiring emergency assistance from the United States.

A brief analysis of the progress in U.S. administration of each occupied territory during 1947 follows.[1]

Germany.—From the beginning of the occupation, United States authorities had recognized the importance of re-education of the German people to the ways of democracy. This was particularly true as regards German youth, who had been subjected to nazi propaganda after 1933. In the absence of four-power agreement, the United States government undertook in 1947 a broad expansion of opportunities for Germans in culture, education and public information.

The extension of educational opportunities was limited in 1947 by the shortage of teachers as well as school textbooks. The closing of the U.N.R.R.A. university at Munich was also harmful. However, at a meeting of the Laenderrat Committee of Culture and Politics, it was agreed that universities throughout the zone would accept equitable portions of the former U.N.R.R.A. student body. For adults, the chief medium for mass education was the *Volkshochschule,* which opened branch schools in many sectors of the zone, thus permitting Germans by the thousands to learn the democratic processes familiar to Americans.

In the United States zone, 18 universities and their academic equivalents provided higher education for 45,000 German students during 1947. A total of 1,482 secondary and vocational schools were attended by 525,000 students.

The United States also set up youth centres in all large cities of its zone in an attempt to encourage German youngsters to join in organized recreation. Competitive sports continued to be a favourite youth outlet. In Hesse, a two-week track and field meet, the largest since World War II, attracted more than 2,500 athletes.

In addition, several international youth meetings were held with a view to decreasing the isolation of German youth. Two world-wide conferences were attended by delegates from German youth groups. The first, the World Christian Youth conference in Oslo, was attended by 15 official delegates from all 4 zones of Germany. The second, a Socialist Youth conference in Denmark, was attended by seven members of Die Falken, a Hesse group.

The year was marked by a return of many newspapers and magazines to German control and the licensing of several additional publications. As of Aug. 31, 48 German-language newspapers were licensed in the U.S. occupied areas. Military government officials reiterated continuously throughout the year the policy that German editors would be responsible for the contents of their newspapers. In keeping with this policy military government revoked the publishing license of three German newspapers, mainly because their actions and policies were not in keeping with the mission of U.S. military government. These newspapers were the *Frankfurter Neue Presse* and the *Frankfurter Rundschau,* both of Frankfurt, and the *Nordsee Zeitung* of Bremerhaven. The United States government continued to translate books and periodicals for dissemination in Germany. The total number of book and pamphlet titles published from May 8, 1945, to Aug. 31, 1947, was 3,894; the number of available current periodicals rose to 315 at the end of 1947.

In August, arrangements were completed for the exchange of programs and personnel between Swiss radio stations and the U.S.-controlled stations. These arrangements, initiating resumption of international cultural relations in accordance with the July directive, also included provisions for German radio correspondents to cover special assignments in Switzerland and Swiss correspondents to reciprocate on assignments in Germany.

As of Aug. 31, a total of 425 performances of music by 50 U.S. composers had been presented throughout Germany. Of this total, 311 performances were presented in the United States zone. The number of theatres in the United States zone rose during 1947 to 1,050, with a total seating capacity of approximately 380,000.

In October, the U.S. military governor announced a new information drive would be put into effect in the U.S. zone aimed at countering soviet propaganda.

In a step intended to further the democratic reorientation of the German people, the United States government on March 31 announced a policy permitting the exchange of certain categories of persons between the United States and Germany. The arrangement of projects and the selection of individuals in accordance with this policy was made to include specific needs in the fields of education and religion and in fields important to formulation of public opinion.

Japan.—On March 27 a policy decision of the Far Eastern commission for revision of the Japanese educational system stated that "special emphasis should be placed on the teaching of the sanctity of the pledged word in all human relations," and advised that the revision of the system should be primarily the responsibility of the Japanese themselves. The policy statement outlawed teaching of state Shintoism and placed the lessons of democracy as the objective of the new system.

In 1947, approximately 19,000,000 students attended about 40,000 schools of all levels. More than 500,000 teachers were gradually learning to make the adjustment from the authoritative methods of classroom management to the democratic process of teaching. New editions of textbooks were printed. A nation-wide program of screening all educational personnel was set up by the Japanese government under supervision of S.C.A.P. and F.E.C.

The School Education law passed by the diet on March 27 provided for the extension of compulsory, free education on a step-by-step basis from six to nine years for all Japanese children. It was planned to make the eighth year compulsory starting in 1948 and the ninth year as soon as practicable from the standpoint of availability of schoolrooms, teachers and funds.

The S.C.A.P. directives of 1946 calling for removal of restrictions on religious freedom were implemented during 1947 with transfer to shrines and temples of title to state-owned lands for religious purposes. The number of Christian church members was estimated at about 500,000, but the number of Christian sympathizers rose to an estimated 2,000,000.

The large task of freeing all media of public information from national government domination and restriction continued throughout 1947. Professional, civic and governmental agencies were encouraged by S.C.A.P. to work out co-ordinated and continuing information programs.

The number of daily newspapers increased from 53 at the close of World War II to 155 on Aug. 31. About 2,000 newspapers and journals of tabloid format—including dailies, semi-weeklies, weeklies—were published.

[1]The sections which follow deal only with social and educational phases of the history of occupied territories in 1947. For political and economic developments, *see* AUSTRIA; GERMANY; JAPAN; KOREA. *See* also FOREIGN MINISTERS' CONFERENCES; PEACE TREATIES; PRISONERS OF WAR; REFUGEES; WAR CRIMES.

Continued technical and programming assistance was given the Broadcasting Corporation of Japan, and a number of new programs patterned on U.S. techniques were instituted. Mobile projection units continued to exhibit educational films to weekly audiences averaging 179,000 people, a fivefold increase over the average weekly audience during 1946. The S.C.A.P. Information library in Tokyo continued to make available to Japanese readers 3,000 reference books, 10,000 pamphlets, 500 current periodicals and 17 newspapers, all in English.

During 1947 the incidence of communicable diseases had, in many cases, been reduced to the lowest level in Japanese history. Under occupational supervision, about 20,000 sanitary teams operated in the country, and 120,000 Japanese were leaders in urging community sanitation. Approximately 700 health centres were established in the country to handle public clinical cases.

The United Nations committee commented favourably on the effective control of narcotics in Japan.

Austria.—The task of re-educating the Austrian people to democracy was largely entrusted to the Austrian government, supervised by the United States representative on the Allied council. In addition, the United States government announced on March 31 a policy permitting the interchange of certain categories of persons between the United States and Austria. Under the policy a carefully selected group of Austrian specialists in educational, religious and cultural work was to be permitted entry into the United States for brief periods of observation and training. Similarly, U.S. personnel would be permitted to go to Austria to work with agencies and individuals in the aforementioned fields.

Previously, on March 16, the United States government had announced a policy on exchanges of cultural materials between the United States and Austria.

Korea.—One of the most important problems faced by administrators of Korea in 1947 was the incidence of disease. The inadequacies of public health services under the Japanese, the postwar disruption, floods and lack of trained personnel and medical equipment posed grave problems for occupation authorities. The U.S. and Korean officials, with limited facilities at their disposal, improved the general condition of the civilian population somewhat, but the incidence of many noncommunicable diseases such as malaria was still increasing as 1947 ended.

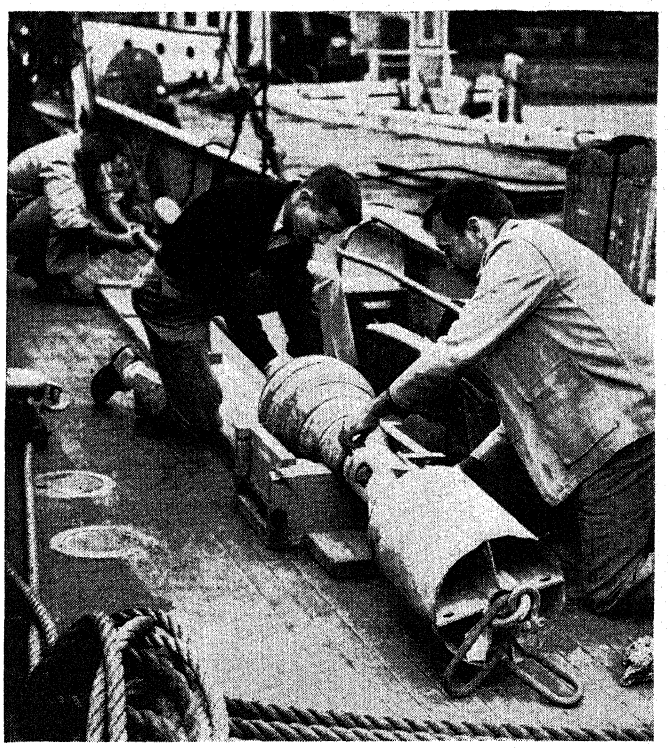
From the outset of military occupation, U.S. officials were confronted with the gigantic task of remodelling the entire Korean educational system, which had suffered seriously from Japanese control. It was estimated that only 25% to 30% of the Korean people were literate in 1945. Subsequently, U.S. military government broadened educational opportunities for Koreans, encouraged the study of Korean language and culture (forbidden under Japanese rule) and provided in-service training in various occupations.

In 1947 the military government continued its task of replacing Japanese language textbooks with those written in Korean. Maximum use was made of existing school facilities with the result that more Koreans were attending school than at any time in the history of the country. As a further step, the United States government created in Korea an education institute staffed by outstanding U.S. educational and vocational training specialists. This followed a survey in June by a five-man mission on the need for revamping the information and educational administration of Korea. Other recommendations of the mission were studied by the state department and the army.

(C. E. SN.)

Oceanography.

Several major oceanographic expeditions of 1947 had as their primary purpose studies of marine sediments and the geology of the ocean basins. Under the direction of Hans Pettersson, the Swedish auxiliary schooner "Albatross" collected extremely long cores of bottom sediments from the Mediterranean, the North Atlantic and the tropical Pacific.



"CORING TUBE" being assembled by members of a U.S. expedition to the mid-Atlantic ridge in 1947. On entering the ocean bed, the tube was filled with sediment from which scientists hoped to learn more of the geological history of the earth

An intensive study of the Gulf of Mexico was undertaken by the U.S. research vessel "Atlantis," which also carried out a geophysical reconnaissance of a section of the mid-Atlantic ridge, south of the Azores.

Interest in submarine geology had been greatly stimulated by development of new instruments. Recording sonic-sounding machines showed details of the bottom topography even from the greatest depths. Improvements in coring tubes made it possible to secure samples ten metres or more in length; since the rate of sedimentation is relatively slow in midocean, these samples reflected changes in conditions over several million years. Radioactive and magnetic means of dating the sediments were devised, while the study of the foraminifera contained in the cores revealed the marked changes in climate or of the depth of the water that may have occurred.

The fact that through radio navigational techniques the position of a vessel could now be accurately determined relative to shore stations as much as 1,500 mi. away greatly facilitated many types of oceanographic research. For the first time from a moving vessel it became possible to gain a good measure of the strength and direction of the surface currents. Frequent accurate fixes also greatly improved the usefulness of all sonic soundings and made it practical to observe the shapes of bottom structures such as submerged sea mounts and canyons. In Norway and France trials were in progress on the use of sonic instruments for locating fish.

(*See* also MARINE BIOLOGY.)

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och Vitterhetssamhälles Handlingar, Sjätte Följden, series B, vol. 5 (Gothenburg, Sweden). (C. O'D. I.)

Office of Education, U.S.: *see* EDUCATION; FEDERAL SECURITY AGENCY.

Office of Price Administration: *see* PRICE ADMINISTRATION, OFFICE OF.

Ohio. A north central state of the United States, popularly known as the "Buckeye state." It officially became a state of the union on Feb. 19, 1803. Area 41,222 sq.mi., including 100 sq.mi. of water; pop. (1940) 6,907,612, of whom 2,294,626 were rural and 4,612,986 urban; native white 6,047,265, foreign-born white 519,266, Negro 339,461, other races 1,620. Capital, Columbus (306,087). Other cities of more than 100,000 were Cleveland (878,336), Cincinnati (455,610), Toledo (282,349), Akron (244,791), Dayton (210,718), Youngstown (167,720) and Canton (108,401). In 1944 the bureau of the census estimated the population of the state at 6,836,667.

History.—Thomas J. Herbert, Republican of Cleveland, was inaugurated as the 56th governor of Ohio on Jan. 13, 1947. Other elected state officers were: lieutenant governor, Paul M. Herbert; secretary of state, Edward J. Hummel; treasurer, Don H. Ebright; attorney general, Hugh S. Jenkins.

The 97th Ohio general assembly met in regular session from Jan. 6 to June 30, 1947. In that period it enacted 245 new laws and approved submission to the electorate of three proposed amendments to the state constitution. Among the laws were those requiring co-operatives to pay the same corporation franchise tax as corporations for profit; allocating sales tax revenue to local government fund; permitting banks to close on Saturdays; authorizing municipalities to acquire property for parking lots; increasing pay of election officials; authorizing acceptance from the federal government of Fletcher General hospital at Cambridge as a state mental institution; extending jurisdiction of the state highway patrol; authorizing state subsidy to local pension systems and fixing pensions of policemen and firemen; increasing benefits under state teachers' retirement system; providing for county and township zoning of unincorporated areas; changing the automobile licence fee to a flat rate of $10.

At the general election Nov. 4, 1947, Ohio voters approved four amendments to the state constitution. One called for the payment of about $300,000,000 in bonuses to veterans of World War II. The others restricted the expenditure of gasoline and motor vehicle taxes to the construction of highways, increased the terms of probate judges from four to six years and increased the number of members on the State Sinking Fund commission.

A special session of the general assembly met Dec. 4 and 5 and enacted 12 measures requested by Gov. Herbert. The most important of these granted pay increases to state employees, transferred $20,000,000 to the soldiers' bonus fund, gave the welfare department an additional $6,000,000, authorized cities and counties to submit welfare and operating levies under a 60% vote requirement at either primary or general elections and corrected an error in the distribution of gasoline tax funds so the state highway department could use the funds for construction and maintenance of roads.

Education.—In 1947 Ohio had 3,400 elementary schools with an enrolment of 702,650 and a teaching staff of 22,001; 1,122 secondary schools, with an enrolment of 335,823 and a teaching staff of 15,154; 122 junior high schools, with an enrolment of 69,984 and a teaching staff of 2,594; 1,000 kindergarten classes, with an enrolment of 37,836 and a teaching staff of 658. Clyde Hissong was state director of education in 1947.

Ohio has six state universities: Ohio State university at Columbus, Ohio university at Athens, Kent State university at Kent, Miami university at Oxford, Bowling Green State university at Bowling Green and Wilberforce university at Wilberforce.

Social Insurance and Assistance, Public Welfare and Related Programs.—The average number of recipients of general relief in Ohio in 1947 was 19,076 and total relief granted was $9,378,256. The average number receiving aid for the aged was 121,506 and they received a total of $57,646,401; aid to dependent children, 9,274 cases, receiving a total of $7,360,829; aid to the blind, 3,243 cases, receiving a total of $1,407,039. Estimated weeks of unemployment compensated in 1947 were 2,374,000, and the benefit payments were estimated at $43,890,000.

Ohio has 22 mental hygiene institutions with an average daily population in 1947 of 30,165, 4 penal institutions with an average daily population of 7,699 and 2 industrial schools with an average daily population of 1,137.

The total cost of operating and maintaining the institutions under the department of public welfare in 1947 was $21,678,049. The director of the department was Charles L. Sherwood.

Communications.—Ohio had 87,021.57 mi. of highways in 1947 outside of municipalities. Of this total, 16,167.87 mi. were classified as state, 29,012.09 mi. as county and 41,841.61 mi. as township. Total state expenditures on highways in 1947 were $62,150,000. The director of the department of highways was Murray D. Shaffer.

The state had 8,400 mi. of railroads, 300 airports and landing fields, 4,115 mi. of airlines in operation within its boundaries and 2,112,000 telephones.

Banking and Finance.—There were 432 state and private banks in Ohio with deposits (Oct. 6, 1947) of $3,787,016,830 and resources of $4,067,280,409. There were 241 active national banks in the state with deposits (June 30, 1947) of $3,064,693,000 and resources of $3,292,653,000. State-chartered savings and loan associations numbered 498 with total resources (June 30, 1947) of $1,076,972,544. There were 127 federal savings and loan associations with total assets (estimated as of Dec. 31, 1947) of $560,500,000.

The state budget for the 1947–48 biennium was $687,341,606. Although state revenues reached an all-time high, the general assembly approved the expenditure of all those funds plus about $90,000,000 of the $100,000,000 surplus with which it began the year. A large portion of the money went for capital improvements. Sales tax revenue in 1947 went to a new record high of $129,288,000.

Agriculture.—The total harvested acreage of principal crops in Ohio in 1947 was 10,157,000; in 1946, 10,601,000. Total cash receipts from farm marketings in Ohio in the Jan.-Oct. 1947 period were $846,719,000 as compared with $669,386,000 in the same period of 1946. The 1947 marketing receipts consisted of $615,919,000 from livestock and products and $230,800,000 from crops.

As in much of the rest of the country, an excess of rainfall in the spring months delayed planting in Ohio with the result that a smaller number of acres were planted and the yield per acre was poorer, dropping from 49 bu. to 41 bu. in the case of corn. Yields are indicated in Table I.

Table I.—Leading Agricultural Products of Ohio, 1947 and 1946

Crop	1947	1946	Value, 1947
Corn, bu.	138,826,000	178,409,000	$319,299,000
Wheat, bu.	49,028,000	48,522,000	140,710,000
Oats, bu.	19,058,000	62,235,000	23,822,000
Barley, bu.	390,000	502,000	702,000
Rye, bu.	510,000	289,000	1,198,000
Buckwheat, bu.	651,000	340,000	1,275,000
Popcorn, lb.	6,240,000	27,495,000	190,000
Hay, tons	3,602,000	3,895,000	66,637,000
Soybeans, bu.	17,575,000	16,254,000	65,027,000
Tobacco, lb.	22,710,000	21,060,000	11,014,000
Sugar beets, tons	158,000	234,000	1,900,000
Maple syrup, gal.	160,000	80,000	645,000
Apples, bu.	3,038,000	2,350,000	8,354,000
Peaches, bu.	1,020,000	553,000	2,800,000
Pears, bu.	229,000	135,000	549,000
Grapes, tons	15,400	12,500	2,310,000
Cherries, tons	2,400	2,300	669,000
Potatoes, bu.	5,460,000	7,560,000	8,418,000

Manufacturing.—The total value of manufactures in Ohio in 1939 was $4,584,665,659, total employment 686,089 and total wages and salaries paid $1,033,426,673. No census of manufactures had been taken after 1939 but the Ohio bureau of unemployment compensation reported that between Jan. 31, 1945, and Jan. 31, 1946, 4,039 employers established new businesses or expanded old ones. In that period the number of employees covered by unemployment compensation increased from 50,544 to 54,583.

Mineral Production.—The total value of mineral production in Ohio in 1946, exclusive of pig iron, ferroalloys and grindstones, was $243,637,000 as compared with $196,663,000 in 1945. A law enacted by the general assembly in June requiring strip coal mining companies to level mined areas and plant them with trees, shrubs and grass, was opposed by a dozen companies who sought to have it declared unconstitutional. (P. By.)

Table II.—Principal Mineral Products of Ohio, 1946 and 1945

Mineral	Value, 1946	Value, 1945
Pig Iron	$240,218,956	$258,959,815
Bituminous coal	100,675,000	92,911,000
Coke	69,357,225	70,381,885
Natural gas	29,400,000	24,490,000
Clay and clay products	45,842,837	22,657,684
Stone	19,069,169	13,966,710
Lime	12,926,310	11,693,615
Ferroalloys	8,884,960	11,166,247
Sand and gravel	11,105,652	7,985,018
Cement	13,293,126	7,356,271
Petroleum	7,910,000	7,240,000
Salt	4,160,011	3,997,759

Ohio State University. This institution of higher education is located at Columbus, O. Formally established as a land-grant institution in 1870, it opened its doors on Sept. 17, 1873, to a student body of 17. The university admits both women and men. It has ten colleges: agriculture, arts and sciences, commerce and administration, dentistry, education, engineering, law, medicine, pharmacy and veterinary medicine; a graduate school; and eight special schools: aviation, fine and applied arts, home economics, journalism, music, nursing, optometry and social administration. Graduate work is offered through the doctor of philosophy degree. Appropriations of $18,641,000 were approved for construction in 1947–48 of a medical centre ($8,000,000), new physics, recitation and central service buildings and others, as well as several new laboratories and additions to existing buildings. The university operates on a four-quarter plan, enabling most students to complete their studies in three calendar years. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (H. L. B.)

Oil: *see* PETROLEUM.

Oils and Fats, Vegetable and Animal: *see* VEGETABLE OILS AND ANIMAL FATS.

Oklahoma. A west south central state, admitted as the 46th state, Nov. 16, 1907. The name "Oklahoma" is from the Choctaw Indian words meaning "red people" and was first applied to the Indian territory in 1866. The popular name "Sooner state" was from the term "sooner" used in referring to a person who entered and staked a claim sooner than the law allowed when the first public lands in the Indian territory were opened by the run for homesteads, April 22, 1889. Area 69,283 sq.mi., including water surface, of which 387 sq.mi. are in 188 artificial lakes of more than 10 ac. in size and 71,000 farm ponds of less than 10 ac. Pop. 2,336,434 (1940), of which approximately 62% was rural. Approximately 87% was white, 7% Negro, 4% Indian, 2% foreign-born. On July 1, 1944, the bureau of census estimated the civilian population of Oklahoma at 2,064,679. Oklahoma City (1940 census) (204,424), the capital, and Tulsa (142,157) are the two largest cities.

History.—State officers during 1947 included the following (all candidates of the Democratic party elected for 4-year terms in Nov. 1946): Roy J. Turner, governor; James E. Berry, lieutenant governor; Wilburn Cartwright, secretary of state; A. S. J. Shaw, state auditor; Mac Q. Williamson, attorney general; John D. Connor, state treasurer; Oliver Hodge, state superintendent of public instruction. Legislation enacted by the 21st state legislature (bicameral system, convened Jan. 1947) included reorganization of the state highway department and creation of a state highway commission of eight members; disorganization of certain rural school districts whereby 1,408 school districts were abolished and annexed to those adjoining or near at hand; a municipal airports act; and a mental health law creating a state department of mental health and providing for the appointment of a medical director to have charge of all state mental institutions.

Education.—The total enrolment in Oklahoma public schools (term of 1946–47) was 508,697 pupils (elementary and high school), with 18,192 teachers. The cost of maintaining elementary and secondary schools in the state was approximately $55,000,000. State institutions of higher learning included the University of Oklahoma (Norman), the Oklahoma Agricultural and Mechanical College (Stillwater), the Oklahoma College for Women (Chickasha), an agricultural and mechanical college (Goodwell), a Negro university (Langston) and institute of technology (Weatherford) and five colleges primarily for teacher training (Ada, Alva, Durant, Edmond, Tahlequah). There were 18 two-year junior colleges recognized by the state board of education, including 6 state-owned junior colleges, 1 military academy (Claremore) and 4 independent junior colleges with church affiliations. There were also six independent senior colleges with church affiliations.

Social Insurance and Assistance, Public Welfare and Related Programs.—On Jan. 1, 1948, the department of public welfare reported 96,278 persons receiving old-age assistance with an average of $42.43 each per month; 22,964 families receiving aid, with an average of $36.30 per family, for 57,038 dependent children, and 2,578 blind persons receiving an average of $42.79 each per month. State-supported hospitals, eleemosynary, penal and reformatory institutions were two tuberculosis sanatoriums, nine hospitals (including six mental and one annex), two orphanages, three schools for deaf and blind, four schools of correction, one penitentiary and one subpenitentiary.

Communication.—The Oklahoma department of highways spent during the period Jan. 1, 1947, to Nov. 30, 1947, for contract construction $17,983,951.82 and, in addition, for maintenance contract work $2,445,118, making a total of $20,429,069.82 for roadway construction during the 11-month period. The total public open-road mileage in the state for 1947 was approximately 100,000 mi., and the highway department was responsible for a highway system of 10,138 mi. Railroad and electric mileage approximated 6,170 mi., not including sidings.

Agriculture.—Total harvested acreage of crops in 1947 was 13,722,000 ac. compared with 13,290,000 ac. in 1946 (figures revised in Dec. 1947) and 12,981,000 ac. in the 10-yr. (1936–45) average. An all-time record wheat crop, plus increase in the dollar value of other major crops in 1947, made possible the highest farm value of all agricultural products in the history of Oklahoma. The state department of agriculture estimated the total value of principal crops, livestock, poultry and dairy products at $794,656,000, an increase of $129,813,000 over the 1946 estimate of $664,843,000.

Leading Agricultural Products of Oklahoma, 1947 and 1946

	1947	1946*
Wheat, bu.	104,734,000	88,262,000
Corn, bu.	22,896,000	25,882,000
Oats, bu.	33,276,000	24,780,000
Peanuts, lb.	151,125,000	117,130,000
Broomcorn, tons	11,200	15,000
Grain sorghums (forage and silo), tons	900,000	1,439,000
Grain sorghums, bu.	5,181,000	7,314,000
All hay, tons	1,819,000	1,490,000
Cotton, bales	325,000	262,000

*Revised Dec. 1947 by U.S. department of agriculture.

Manufacturing.—Total pay rolls for covered employment in Oklahoma for the four quarters beginning Oct. 1, 1946, and ending Sept. 30, 1947, were $149,713,390, with a monthly average of 57,712 persons employed. In addition to the manufacture of petroleum by-products, the manufacture of lumber, cement and products from glass sands and the printing business in Oklahoma were big industries.

Mineral Production.—Minerals produced in Oklahoma include petroleum, natural gas, natural gasoline, liquefied petroleum gases, asphalt, zinc, lead, coal, stone, sand and gravel, clay and salt. The state corporation commission reported 140,334,201 bbl. of petroleum produced in the year ending Dec. 1, 1947. Approximate figures for 1947 production of other minerals in the state include 440,000,000 gal. natural gasoline and products, 420,000,000,000 cu.ft. natural gas, 18,000 tons lead concentrate, 103,000 tons zinc concentrate, 3,050,000 tons coal. The total estimated value of all minerals in the state for 1947 was $420,000,000.

(M. H. W.)

Old-Age Insurance: *see* SOCIAL SECURITY.

Old-Age Pension: *see* RELIEF; SOCIAL SECURITY. *See* also under various states.

Oleomargarine: *see* MARGARINE.

Olives: *see* FRUIT.

Oman and Muscat (Masqat): *see* ARABIA.

Ontario. One of the two central provinces of Canada, Ontario was admitted to the union in 1867. The area is 412,582 sq.mi., with 12% fresh water; pop. (1941) 3,787,655; (1946 est.) 4,189,000. The chief cities (1946 assessor's est.) are Toronto, the provincial capital (696,555); Hamilton (178,686); Ottawa (165,362); Windsor (119,823).

History.—Progressive-Conservative Premier George Drew remained in office during 1947. The legislature sat twice, in March and October. Motorists and pedestrians were granted financial protection against irresponsible drivers under the amended Highway Traffic act. The Workmen's Compensation act was revised to cover all occupational diseases. The minimum weekly wage for female employees was raised to $16.80. Annual liquor profits reached a new high of $26,800,500. At the close of 1946, Ontario's gross debenture debt stood at $214,648,074 (1945: $198,411,736).

After a 30-year ban, liquor in cocktail lounges or bars returned to Ontario. The survey of the Manitoba-Ontario boundary, halted ten years before because of lack of men and equipment, was completed. The Ontario Hydro-Electric commission

was actively constructing 7 new generating plants, totalling 900,000 h.p., at a cost of $250,000,000. About 5,800 United Kingdom immigrants flew to Ontario under a scheme sponsored by the department of planning and development.

Two royal commissions reported. Justice Dalton C. Wells found marked inefficiency in production and distribution of milk and recommended producer co-operatives, free competition and municipal distribution as a public utility. Maj. Gen. Howard Kennedy reported on forestry and recommended appointment of government representatives to timber-operating companies, planting of 100,000 ac. a year for ten years, and limiting cut on provincial timber land to annual growth.

Education.—Enrolment in educational institutions in the 1944–45 school year was 756,089. The Rt. Hon. Vincent Massey, former Canadian high commissioner to London, replaced Dr. H. J. Cody as chancellor of the University of Toronto. The province established 52 annual research scholarships. The government budgeted $38,504,057 for education costs, an increase of $24,000,000 over 1943.

Transportation.—A two-lane highway between Toronto and Oshawa was opened. The government began a four-year $200,000,000 road-construction program. A 103-mi. roadway joined the Red Lake mining district with the Trans-Canada Highway system. The Temiskaming and Northern Ontario railway changed its name to the Ontario Northland railway.

Agriculture.—Heavy spring rains cut intended acreage by 30%, resulting in a loss of about $35,000,000 to Ontario farmers. Apple production was 371,200 bbl., 53% more than the 1946 yield. The agriculture department fostered northern Ontario settlement by allotting $393,000 as subsidies for land clearing, breaking, draining. The total number of livestock (horses, cattle, sheep, swine) in 1946 was 6,049,000 (1944: 5,889,000).

Production.—The gross value of 1945 production was $5,051,713,237. The net value was $2,499,527,223, which was 41.09% of Canada's total. The per capita production was $624.26.

Mining and Industry.—The value of 1945 mineral production was: platinum $26,688,646; copper $29,772,270; nickel $61,982,133; gold $62,576,089. Shipment of iron ore during 1947 was greater than in any previous year. Of 555 factory extensions in Canada, 348 were in Ontario. By November about 60,000 more persons were employed in Ontario manufacturing than at the same time in 1946. (C. Cy.)

OPA (Office of Price Administration): *see* PRICE ADMINISTRATON, OFFICE OF.

Opera: *see* MUSIC.

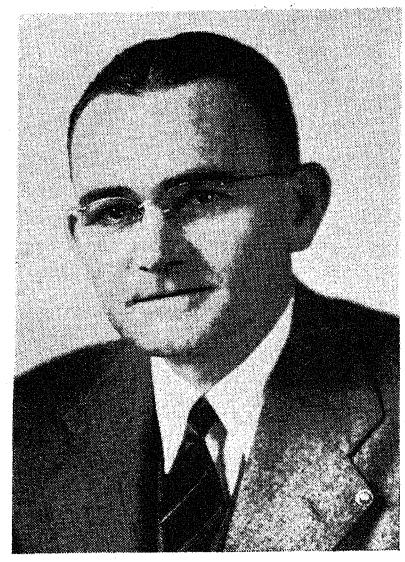
Opium: *see* NARCOTICS AND NARCOTIC TRAFFIC.

Oranges: *see* FRUIT.

Oregon. A Pacific northwest state of the United States, admitted to the union Feb. 14, 1859, the 33d state. Area, 96,981 sq.mi., including 631 sq.mi. of water; pop. (1940) 1,089,684. Capital, Salem (30,908); chief city Portland (305,394). In the latter part of 1947 the U.S. bureau of the census announced a revised population figure for Oregon of 1,517,000 as of July 1, 1947. The bureau announced for the Portland metropolitan area a population of 534,422, as of 1947.

History.—The 44th regular session of the Oregon legislature was held in Salem in the early part of 1947. The legislature appropriated $75,213,603 for state expenses, a substantial increase over previous sessions. Much of the increase was to cover greater costs of education. The legislature passed a bill for a state sales tax and referred the proposal to popular vote. The election was held on Oct. 7 and the proposal was defeated. At the same election Oregon voters defeated a proposal for a tax on cigarettes amounting to two cents a packet. As a result of the 1947 legislative session the state income tax was increased by the process of reducing the exemption, and in addition a withholding law was put into effect covering the state income tax. A husband-wife community property law was also passed.

As a result of an aeroplane crash on the evening of Oct. 28, 1947, Oregon suffered the loss of three of its top executives: Governor Earl Snell, Secretary of State Robert S. Farrell, Jr., and Senate President Marshall E. Cornett. The death of Governor Snell and Senator Cornett automatically elevated John H. Hall of Portland to the governorship, because of his position as speaker of the house of representatives. The new governor appointed Earl T. Newbry of Ashland secretary of state, and Newbry assumed office Nov. 3, 1947.



JOHN H. HALL, who succeeded Gov. Earl Snell of Oregon when the latter was killed in a plane crash on Oct. 28, 1947

Oregon's postwar reconstruction problems were taken in their stride. Unemployment did not present any unsurmountable difficulties, despite the fact that there was a substantial increase in state population in 1947 over 1946, amounting to about 65,000.

The housing situation showed an improvement, which was due to the large number of dwellings built in 1946 and 1947, although there were many areas where facilities were in short supply. The shortages were particularly noticeable in the vicinity of establishments for higher education.

Education.—During the school year 1946–47 there were 243,711 pupils in public schools, including 64,662 in high schools. There were 8,781 teachers. For the year 1946–47 the value of school properties, including buildings, grounds and equipment, was $65,825,032. The superintendency of public instruction is an elective office, and was held in 1947 by Rex Putnam.

Communications.—As of Dec. 31, 1946, there were 7,207 mi. of primary and secondary highways in Oregon, of which 6,574 mi. were improved with various types of surfacing. As of Dec. 31, 1946, there were 3,831 mi. of steam railways, not including second main track, sidings, etc.

In 1945 the Oregon state highway commission adopted a three-year postwar construction program calling for an expenditure of $36,000,000 for additions and betterments. This was in addition to a federal forest highway program calling for about $5,000,000, later expanded to take care of access roads to make merchantable timber more readily available. The highway program had not been completely realized due to various shortages, but generally good progress was made at the most critical locations. State contracts to the value of $15,400,000 were let in 1947. On May 31, 1947, there were 418,302 registered automobiles in the state, not including 58,980 trucks.

Oregon's water-borne foreign commerce showed a substantial increase. In December it was announced by the department of commerce that the Oregon customs district moved dry cargo, export and import, amounting to 1,459,000 long tons during the first eight months of the year. This tonnage was greater than that moved by any other Pacific coast customs district for the same period. The Oregon customs district includes the ports of Astoria, Coos bay, Portland and St. Helens, Ore., and Vancouver and Longview, Wash.

Finance.—As of July 1, 1947, Oregon's state gross bonded debt was $15,741,440, against which there were sinking funds and other applicable assets amounting to $14,545,688, leaving a balance of debt of $1,195,752. The assessed valuation of Oregon for 1946 was $1,120,333,779, the highest after 1930.

Agriculture.—Total cash income of Oregon farmers in 1946 was $350,079,000, of which $9,102,000 represented government payments.

Principal Agricultural Products of Oregon, 1947 and 1946

Crop	1947 (est.)	1946
Corn, bu.	1,170,000	1,172,000
Oats, bu.	10,030,000	9,782,000
Barley, bu.	10,863,000	9,452,000
All wheat, bu.	21,932,000	25,168,000

Manufacturing.—For the first nine months of 1947 Oregon's industrial pay rolls amounted to $626,473,000, as compiled by the state unemployment compensation commission. This figure is to be compared to the sum of $799,000,000 for the calendar year 1944, the previous high record. It was estimated that the 1947 total would be in excess of $830,000,000. In 1947 sound expansion took place in small manufacturing, food production and processing and in the lumber business.

The demand for lumber and plywood continued heavy. In Dec. 1947. the state forester estimated that Oregon's lumber output for the calendar year would be approximately 6,250,000,000 bd.ft. Many mills reported that their output was adversely affected by transportation shortages.

The centre of lumber production in Oregon had shifted from the Portland-Columbia river area to the southwest counties of the state, and particularly to the Coos bay area. (L. A. McA.)

Osteopathy. Enrolment in the six osteopathic colleges, located in Chicago, Ill., Des Moines, Ia., Kansas City and Kirksville, Mo., Los Angeles, Calif., and Philadelphia, Pa., was the largest since 1941. A long list of qualified students, many with baccalaureate degrees, could not be admitted because entering freshmen classes were filled. Expansion of the colleges and associated teaching hospitals proceeded as rapidly as funds became available. In the osteopathic progress fund campaign more than $1,500,000 had been subscribed for support of the approved colleges, almost all of the money being provided by members of the osteopathic profession.

During 1947 a research project in neurophysiology at the Kirksville College of Osteopathy and Surgery, Kirksville, Mo., was aided by a grant from the U.S. public health service.

Doctors of osteopathy were appointed and were serving in the department of medicine and surgery of the Veterans' administration, following the implementation of public law 293 (79th congress).

Under federal regulations implementing the Hospital Survey and Construction act, public law 725 (79th congress), the participation of osteopathic physicians and surgeons in the locating and building of hospitals, where needed, was provided. Many doctors of osteopathy were appointed to hospital advisory councils under enabling statutes in the various states.

During the 51st annual convention of the American Osteopathic association in Chicago, the board of trustees approved 63 osteopathic hospitals for the training of interns and an additional 114 were placed on the registered list. Sixteen osteopathic hospitals were approved for training in the specialties. Also during this meeting ground was broken for the construction of a permanent headquarters building for the association on Chicago's near north side. The building was scheduled for completion sometime in 1948.

On Dec. 1, 1947, membership in the American Osteopathic association stood at the all-time high of 8,237, or 73% of the 11,239 practising osteopathic physicians and surgeons.

(R. E. D.)

Ottawa. The capital of Canada is at the confluence of the Ottawa and Rideau rivers in the province of Ontario and covers 8.3 sq.mi. Pop. (1941 census) 154,951; (1947) 192,003 (plus 30,202 in suburbs). The houses of parliament are on a high cliff overlooking the Ottawa river.

PRES. TRUMAN decorating the War Memorial at Ottawa in June 1947, during his official visit to the Canadian capital



The 100th anniversary of the incorporation of Ottawa fell on July 28, 1947. The first Marian congress in Canadian history, which attracted 200,000 visitors, was held in the capital June 18–22. After a lapse of 6 years, the Central Canada exhibition was revived with new record attendance of 324,192 (1941: 247,794). The housing situation remained bad, with 750 residents living in temporary quarters, including summer shacks, even in winter. Traffic fatalities for the year were 14 deaths (1946: 11 deaths). The board of control passed a smoke control bylaw. The University of Ottawa, only Canadian official bilingual university, acquired additional property for a $1,000,000 medical building. Development of a national capital of the Ottawa-Hull area moved forward, with the department of public works filing expropriation notices on 10.3 sq.mi. (C. Cy.)

Outdoor Advertising: *see* ADVERTISING.
Outer Mongolia: *see* MONGOLIA.

Oxford University. In the academic year 1946–47 the number of undergraduates rose to 5,559 men and 1,121 women, compared with 3,219 men and 928 women in 1946; the total was 1,657 higher than in 1939. Almost 90% of the men in residence, excluding those from overseas, were ex-service. Many of them were married, and most were older than the ordinary undergraduate, so that university conditions were generally abnormal. Although only one university and no college building remained requisitioned, overcrowding was serious, and the residential limit (2½ mi. from the centre of the city) was relaxed.

Two new professorships were established; a third in modern history, and one in psychology (G. Humphrey), which took its place for the first time as a subject of a final honour school of philosophy, psychology and physiology.

It was decided that the clinical course which Oxford had established for its medical students during World War II, when the London schools were dispersed, should be continued permanently, a development that was envisaged when Lord Nuffield's endowment for medicine was given in 1937. The government grant for the quinquennium beginning in Oct. 1947 was arranged: for general purposes it was to be £465,500 in the first year, rising by 5% annually to £555,000; the grant for medical education was £100,000 in 1947–48 and was to be reviewed later. Additional grants, apart from those for non-recurrent purposes, might be made for special purposes. Benefactions included: £80,000 for three years for nuclear gamma rays research in the Clarendon laboratory; £17,000 from H. N. Spalding and his wife for books for devastated universities of Europe and Asia; £1,000 from Dr. E. Ruffini for the endowment of a Luca Ruffini travelling scholarship; £25,000, under the will of Sir Henry Wellcome, for purchase of premises for a laboratory of human nutrition; and a fund for the endowment of a Laurence Binyon prize.

In October Dr. W. T. S. Stallybrass, principal of Brasenose college, was elected vice-chancellor of the university in place of Sir Richard Livingstone.

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Pacific Islands, British. These islands include the colony of Fiji (consisting of a number of islands), the British Solomon Islands protectorate, the Gilbert and Ellice Islands colony and the protected state of Tonga. Area: Fiji: 7,055 sq.mi.; Solomon Islands protectorate: 12,400 sq.mi.; Gilbert and Ellice Islands colony: 345 sq.mi.;

Tonga: 250 sq.mi. Pop.: Fiji (1947 est.): 260,000 (Fijians and Indians, in approximately equal numbers, together represent about 90% of the total); Solomon Islands (1937): 89,568 (the great majority Melanesians); Gilbert and Ellice Islands (1940 est.): 34,202 (mainly Polynesians); Tonga (1945 est.): 40,668 (all but about 1,100 being Tongans, a Polynesian race closely allied to the Maoris and Samoans). General administrative or supervisory authority over the whole area is vested in the governor of Fiji (appointed by the British crown) who also holds the office of high commissioner for the western Pacific. His headquarters are at Suva, the capital of Fiji. In the colony of Fiji he is assisted by an executive council (containing unofficial as well as official members) and by a legislative council on which all sections of the community are represented (in some cases by election). Both in the Gilbert and Ellice Islands and in the Solomon Islands the high commissioner's authority is exercised through a resident commissioner. Tonga is governed by its own sovereign (Queen Salote), assisted by a privy council, a cabinet and a legislative assembly (mainly elective); the British government is represented by an agent and consul who is responsible to the high commissioner at Suva. Governor of Fiji and high commissioner for the western Pacific: Sir Brian Freeston (appointed 1947).

History.—The most important event of 1947, as affecting the British Pacific islands, was the creation of an international South Pacific commission. This was the outcome of a conference held at Canberra, Australia, early in the year and attended by representatives of Australia, New Zealand, the United Kingdom, the United States, France and the Netherlands. An agreement establishing the new commission was signed *ad referendum* on behalf of the six governments in Feb. 1947. Its constitution and functions were similar in many respects to those of the Caribbean commission already operating in the West Indian area. It was to be a consultative and advisory body to the participating governments on matters affecting the economic and social development of the nonself-governing territories within its scope. Each participating government was to be represented by two commissioners. At least two regular sessions were to be held every year. The question of the commission's permanent headquarters was reserved for further consideration; meanwhile, as a temporary arrangement, it would function from Sydney. The Australian and New Zealand governments were authorized to take the necessary steps to set the machinery in motion. A South Pacific conference was also to be set up, of which the first session would be called within two years of the ratification of the agreement and further sessions thereafter at intervals not exceeding three years. The object of the conference was to ensure that representatives of the local inhabitants and of interested official and nonofficial institutions should be associated with the work of the commission.

Early in 1947 the constitution of Fiji was amended in a number of respects; the governor's power of veto was abolished, the franchise was extended to civil servants and the qualifications required for Indian voters were brought into line with those required for European voters. The year witnessed economic and administrative developments both in Fiji and in the other territories falling within the sphere of the British high commissioner. Schemes sanctioned under the Colonial Developments and Welfare act included substantial grants to the Solomon Islands protectorate (£16,800 for the purchase of vessels for local administration; £48,880 for the development of medical services; and £19,900 for the purchase and erection of bridges).

Finance and Trade.—The unit of currency in Fiji is the Fiji pound (linked to sterling at the fixed rate of £F.111 = £100); in the Solomons, the Gilbert and Ellice Islands and Tonga, United Kingdom and Australian notes and coin are legal tender; Tonga has a local issue of currency notes. Revenue (1946): Fiji £1,976,941; Solomons £61,655; Gilbert and Ellice Islands £65,308; Tonga £93,000. Expenditure: Fiji £1,949,447; Solomons £275,970; Gilbert and Ellice Islands £233,120; Tonga £90,000. The Solomons and Gilbert and Ellice Islands received grants-in-aid from the British treasury. Imports: Fiji (1946) £3,217,000; Solomons (1941) £92,000; Gilbert and Ellice Islands (1939) £143,000; Tonga (1946) £219,000. Exports: Fiji (1946) £3,247,000; Solomons (1941) £134,000; Gilbert and Ellice Islands (1939) £230,000; Tonga (1946) £171,000. Sugar is the most important agricultural product of Fiji and constitutes much the largest item in the exports of the colony. Other exported products include copra, gold and fruit (mainly bananas). The chief product (and export) of the Solomons is copra; that of the Gilbert and Ellice Islands, phosphate of lime. The exports of Tonga are confined to copra and bananas (neither in any large quantities).

(J. E. Sh.)

Pacific Islands, French.

The latest statistics available in 1947 for this French colony were: area (Society, Tuamotu, Tubuai and Marquesas islands) 1,545 sq.mi.; pop. (est. Dec. 31, 1939) 45,000 (white *c.* 3,700); (census 1941) 51,000. Capital: Papeete, in Tahiti (pop. census 1941, 11,614). Governor: Jacques Tallec.

Trade and Communication.—Foreign trade (1945): imports 202,500,000 francs; exports 186,600,000 francs. Roads (1938): Tahiti 92 mi.; Raiaetea 22 mi.; and Moorea 37 mi.; shipping entered (1943): 50 vessels, tonnage 160,943.

Finance.—Revenue and expenditure (est. 1944) balanced at 43,449,000 francs. Exchange rate, 1947: 1 franc = 0.84 U.S. cents.

Production.—Export (1945): copra 19,050 short tons; natural phosphates 255,359 short tons; vanilla 137 short tons; nacre 832 short tons; other products 12,100 short tons.

Pacific Islands under Trusteeship.

The former German possessions in the western Pacific comprise part of New Guinea with adjacent archipelagos, Western Samoa, the Marshall, Caroline, Palau and Marianas (Ladrone) islands and the island of Nauru. Statistics for these territories are given in the accompanying table. For capital towns and governors of New Guinea, Western Samoa and Nauru, *see* British Empire.

History.—On Feb. 17, 1947, the United States, which still remained in military occupation of the Japanese mandated islands, formally presented to the United Nations Security council its proposal, originally published Nov. 1946, for putting the islands under United Nations trusteeship, to be administered by the United States under conditions which would grant that country exclusive military, naval, air and economic rights and make the islands "an integral part of the United States." The U.S.S.R. accepted the proposals as "entirely fair," taking into

Pacific Islands Under Trusteeship

Territory and Area (sq. mi.)	Population and Status	Principal Products (short tons)	Imports and Exports (000s omitted)	Revenue and Expenditure (000s omitted)
New Guinea, Territory of (93,000): North East New Guinea (69,700), Bismarck archipelago (19,200) and Solomon Is. (4,100)	(1940) Native 668,871 European 4,339 Asiatic 2,099 Trustee territory administered by Australia	Exports: gold (1941) 8.58 copra (1940) 66,000	(1940–41) imp. $ 3,107 exp. $10,488	(1940–41) rev. $1,381 exp. $1,392
Western Samoa (1,133)	(1945 census) 68,197 (native 62,422) Trustee territory administered by New Zealand	Exports (1945): copra 16,864 bananas $272,250	(1945) imp. $1,609 exp. $2,544	(1946) rev. $1,123 exp. $947
Marianas Is., Caroline Is., Palau and Marshall Is. (830)	(1947) 50,537 Trustee territory administered by the U.S.A.	(1947) dry phosphate 162,600 copra 3,675 trochus shells 350	(1947) imp. $1,250 exp. $479	(1940) rev. $2,564.1 exp. $2,540.2
Nauru (8)	(1947) Nauruans 1,376, other islanders 33 Trustee territory under the joint authority of Great Britain, Australia and New Zealand; administered in 1947 by Australia	Exports (1941): natural phosphates 111,048	(1941) imp. $345.4 exp. $224	(1941) rev. $38.8 exp. $77.3

account the decisive role played by the U.S. forces in that theatre of war. Opposition, based mainly on legalistic grounds, was shown by Australia and Great Britain, but after several adjournments unanimous approval of the proposal was given on April 2. Provision was made that the agreement could not be altered, amended or terminated without the consent of the administering authority. It was approved by the house of representatives on July 11 and by the senate on July 14. The islands, now designated "The Territory of the Pacific," were placed under civil administration, temporarily under the navy department, on July 19, and later split into four district governorships: the Marianas, W. Carolines, E. Carolines and Marshalls.

Great Britain, Australia and New Zealand submitted a draft agreement for the joint trusteeship of Nauru to the United Nations in October. The assembly approved the agreement on Nov. 2 (*see* TRUSTEE TERRITORIES). (J. RA.)

Pacifism. By far the most important event of 1947 from the standpoint of pacifists was the consummation in India of independence from British rule. There was no disagreement among commentators about the important role played in that achievement by the nonviolent techniques advocated and applied under the leadership of Mohandas K. Gandhi and perhaps even more by the mahatma's spiritual contribution rooted in his conviction of the power of truth and nonviolence.

Observers were divided in their opinions as to the extent to which Gandhi's methods and general leadership were called in question by the communal riots and the Pakistan-India strife which followed the declaration of independence. Gandhi himself expressed great discouragement, yet at a highly critical moment strife in Calcutta ceased as the result of a typically Gandhian act. He went to live in the same house with the Moslem leader of the city who was regarded by the Hindus as chiefly responsible for attacks upon them. Quiet soon descended on the city and continued throughout the rest of the year.

A world pacifist conference to be held in India, originally scheduled for Jan. 1948, was projected for Jan. 1949. The delegates, consisting of leaders of pacifist churches and organizations, would be limited to about ten from each continent, and would spend a week in a religious "retreat" and would then continue the conference at Rabindranath Tagore's school, Santiniketan.

The Nobel Peace prize for 1947 was awarded to the American Friends Service committee and the Service Committee of Friends in London. The Nobel committee emphasized the religious pacifist faith of Quakers as the inspiration for their extensive nonpolitical and nonsectarian relief activities.

In the United States pacifists welcomed expiration of the wartime Selective Service act on March 31, 1947. This was accompanied by the liquidation of the remaining alternative service projects in which conscientious objectors had been engaged (civilian public service).

The president's amnesty board under the chairmanship of former Justice Owen J. Roberts was charged with examination of all cases of convicted selective-service violators (15,805 as of Nov. 24, 1947). It entirely rejected the proposal made by a number of organizations that a general amnesty be proclaimed. In its report, the board classified the cases which it had examined individually as follows: wilful violators or nonconscientious objectors, approximately 10,000, of whom half had previously been convicted of crimes including "murder, rape, burglary, etc."; Jehovah's Witnesses, approximately 4,300; conscientious objectors, approximately 1,000; others, 500.

Of the total number, 618 had already been pardoned under a presidential proclamation making pardon available for men who after conviction entered the armed forces. Approximately 900 more were eligible for such pardons. The board recommended pardons (restoration of civil rights) to 1,523 of the remaining 14,287. These included Americans of Japanese descent who would willingly have served in the armed forces but for the fact that "they deeply resented classification as undesirables." Only a small percentage of the 5,300 classified by the board itself as Jehovah's Witnesses or conscientious objectors were included in the 1,523 recommended for pardon. The board held that pardon should be granted only to such conscientious objectors as held formal religious beliefs, excluding those whose objection to war was based on "intellectual, political, or sociological" grounds. President Truman published the board's report and proclaimed pardons as recommended on Dec. 23, 1947. The action was greeted by numerous protests not only from pacifists but from religious leaders and advocates of civil liberties. Critics pointed out that millions of pardons had been granted to Germans and Japanese who had fought against the United States, and that the board and the president were not only laying down a narrow definition of conscience but apparently were applying a religious test.

Pacifist and nonpacifist forces were successful in putting off the adoption of universal military training by congress. On the other hand, they deplored extension of the conscription act by the British labour government.

In the failure to make a general peace and in the deterioration of international relations, especially between the U.S.S.R. and the United States, pacifist writers found confirmation of their analysis of the nature and effects of war. Many of them supported United Nations activities and joined in urging U.S. aid for European recovery, but increasingly they urged a complete abandonment of reliance on military force and especially the scrapping of atomic and bacterial weapons.

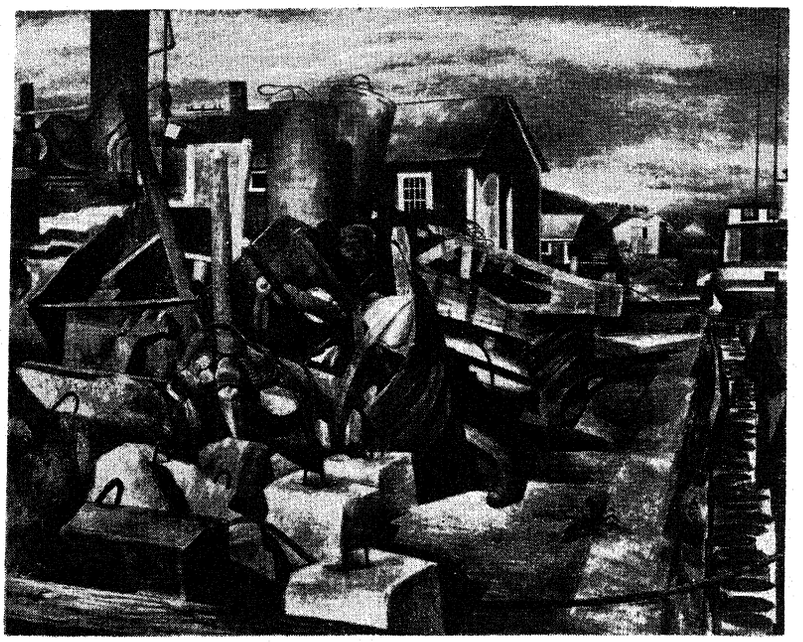
BIBLIOGRAPHY.—*Report* of the President's Amnesty Board; *Report* of Director, Selective Service Administration; *Reports* of American Friends Service Committee; A. J. Muste, *Not By Might* (1947). (A. J. M.)

Painting. The predominance of nonobjective and expressionistic painting continued throughout 1947. There was an ever-widening acceptance of the abstract formalism which had outlived its life span in Europe a quarter of a century before. As for expressionism and all its variations, the U.S. orientation was quite unlike the original German or French expressionism. It had grown into a maturity and perfection attained by only a few European artists.

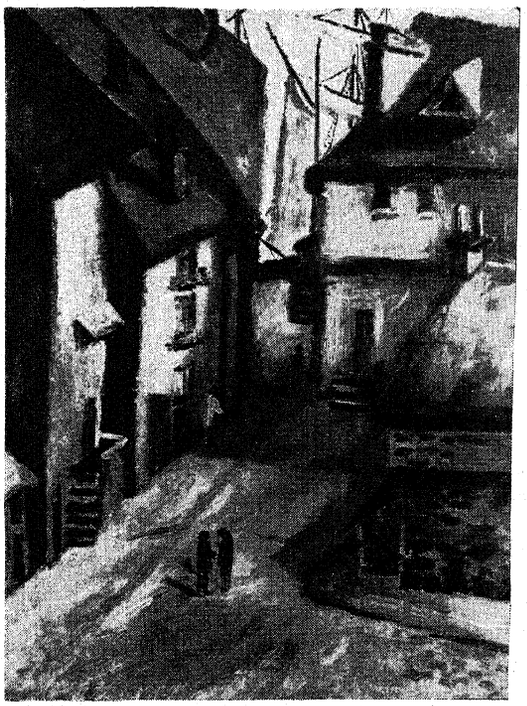
One change, however, became notable on the exhibition scene —the decline of the once-fashionable surrealism. It could perhaps be said that the various pictorial symbolisms on which surrealism relied had become, if not exhausted, at least so standardized as to have lost their esoteric meaning. A case in point was the work of Eugène Berman, in which all the romantic and nostalgic paraphernalia of a surrealism derived from the Venetian baroque had reverted to merely decorative stage settings. As in Berman's work, so in the work of many other surrealistic painters mechanistic routine had overtaken original impulses. Nevertheless, the art juries had not yet got round to fully recognizing this fact, and Berman received top honours at the Chicago Art institute.

In 1947 the Art Institute of Chicago staged an enormous and successful survey of realistic and abstract art which broke the tradition of more than half a century of showing an annual all-American exhibition. Almost one-third of the exhibitors were completely unknown in the exhibition field, but competed easily with the best established painters. In many instances they proved superior to the regular exhibitors along New York's 57th street.

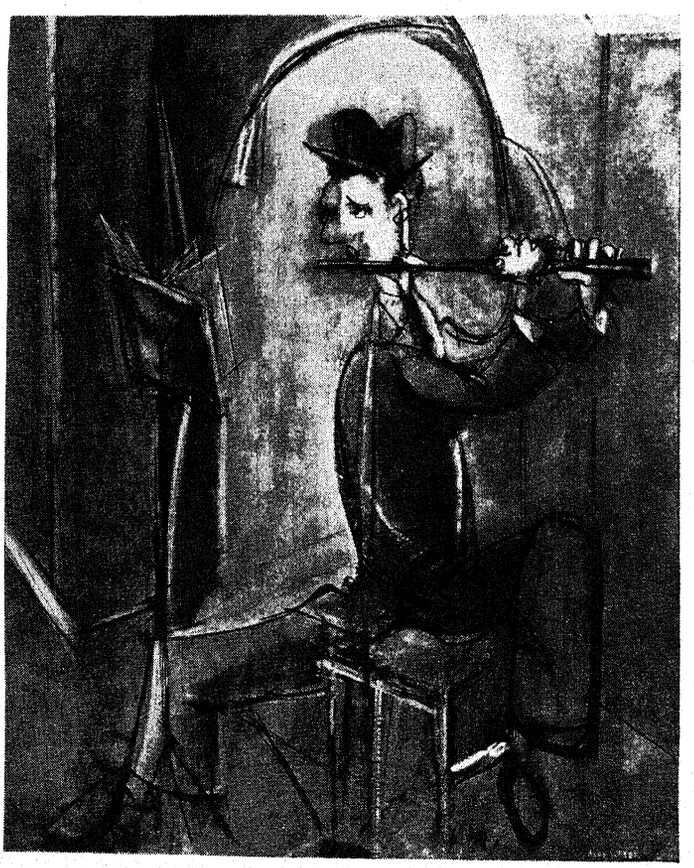
Most of the prize-winning paintings and museum accessions of 1947 belonged to the modern school. The Museum of Mod-



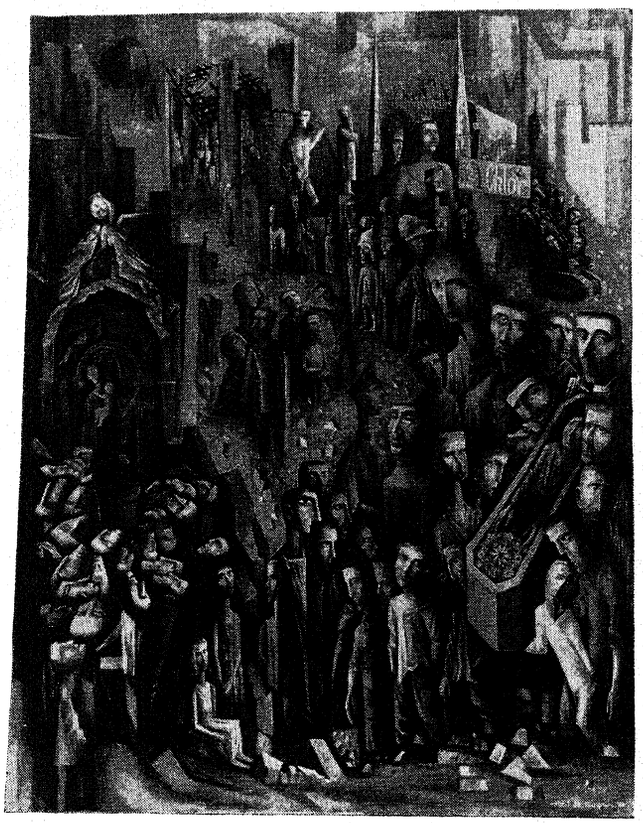
Above: "MARINE STILL LIFE," a dock scene in tempera by Zoltan Sepeshy which took first prize at the Carnegie institute's exhibition of "Painting in the United States, 1947"



Above: "THE VILLAGE STREET," one of a portfolio of 20 canvases painted by Evelyn Stiasny as a high school student, which won for her the major 1947 scholarship award of the School Art League of New York city



Above: MAX WEBER'S "Flute Soloist," a prize-winning painting at the fourth annual art competition sponsored by the Pepsi-Cola Co.



Left: "END OF AN ERA" by Mitchell Siporin, awarded the Logan medal at the 51st annual exhibition by artists of Chicago and vicinity, held at the Art Institute of Chicago in the summer of 1947

ern Art in New York had taken the lead, but during 1947 practically every major museum or art institute throughout the country bowed to the trend of the times. Museum directors, art critics, writers on aesthetics and heads of various university art departments became active supporters of the new ideology.

During 1947 the number of galleries showing exclusively nonobjective art doubled. The show at the Art Institute of Chicago brought to light whatever abstract painting was done in the United States, and it was a valid conclusion that academism is not limited to representational art, for the nonobjective had become patently academic.

Realism was given little or no consideration. With the exception of the National Academy of Art and the Carnegie exhibition in Pittsburgh, where an ultraconservative jury selected conventional paintings for the top honours, comparatively few paintings following realistic tendencies received recognition in the form of prizes or museum purchase. There was good reason, however, for the decline of the school of realism. It had become the domain of the commercial artists, who were best equipped to compete with the photographic image. Although realism has many facets, in principle it vies with the camera eye. Artists who find that their skill for photographic rendition is inadequate, or who cannot entice any new sensations from nature, turn invariably to the subjective or the abstract.

A major event in 1947, although it did not appear as such at the time, was the exhibition of French contemporary painting at the Whitney Museum of American Art in New York, limited to painters less than 40 years of age. Playing host to foreign visitors, the museum unwittingly strengthened the reputation of U.S. art far more effectively than the annual display of native art alone could have done. It was made clear that, whatever the heights reached in the art of France, they were matched in the art of the United States, with equal or better craftsmanship, vigour, colour sense and taste. Rather unusual was the unanimous condemnation of the French show by the art critics, including those who had staunchly supported anything coming from France.

As for the two painters generally referred to as the greatest of the time—Henri Matisse and Pablo Picasso—there was little news about the former, but Picasso soared to unprecedented new heights of popularity. News magazines as well as art publications carried many sensational features exploiting all the excesses and incongruities of his recent paintings.

Another favourite in the exhibition field in 1947 was the British sculptor, Henry Moore. Although he was little known in the United States (there had been one exhibition of his drawings in 1946), his show at the Museum of Modern Art received general acclaim.

His modernism, seen in the use of radical distortions and stark simplifications, was immediately acceptable to contemporary taste.

The German painter Max Beckmann, perhaps the most powerful representative of the school of distortionists, went to the United States to teach at Washington university in St. Louis. Although lacking Moore's taste, tact and his decorative refinement, Beckmann seemed in spite of his shortcomings to be the superior artist. His call to St. Louis witnessed the anxiety of some of the midwestern institutes to share in the modern art movement. (*See* also SCULPTURE.) (FR. T.)

Paints and Varnishes. In 1947, for the first time in history, paint sales in the United States exceeded $1,000,000,000, being about 35% greater than in 1946. The high prices of linseed, soya and other oils, traceable to a general shortage of fats and to a government flax price support program, were reflected in higher prices of paint products. Raw material shortages continued, particularly in titanium dioxide and in phthalic and maleic anhydrides.

Tung oil from China was again available in good volume and at prices competitive with domestic oils. Linseed oil from Argentina was in shorter supply, but castor beans from Brazil resumed their large contribution to the paint industry in the form of dehydrated castor oil. This availability of tung and castor oils made important the fortification of soya oil to replace linseed oil in many uses. Tall oil, despite its slow drying, increased in paint use because of its low price and the availability of pentaerythritol and the fast drying oils to fortify it. Solvents continued in short supply.

Phthalic anhydride increased in demand for alkyd resins for architectural and industrial finishes, in competition with its increasing use in plasticizers, for vinyl resins, and became short in supply, despite an all-time high production of 140,000,000 lb.

Styrene, having become abundant and cheap for the synthetic rubber industry, was used in copolymerization with drying oils to make fast drying finishes. Cyclopentadiene, available in quantity from both coal tar and petroleum sources, was also used for copolymerization with oils, as well as for the older solid resins.

Phenol ether resins were announced commercially as a combination of the better features of phenolic and alkyd resins and were used without modification in baking finishes and also esterified with drying oil acids to produce films of superior drying and durability.

Vinyl polymers expanded in both volume of production and diversity of type, the latter including both alkyd miscible solutions and emulsions which dry to transparent continuous films.

In the field of pigments, stainless steel flakes were offered as more corrosion resisting than aluminum.

Paint of higher fire resistance was promised by several new components, but none showed wide adaptability to conventional paint use. (Jo. C. W.)

Pakistan, Dominion of. Pakistan consists of four provinces, viz.: East Bengal, capital Dacca; North-West Frontier province, capital Peshawar; West Punjab, capital Lahore; Sind, capital Karachi.

Population of Pakistan: 70,000,000 (approximately); area: 361,000 sq.mi. Capital: Karachi. National flag: green and white; the white portion, which is one quarter of the flag, stands for the non-Moslem minorities; on the green portion appears a white crescent and heraldic star. Governor general and president of the constituent assembly: Mohammed Ali Jinnah; prime minister: Liaquat Ali Khan. (For history, *see* INDIA. *See* also INDIA, DOMINION OF.)

The Punjab, or land of five rivers, lies along the course of the Indus and its confluents, upon whose waters it mainly depends for its livelihood. Its principal crops are wheat, barley, millets, pulses and sugar cane. Mineral resources are small. The Punjab, originally a Mogul province, was conquered by the Sikhs under Ranjit Singh at the end of the 18th century. Their short-lived empire was overthrown by the British in 1849. The majority of the inhabitants are Moslem by religion. The Punjab has always been the home of martial races, and furnished the best troops to the Indian army. The principal languages are Urdu and Punjabi.

The North-West Frontier province, inhabited by Pathan tribes, is strategically important because of the Khyber and other passes, which are the gateways of India. The Pathans are a freedom-loving race, managing their affairs democratically in *Jirghas* or tribal assemblies. They had little desire for amalgamation with the Punjab, though they by a bare majority decided, chiefly on religious grounds, to enter Pakistan. There was

a considerable body, under the leader of the "red shirts," Abdul Ghaffar Khan, which at one time had leanings toward the Indian National congress. The language is Pashtu.

Sind, the province lying at the mouth of the Indus, was of little importance before the British conquest in 1843. It has a mixed Baluchi and Hindu population. Since then its prosperity was greatly enhanced by the rise of the seaport of Karachi and the construction of the Sukkur barrage, which has irrigated 5,500,000 ac. of barren desert. This area is now the chief wheat-producing district of India.

To the west of the Punjab lies Baluchistan. It is composed of British Baluchistan, which was by plebiscite absorbed into Pakistan, and the state of Kalat, which was recognized by Pakistan as an independent sovereign state. This placed the garrison town of Quetta, which commands the all-important Bolan pass, under the control of Pakistan. The great Baluchi state of Bahawalpur, with an area of 16,400 sq.mi. and a population of 1,500,000, acceded to Pakistan.

Eastern Bengal was overrun by the Moslems at the end of the 12th century. It is a land of rivers, tributaries of the Ganges and Brahmaputra. These serve as highways, and bring down the alluvial soil which makes it one of the most fertile countries in the world. Its products include tea, indigo, jute, timber and many kinds of grain. It has a good port in Chittagong.

(H. G. Rn.)

Palaeontology, Vertebrate.

General.—A paper of general interest in 1947 was the study of the microscopic composition of coprolites from the Bridger Eocene of Wyoming (W. H. Bradley). S. P. Welles published some of the results of work in the lower Triassic Moenkopi formation of North America that furnished a partly new assemblage of vertebrates.

Fishes.—The exoskeletons of some of the most primitive jawless fishes (*Dartmuthia* by Gustav Wängsjö, *Trematapsis* by R. H. Denison) were subjected to microscopic study. E. I. White discussed the heterostracean genus *Phialaspis* and D. H. Dunkle erected a new genus of arthrodire, *Bungartius,* from the Devonian Cleveland shales. Among others, new genera of palaeoniscid fishes were reported by Carlos Rusconi and a late Cretaceous polyodontid from Montana was described by Archie MacAlpin. Anatol Heintz proposed a new systematic division of the lower vertebrates based on anatomical peculiarities of the nasal region in crossopterygians. Bobb Schaeffer described an Eocene serranid from Patagonia and several Cretaceous and Tertiary Actinopterygii from Brazil; Louis Hussakoff reported a new pycnodont from the Cretaceous of Arkansas.

Amphibians.—The most significant contribution was A. S. Romer's *Review of the Labyrinthodontia,* in which these forms are grouped into Temnospondyli and Anthracosauria. The latter embody the Embolomeri and the Seymouriamorpha that may have given rise to the reptiles. Ichthyostegalia, Rhachitomi, Trematosauria and the Stereospondyli make up the temnospondyls with the Anura considered as a possible side line of the Edopsoidea among the Rhachitomi. The classification of the Triassic stegocephalians was discussed by Tage Nilsson.

Reptiles.—The cranial morphology of the Diadectidae (E. C. Olson) was further investigated with the result of a proposal of a change in reptilian classification. Two subclasses are distinguished, the Parareptilia and the Eureptilia. The former include the Diadecta (with Seymouriamorpha, Diadectomorpha, Procolophonia, Pareiosauria) and the Chelonia. The Eureptilia contain the Captorhina, Synapsida, Parapsida, Euryapsida and the Diapsida. A new procolophonid (*Candelaria*) from the Triassic of Rio Grande do Sul, Brazil, was reported by L. I. Price, and A. M. Macgregor mentioned the discovery of reptilian remains from the Madumbisa shales of Rhodesia. Papers on fossil turtles included the description of a *Clemmys* from the Pliocene of the Ukraine (L. I. Khosatsky), an anosteirine form from Manchuria, the redescription of the pelomedusid *Taphrosphys olssoni* from Peru (Rainer Zangerl), and further work on the osteology of *Testudo praeextans* (C. W. Gilmore). Alfredo Boni reported a new *Placochelys* from the Rhaetic of the Lombardy. C. W. Gilmore proposed a new genus of crocodile, *Procaimanoidea,* from the Eocene of Utah and Robert Hoffstetter presented a study of fossil lizards of the family Gekkonidae. An article by F. R. Parrington dealt with the cranial anatomy of the cynodonts.

Birds.—Madelaine Friant contributed several papers on avian osteology. One was concerned with the procoracoid in birds, another with the wing of *Rhea* and yet another with the tarsometatarsus in terrestrial types (Struthio).

Mammals.—Some of the results of the Sven Hedin Expedition to N.W. China were made known by Birger Bohlin. The Simplicidentata, Artiodactyla, Perissodactyla and Primates from western Kansu were described. Carlos Rusconi mentioned mammalian remains (hegetotheriids, propalaeoplophoids) from San Juan, Argentina, and a Miocene mammalian fauna from Beatty Buttes, Oregon, was discussed by R. E. Wallace. A semipopular article by Emil Kuhn informed about the status of prehistoric research especially in the region of Switzerland. C. L. Gazin presented a paper on the sabre-tooth creodont, *Machaeroides eothen,* from the Bridger Eocene, and mention was made of some recently discovered fossil insectivores (Jean Viret). A new genus of European deer was reported by José F. de Villalta Comella and D. M. S. Watson reviewed the evolution of the Proboscidia. M. F. Skinner and O. C. Kaisen attempted a taxonomic clarification of the genus *Bison,* based on an extensive study of much Alaskan material.

Among articles on primates with especial emphasis on questions of human evolution were J. A. Kälin's general presentation of the problem of human phylogeny, and Franz Weidenreich's *Apes, Giants and Man* which gives orientation of the present status of the discussion. Robert Broom and S. W. H. Schepers devoted a study to the South African ape-men, Australopithecinae; skull casts of *Pithecanthropus* and *Sinanthropus* were discussed by C. N. Kappers, and, finally, new fossil finds of ape or primitive men from Kenya were reported by L. S. B. Leakey.

(R. Zl.)

Palestine.

Palestine lies on the western edge of Asia, bounded on the west by the Mediterranean, on the southwest by Egypt, on the south by the Gulf of Aqaba, on the east by Trans-Jordan, on the northeast by Syria and on the north by Lebanon. Area: 10,159 sq.mi.; pop. (est. Dec. 31, 1946) 1,887,214 (excluding British forces). Chief towns (pop. est. 1944): Jerusalem (cap., 155,314); Haifa (125,498); Jaffa (93,493); Tel Aviv (155,277). Languages: English, Arabic, Hebrew and Yiddish. Religion: (1944) Moslem 1,061,277; Jewish 528,702; Christian 135,547. High commissioner: Lt.-Gen. Sir Alan Gordon Cunningham.

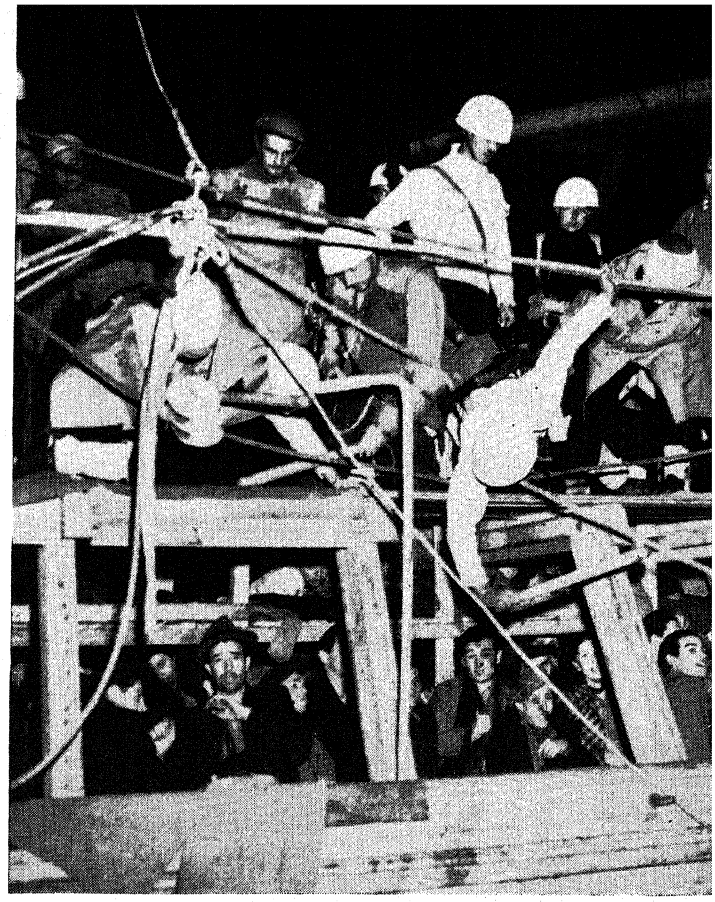
History.—The year 1947 was one of great significance in the history of Palestine. Political tension and internal disorder culminated in the recognition by the United Nations general assembly of the unworkability of the British mandatory system of government in Palestine and the decision to establish independent Arab and Jewish states, with Jerusalem as an international city.

Throughout 1946 the British government had searched for a means of reconciling the various interests concerned with the country. About the turn of the year the Zionist congress meeting in Basle abandoned Dr. Chaim Weizmann's leadership and rejected his plea for Jewish participation in the London confer-

ence called to discuss the government's plan for a federal Palestine. Zionist opinion was strongly in favour of the early establishment of a Jewish state and of unrestricted immigration into Palestine. At the same time the Arab states were strengthening the organization of the Arab league, in which the principal unifying element was the opposition of its seven members to Zionist aspirations. Faced with the intransigent attitude of both Arabs and Jews to a compromise solution of the problem, the British government decided at the end of February to refer the matter to the United Nations.

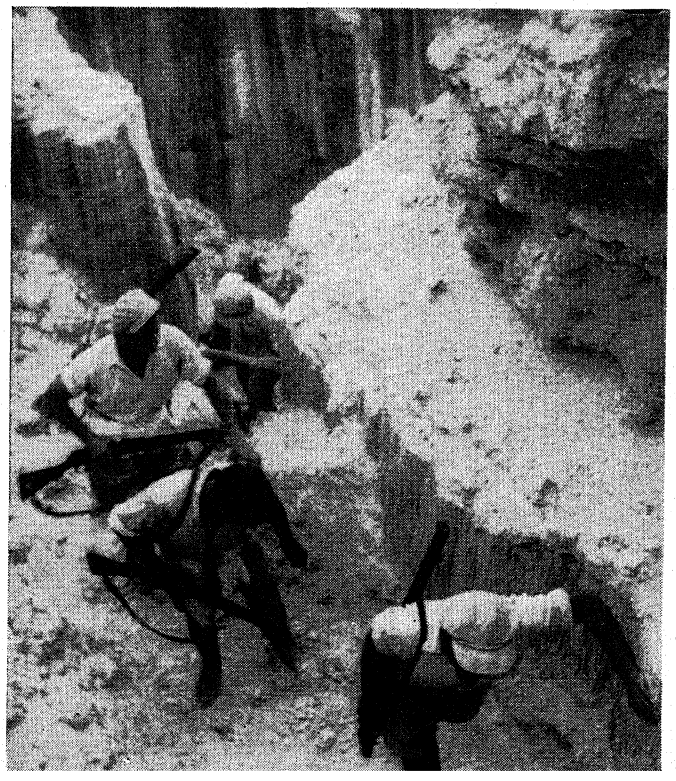
On April 28, 1947, a special session of the general assembly opened at Flushing Meadows, N.Y., with the question of Palestine as the sole item on its agenda. Representatives of the Palestine Arab higher committee and of the Jewish agency were invited to attend the meeting in order to present their cases. On May 15 the assembly decided to set up a United Nations special committee on Palestine (U.N.S.C.O.P.) composed of representatives of 11 countries (Australia, Canada, Czechoslovakia, Guatemala, India, Netherlands, Iran, Peru, Sweden, Uruguay and Yugoslavia) who were to prepare a report by Sept. 1 and make recommendations for submission to the next assembly.

In Palestine itself the internal political situation showed no sign of improvement. Throughout the year the country was the scene of frequent outbursts of terrorism and internecine strife; the Holy Land resembled an armed camp. Jewish terrorists of the extremist Irgun Zvai Leumi and Stern groups continued their attacks on British troops and police. At the same time Haganah, the secret Jewish paramilitary organization, vigorously continued its policy of organizing Jewish immigration from Europe to Palestine in defiance of the government's regulations. Large numbers of immigrant ships were intercepted off the coast of Palestine by the royal navy and the passengers transferred to internment camps in Cyprus. During 1947 a total of 24,000 persons were dealt with in this manner with approximately half that number subsequently reshipped to Palestine. In an attempt to discourage this traffic the British government decided to make an example of the 4,500 immigrants who arrived off Palestine on July 18 on board the "Exodus 1947" (previously the "President Warfield"). Instead of dispatching them to Cyprus the immigrants were trans-shipped to the French port whence they had sailed and when they refused to disembark were sent after innumerable delays and after enduring great hardships to Hamburg, where they were forcibly disembarked and finally lodged in displaced persons camps in the British occupation zone of Germany. The incident raised an outcry from Jews and Christians on both sides of the Atlantic and the experiment was not repeated. Of the many acts of terrorism, none created a more profound impression than the hanging of two British sergeants by Irgun Zvai Leumi at the end of July. Fatal casualties in Palestine from Aug. 1945 to Aug. 1947 were officially stated to be 141 British, 56 Jews, 44 Arabs and 10 others.

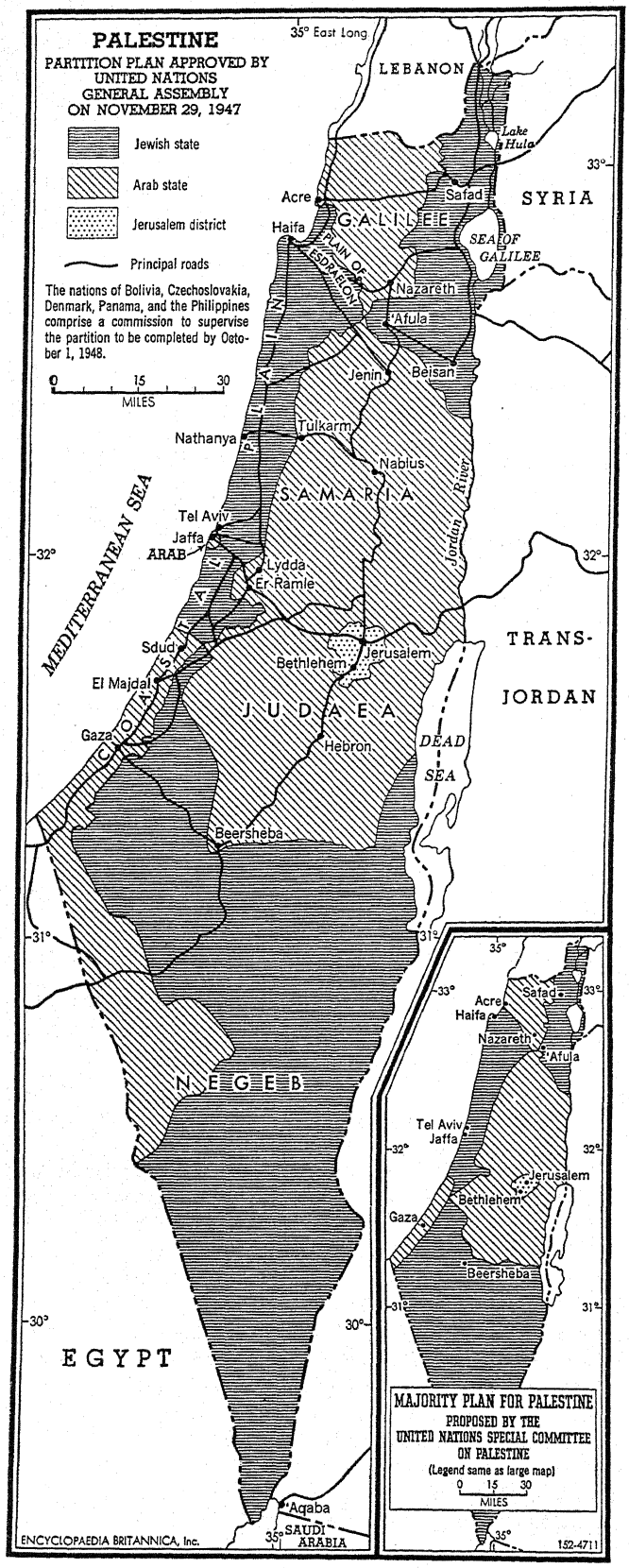


UNCERTIFIED Jewish immigrants resisting British soldiers who boarded their schooner at Haifa, Palestine, to transfer them to a ship bound for Cyprus

STERN GANG members in a Jewish trench in Palestine during 1947. This group was an armed faction of illegal status which was responsible for a number of bombings and terrorist raids in the Holy Land during the year



The U.N.S.C.O.P. report of Sept. 1 contained 11 unanimous recommendations, of which the first and most important was that the mandate should terminate and that the independence of Palestine should be achieved at the earliest possible date. In addition, there were: (1) a majority plan which proposed that Palestine should be constituted into an Arab and a Jewish state, with Jerusalem an international city, all combined under a scheme of economic unity, and (2) a minority plan which advocated an independent federal state for the whole country. The United Nations general assembly met at Flushing Meadows on Sept. 16, and on Sept. 23 it decided to set up a special *ad hoc* committee comprising representatives of all member-states to discuss the problem of Palestine. Once again, the Arab higher committee and the Jewish agency were invited to send representatives to present their respective cases. In a declaration of Sept. 26, when the debate was opened, and subsequently on Oct. 16, the British delegate accepted the 11 unanimous recommendations of the U.N.S.C.O.P. report and gave particular emphasis to the first two. He made it clear, however, that while he would not support the majority plan, neither would he oppose it, but he stressed the fact that his government would not accept responsibility "either alone or in a major role" for the enforcement of a scheme which was not agreed to by both Jews and



Arabs, or which it did not consider to be just. In the discussion, after some hesitancy, the U.S. and the U.S.S.R. declared their acceptance in principle of the majority plan. The Arab and Moslem states were vehement in their opposition to it. When a vote was finally taken in the general assembly on Nov. 29 the motion in favour of the establishment of separate Jewish and Arab states and an international city of Jerusalem was approved by 33 votes to 13 with 10 abstentions and one absentee. At the same time a commission composed of the representatives of Czechoslovakia, Denmark, Bolivia, Panamá and the Philippines was appointed to supervise the execution of the U.N. decision. The result of the vote was hailed with delight by the supporters of the Jewish agency and with bitter resentment by the Arabs. The reception of the news in Palestine was the signal for an immediate outburst of rioting and bloodshed which, up to Dec. 15, was reported to have cost the lives of not less than 84 Jews, 93 Arabs and 7 British; serious rioting took place in Aden, involving the death of some 75 Jews and 36 Arabs, and disturbances were also reported from Syria. (D. F. K.)

Education.—Arab public system maintained by the government 1944–45: scholars, elementary 62,783; secondary 959; postmatriculation 48. In 1946 there was a total of 904 public schools with about 80,000 scholars. Moslem private schools: scholars, elementary 13,752; secondary 14,073. Christian private schools: scholars, elementary 24,417; secondary 2,686. Special and agricultural schools: scholars 131. In Hebrew schools the scholars were divided as follows: public schools (elementary and kindergarten) 60,913; secondary 10,688; technical, agricultural and special schools 1,532. Yiddish private schools (elementary and kindergarten) scholars 17,697; secondary schools and training colleges 1,894; vocational, agricultural and special schools 5,267. Hebrew university, Jerusalem: teaching staff 193; students 595.

Banking and Finance.—Revenue (est. 1947–48) £P.21,881,104; expenditure £P.23,559,681; public debt (March 31, 1946) £P.8,585,900; notes in circulation (July 1, 1947) £P.44,908,000; exchange rate (1947): £P.1 (Palestine pound) = £1 sterling = 402.7 U.S. cents.

Trade and Communication.—Overseas trade (merchandise) 1946: imports £P.70,431,800; exports £P.24,484,900. Roads (1945): for all weather 1,551 mi., seasonal 961 mi.; railways (1942) broad gauge 302 mi.; narrow gauge (Hejaz railway) 111 mi. Airways (1946) passengers arriving 8,781; leaving 9,180; freight unloaded 112 short tons; loaded 82 short tons; mail unloaded 39 short tons; loaded 19 short tons. Motor vehicles (Dec. 1946) cars 6,169, taxis 1,356, buses 1,536, commercial 7,651, motorcycles 2,816, tractors 17. Telephones (June 1947) 25,996. Radio licences (1947) 103,090.

Agricultural and Mineral Production.—Production, 1946 (in short tons): wheat 86,172; barley 70,604; durrah 40,565; maize (for seed) 63,618; sesame 8,103; kersennah 6,968; tobacco 926; tomatoes 79,078; potatoes 52,052; total vegetables 313,343; melons and watermelons 118,578; olives 8,576; grapes 58,887; bananas 9,780; figs, almonds and other non-citrus fruits 133,670; groundnut oil 5,802; coconut oil 3,364; margarine 4,659; soap 9,934; cement 280,767; beer 7,765,788 U.S. gal.; wine 1,561,767 U.S. gal.; fish landed (in short tons) 4,329; citrus fruit (cases) oranges 5,012,699; lemons 173,122; grapefruit 892,708.

Panamá.

A republic of Central America adjoining South America. It is bisected by the Canal Zone, which is leased to the United States. Area: 28,575 sq.mi., pop. (1940 census): 622,576, both exclusive of the Canal Zone, which had a population of 51,827. The capital is Panamá city (111,893). Other cities are Colón (44,393), Davíd (9,222), Chitré (4,790), La Chorrea (4,434) and Santiago (4,253). Language: Spanish; religion: Roman Catholic. President in 1947: Dr. Enrique A. Jiménez.

History.—Announcement of candidacies for the 1948 presidential election and popular opposition to occupation of air-base sites by the United States dominated the political developments of 1947.

The proadministration Liberal Union coalition chose Domingo Díaz Arosemena as its presidential candidate in April; but one of its component groups, the National Revolutionary party, dissented and in August selected as its own standard-bearer José Isaac Fábrega, a former minister of foreign affairs. In November the Democratic Front presented Dr. José Joaquín Vallarino, ambassador to the U.S., to whom the Renovador party also pledged support, and the Authentic National Revolutionary party put forth Dr. Arnulfo Arias Madrid, the former president and ardent nationalist.

The approaching election made the government particularly responsive to public opinion, and when the United States failed to withdraw from the air-base sites on expiration of its previous lease, a popular reaction prevented ratification of a new agreement. The public attitude was expressed by nationalistic demonstrations in June, September and December, mostly instigated by student organizations.

The protracted diplomatic negotiations hinged largely on the

length of time the United States would occupy the 14 sites under a new lease. Panamá's proposal for a ten-year lease, renewable by renegotiation rather than by option, was rejected by the United States on Nov. 12. However, the resignation of Foreign Minister Ricardo J. Álfaro paved the way for a new agreement, signed Dec. 10. This one, authorizing a ten-year occupation with an option for five more years (ten more for the more important Río Hato base), was rejected by Panamá's legislative assembly on Dec. 22. The rejection was by unanimous vote in the assembly as about 10,000 demonstrators outside protested against the treaty. A willingness to negotiate anew was expressed by Pres. Jiménez and the new foreign minister, Francisco Arosemena Forte, but the year ended with the United States evacuating all its establishments within the republic.

In other foreign relations, Panamá refused to recognize the new administration in Nicaragua and expressed disapproval of the Allied treaty of peace with Italy, signed in Paris on Feb. 10.

Education.—In 1942 Panamá had 670 primary schools with an enrolment of 74,039; 29 intermediate schools enrolling 8,407 and a national university with 847 students. In 1947 the Inter-American university with its enrolment of 1,200 students was officially incorporated into the national university. As of Jan. 1, 1947, there were 59 motion-picture theatres with a total seating capacity of 46,630.

Finance.—The monetary unit is the balboa, maintained at par with the U.S. dollar. The national budget for the fiscal year 1946–47 estimated revenues and expenditures balancing at $38,178,303. The outstanding external debt amounted to $15,386,000 in 1946.

Trade and Resources.—During 1946, exports amounted to $6,800,000 ($4,507,137 in 1945) while imports were valued at $56,100,000 ($45,648,125 in 1945). During the first 6 months of 1947, exports totalled $4,700,000 and imports $28,700,000. Bananas, ordinarily comprising 70% of the exports, suffered heavy storm damage in 1947, but shipments during the first 7 months were normal (approximately 3,000,000 stems). Imports were chiefly manufactured goods and construction materials. Preliminary crop forecasts for 1947–48 estimated rice production at 2,817,000 bu. (2,606,000 in 1945–46); sugar 10,000 tons (9,000 in 1946); potatoes 68,000 bu. (51,000 in 1946). Exports in 1946 included cacao (41,781,000 lb.), rubber (138 tons), abacá fibre (2,385,124 kg.), cattle hides (32,653 units).

Communications.—Railroads measured 458 mi. in 1945, and there were 1,097 mi. of transitable highways (399 mi. unimproved). The new national airport, designed to accommodate 80 commercial planes daily, was opened to traffic in 1947. The phenomenal growth of the nation's merchant marine, through transfers from foreign registry, continued, with a total of 1,500 ships (2,000,000 tons) registered as of Feb. 1947.

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Pan-American Highway: *see* ROADS AND HIGHWAYS.

Pan American Union.

Changes in organization and direction marked the development of the Pan American Union during 1947. At the same time a first step was made in the reorganization of the whole inter-American system, and extensive studies were undertaken in anticipation of the completion of this process at the Ninth International Conference of American States, scheduled to convene at Bogotá, Colombia, on March 30, 1948.

At the meeting of the governing board of the Pan American Union held on March 12, 1947, Dr. Alberto Lleras, former president of Colombia, was elected director general for the term expiring Dec. 31, 1954. He thus became the first Latin American to occupy the office, which, since the establishment of the union in 1890, had always been filled by a North American. The board thereby gave effect to the resolution on the reorganization of the inter-American system adopted at the Inter-American Conference on Problems of War and Peace held at Mexico City in 1945, which stipulated that the term of office of the director general should be ten years, and that he should not be succeeded by a person of the same nationality.

The governing board at the meeting of July 23, 1947, also approved a plan for reorganization of the internal services of the Pan American Union, under which the technical and administrative divisions of the organization would be grouped into five major departments, as follows: international law and organization, economic and social affairs, cultural affairs, information and administrative services.

At the meeting of the governing board held on Nov. 10, 1947, Dr. Juan Bautista de Lavalle of Peru and Dr. José A. Mora of Uruguay, were elected chairman and vice-chairman, respectively, for 1948.

Inter-American System.—From Aug. 15 to Sept. 2, 1947, the Inter-American Conference for the Maintenance of Continental Peace and Security met at Petrópolis, near Rio de Janeiro, Brazil. The treaty of reciprocal assistance signed at that meeting gave permanent form to the principles incorporated in the act of Chapultepec signed at Mexico City in 1945. (*See* INTER-AMERICAN DEFENSE CONFERENCE.)

The treaty provided that the governing board of the Pan American Union should act as the provisional organ of consultation until a meeting of the ministers of foreign affairs of the American republics could be arranged. The treaty thus represented the first specific delegation of political powers to the governing board in line with the general principle laid down at the 1945 Mexico City conference.

In anticipation of the Bogotá conference in 1948, the governing board completed preparation of a project for an organic pact of the inter-American system, to embody for the first time in a single instrument the basic features of the international organization of the American republics.

Other projects prepared during 1947 for presentation at Bogotá included a draft declaration of the rights and duties of states and another on the international rights and duties of man; a comprehensive treaty embodying procedures for the pacific settlement of international disputes between American republics, drawn up by the Inter-American Juridical committee of Rio de Janeiro; and a basic agreement of economic co-operation, formulated by the Inter-American Economic and Social council. (*See* also ARGENTINA; FASCISM; INTER-AMERICAN DEFENSE BOARD; UNITED NATIONS.) (W. MR.)

Paper and Pulp Industry.

The estimated U.S. production of paper and paperboard in 1947 was about 21,000,000 tons—a new high record which did not, however, meet consumption requirements in most branches of the industry.

Table I.—*U.S. Paper Production*

	1940	1943	1946
Newsprint	1,056,304	811,309	775,042
Groundwood	550,453	585,673	770,433
Book	1,666,488	1,592,878	1,919,400
Writing and cover	626,396	1,020,601	1,143,257
Wrapping	2,500,818	2,470,039	3,007,396
Tissue	761,712	968,789	1,021,688
Building	682,460	877,582	1,011,398
Paperboard	6,449,548	8,620,434	9,431,941
All other	189,530	88,383	98,800
Total—short tons	14,483,709	17,035,688	19,179,355

The postwar increase in the capacity of paper, paperboard and building board mills covering 1946–48 was estimated at 3,258,600 tons. The capacity of the industry in the United

Table II.—*U.S. Production and Consumption of Paper, Wood Pulp and Pulpwood*

Year	Paper and Paperboard (short tons)		Wood Pulp (short tons)		Receipts of Pulpwood (cords)		
	Production	Consumption	Production	Consumption	Domestic	Imported	Total
1925	9,182,204	10,590,090	3,962,217	5,590,304	5,005,445	1,088,376	6,093,821
1931	9,381,840	11,403,850	4,409,344	6,005,718	5,896,446	826,320	6,722,766
1935	10,506,195	12,490,886	4,925,669	6,877,869	6,590,942	1,037,332	7,628,274
1940	14,483,709	16,620,632	8,959,559	9,781,739	12,307,138	1,435,820	13,742,958
1945	17,370,965	19,665,487	10,167,200	10,825,412	15,315,000	1,699,000	17,014,000
1946	19,179,355	22,411,476	10,605,225	12,088,500	16,089,560	1,728,000	17,817,560

Table III.—*U.S. Wood Pulp Production*

(In short tons)

Year	Unbleached Sulphite	Bleached Sulphite	Total Sulphate	Ground-wood	Soda	All Others	Total
1935 ..	634,947	944,620	1,467,749	1,355,819	485,162	144,002	5,032,299
1940 ..	995,700	1,612,089	3,747,992	1,842,875	532,857	228,046	8,959,559
1942 ..	1,213,066	1,717,206	4,738,266	2,276,126	462,065	376,701	10,783,430
1945 ..	815,969	1,543,762	4,471,875	2,386,859	429,757	518,978	10,167,200
1946 ..	784,391	1,692,077	4,588,016	2,573,166	476,211	492,666	10,606,527

States in 1945 was 20,282,050 tons; by the end of 1948 it was expected to reach 23,540,910 tons.

Canada.—Total production of paper grade wood pulp was about 10% higher in 1947 than in 1946. The production of newsprint rose by about 8%. There was a small increase in Newfoundland (about 9,300 tons). Among Canada's peacetime industries, pulp and paper continued to stand first in employment, total wages paid, export values, net value of production and capital invested. There were 113 Canadian pulp and paper mills in 1947, of which 35 were newsprint mills.

Table IV.—*Canadian Paper Production*

Kind	1942	1945	1946
Newsprint	3,256,000	3,324,033	4,162,000
Book and fine paper	121,000	162,198	190,000
Wrapping	166,000	162,175	175,000
Paperboard	619,000	541,000	616,000
Tissue	38,000	51,000	57,000
Other papers	41,000	66,000	80,000
Total (short tons)	4,241,000	4,306,406	5,280,000

Table V.—*Canadian Wood Pulp Production*

(short tons)

Year	Bleached Sulphite	Unbleached Sulphite	Sulphate	Soda	Groundwood	Total*
1935	374,157	644,820	236,536	20,887	2,563,711	3,868,341
1940	543,987	936,558	371,569	27,698	3,368,209	5,290,782
1945	603,929	1,034,755	478,740	48,396	3,380,873	5,600,814
1946	617,551	1,216,783	561,324	35,109	4,056,992	6,555,521

*Includes chemical pulp screenings.

United Kingdom.—The paper industry in Great Britain suffered from the coal shortage during 1947; before this crisis the mills operated at 35% of capacity. Since fuel allocations were cut 50%, the output, particularly of newsprint mills, was reduced to 17.5% of capacity. Imports of papers were limited by the dollar shortage. In 1938 total paper and paperboard production was 2,501,230 tons and imports 1,070,706 tons. In 1946 production was 1,735,190 tons and imports 326,750 tons. In 1938 paper and paperboard exports were 176,441 tons and in 1946, 113,904 tons. (R. G. M.)

Paprika: *see* SPICES.

Papua: *see* BRITISH EMPIRE.

Paraguay. A landlocked republic in south-central South America, bounded north and east by Brazil, south by Argentina, and west by Bolivia. Area 149,807 sq.mi. Population 1947 (off. est.) 1,200,000. Racially the people are a homogeneous blend of Spanish, Portuguese and Italian stocks, with a good deal of Guaraní Indian blood discernible especially in the remote areas. Official language: Spanish. The Guaraní tongue has survived more than the blood, but is secondary and recessive. Capital and chief centre: Asunción, pop. (1945 est.) 172,400. Other cities: Villarica 30,176, Concepción 16,007, Encarnación 15,610. The official religion is Roman Catholic. President in 1947: Gen. (Marshal) Higinio Morínigo.

History.—On Jan. 13, 1947, the Febrerista (leftist) cabinet members broke up the coalition government, leaving the Colorado and military members in charge. The issue was whether President Morínigo would pledge himself not to run for the presidency again, which the Febreristas did not desire. The government ordered the army garrisons at Concepción in the north and the Chaco in the west to arrest all Febrerista officers, whereupon an abortive revolt occurred at Asunción and successful revolts at Concepción and Lopez de Fillipis. Morínigo requested aid from neighbouring governments, but declined their mediation on the ground that it would encourage Communism. Keeping his crack cavalry and artillery regiments in the south, he sent a conscripted 2nd army by land against Concepción, entrusting general command to Col. Federico Smith.

The rebels in the north were led by Col. (ex-president) Rafael Franco, and commanded by Lt. Cols. Fabian Zaldivar, Alfredo Galleano and Aureliano Mendoza. They established a five-man cabinet and three radio propaganda stations; and were joined in May by the two principal naval units, the gunboats "Paraguay" and "Humaita," commanded by Rolando Ibarra. Working with untrained troops and through difficult terrain, Col. Smith was able to capture Concepción at the end of July; but the rebel army escaped and appeared on the outskirts of the capital, Asunción, on Aug. 10, while the gunboats and river steamer "Ituzaingo" also threatened the city. The Brazilian ambassador, who had attempted to mediate, withdrew to Brazil and foresaw the end of the Morínigo government; but the loyal and well-trained cavalry and artillery defeated the rebels completely within a few days, and the gunboats took refuge in Argentina. Col. Franco fled by plane, and the revolt came to a sudden end. It had been supported by the Liberal party members, many of whom were well-to-do exiles in Argentina where they were on friendly terms with the anti-Perón propertied class. President Perón of Argentina, having given assistance to an unascertainable extent to President Morínigo during the revolt, met with the latter Oct. 28 and negotiated a preliminary economic arrangement, said to involve a long-range $55,000,000 loan to Paraguay; thus expanding his southern economic bloc, Argentine-led. The Morínigo government later announced that elections would be held, both for the presidency and the house of representatives, on Feb. 15, 1948.

Education.—In 1946 the 2,000 elementary schools, of which a large share give three years' instruction, had at least 65,000 pupils; and there were 6 agricultural (secondary) schools, of which some had had extensive reorganization under U.S. agricultural advisers. National normal schools and a national junior college were maintained. The minister of education, Dr. Guillermo Enciso Velloso, was named ambassador to the United States in 1947.

Defense.—Paraguay's strategic situation beside the frontiers of the two great rival powers of South America, coupled with its conspicuous reputation for military prowess in two of the three great wars of the continent, give importance to its armed forces. Prior to the revolt of 1947 its army, based on conscription, numbered at least 8,000, and this figure was temporarily increased. The (river) navy, guarding Paraguay's much-used fluvial system and communication with the outside world, numbered some 1,400. At least 50% of the national budget is devoted to defense.

Finance.—The unit of Paraguayan currency is the guarani, which in 1947 was continued stable at 32.4 U.S. cents. All foreign exchange transactions are controlled by the National Bank of Paraguay. The national revenues increased during 1946, but were affected in 1947 by the civil war. The 1944 budget was some $10,000,000, the national debt being only $22,000,000. Note circulation in 1946 was more than $10,000,000.

Trade and Communication.—Paraguayan exports in 1946 reached a new high of $28,277,000, while imports rose to $22,112,000. The chief exports are canned corned beef, cotton fibre, cattle hides, quebracho extract, hardwood and cedar logs, tobacco, yerba maté and petitgrain oil. The imports are highly diversified, consisting of cotton and some woollen textiles, machinery, consumers' goods and foodstuffs of temperate zone origin.

The Argentine (Dodero) line of river steamships from Buenos Aires handles most of Paraguay's freight and passenger traffic; but a Brazilian subsidized line connects with Brazilian and Uruguayan ports and goes as far north as Corumbá (Brazil). The standard-gauge Central railway of Paraguay (British and Argentine) runs from Asunción southeast through the best farm and forest areas to connect by car ferries at Encarnación-Posadas with the Argentine railways, but its through traffic (one train per week) is small. It carries close to 2,000,000 passengers and 400,000 tons of freight annually. A Brazilian branch railway from Campo Grande (Matto Grosso) to Concepción in the north of eastern Paraguay was not yet in operation to any great extent in 1947. There were in 1947 about 500 mi. of modern highways, of which only 50 were macadam; and Route II, eastward from Asunción, had not been carried through to the Brazilian border, so that there were no effective connections between Paraguay and its friendly northeastern neighbour.

Excellent air connections with Asunción are maintained by Pan American World Airways, Panair do Brazil, the Corporación Sudamericana (Argentine river hydroplanes), and two military lines (Brazilian and Argentine). The Paraguayan government sustains a national air line for connecting the capital with the north and the Chaco. The number of telephones in Paraguay in 1945 was fewer than 4,000, and there were fewer than 200 telegraph offices. There were five radio stations and 16,000 receiving sets. Automobiles numbered 2,500.

Agriculture.—Paraguay is primarily a cattle country. The cotton crop has become the mainstay of the smaller farmers, ranging up to 50,000 tons; but the 1947 crop, excellent in volume and quality, could not be harvested fully because of the protracted revolt. The staple food, and largest crop, is mandioca; and bananas and citrus fruits are also staples (although not for export). Paraguay is usually more than self-sufficient in sugar production, with yields up to 16,000 tons; and grows some rice.

Manufactures.—There are important cotton textile mills in central and southern Paraguay, with minor silk and woollen mills. Plywood is a growing forest industry, and vegetable oil crushing is substantial and growing. In addition there is some flour milling, beer brewing, and production of glass bottles, matches, tobacco manufactures, furniture, soap and footwear.

Mines and Forests.—There are no minerals in Paraguay, and the active petroleum explorations in the Chaco by the Union Oil Co. of California had not yielded practical results when 1947 ended. Limestone and manganese exist in good quantity and quality, but the absence of fuels and fluxes prevents the establishment of cement and smelting plants. The extensive Paraguayan stands of timber are scattered and not uniform, and the wood is too hard for many common uses; but the floating of logs to Argentina continues on a fairly large scale. (W. FT.)

Parents and Teachers, National Congress of.

The National Congress of Parents and Teachers, the P.T.A., was founded in 1897 as the National Congress of Mothers. As of April 1947 its membership was composed of 4,486,855 parents, teachers and other interested persons, of whom more than 1,100,000 were men. These members were organized into about 28,000 local parent-teacher associations, functioning in each of the 48 states, the District of Columbia, and Hawaii.

The P.T.A. recognizes no social, economic, political, cultural, or religious distinctions among its membership. Anyone may join who is concerned with promoting the welfare of children and youth in home, school, church and community.

School education, health, world understanding and parent and family life education were the four areas of a national four-point program selected for special emphasis by the administration of the National congress. In 1947 objectives were established for each area and definite projects for achieving those objectives were initiated by local P.T.A.'s throughout the country.

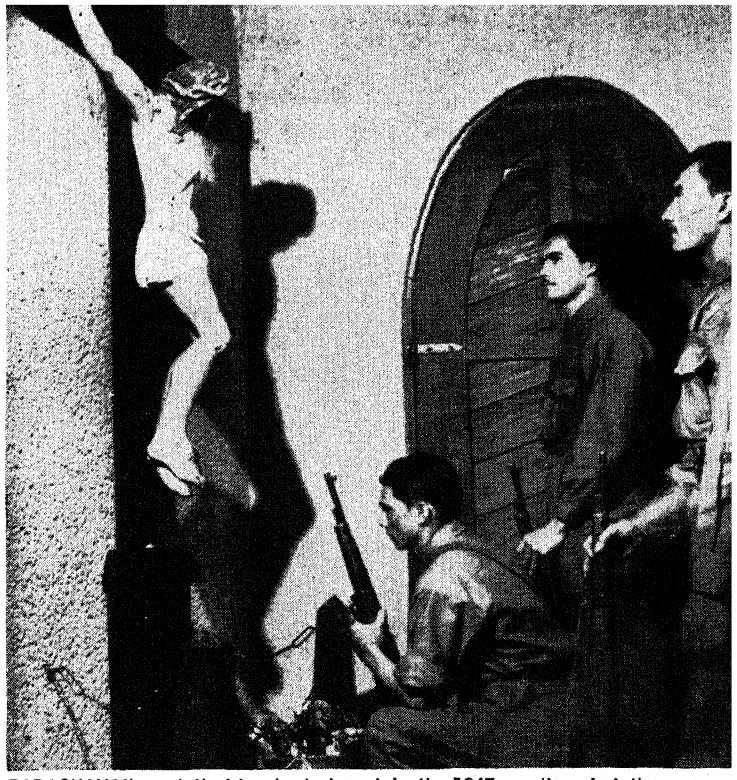
In the crucial area of school education the parent-teacher membership was particularly active in working for legislation that would provide federal financial aid for public, tax-supported schools. A united effort was also made to alleviate the shortage of teachers, to raise the level of teachers' salaries, to elevate the prestige of the profession and to bring about a more equal distribution of educational opportunities for all children. Partly as a result of parent-teacher influence, many state legislatures passed measures that increased teachers' salaries.

A special project to aid teachers of war-torn countries was successfully carried out by P.T.A.'s in the spring of 1947. Approximately 2,600 kits were filled with personal and school-room necessities at a cost of $65,000 and were shipped overseas.

The National congress carried on a far-reaching and co-ordinated program in the field of health. National, state and local parent-teacher leaders worked together to bring about the extension of public health services to all communities. As in past years, the congress supported school-lunch legislation and sponsored the annual Summer Round-Up of the Children, a medical checkup of children entering school for the first time. Safety education in all its phases was also stressed.

World understanding has long been a major objective of the parent-teacher organization. In 1947 the president of the National congress served as a member of the U.S. national commission for the United Nations Educational, Scientific and Cultural organization, and an official observer for the congress attended sessions of the United Nations.

The National Congress of Parents and Teachers co-operated with Northwestern university at Evanston, Ill., in establishing a three-year course of study and research in the field of home and school relationships. Starting in Sept. 1948 this course was to be conducted as part of the regular curriculum of the university's school of education and would be implemented by a grant from the National congress. During the summer of 1947 the parent-teacher organization also joined Northwestern university in sponsoring a summer workshop in parent-teacher leadership and a conference on language in human relations.



PARAGUAYAN revolutionists who took part in the 1947 revolt against the government of Gen. Higinio Morinigo. They wished to be photographed at prayer to dispel charges of communist domination in their movement

To promote parent and family life education, the National congress conducts an extensive publications program of books, leaflets, pamphlets and other informational material. Particularly important are the monthly *National Parent-Teacher: The P.T.A. Magazine* and a monthly newssheet, the *National Congress Bulletin.* The 50th birthday of the organization was marked by the publication of a *Jubilee History* of the parent-teacher movement from its beginnings. Also during 1947 the National congress again sponsored *The Baxters,* a weekly radio program.

The office of the National Congress of Parents and Teachers was in 1947 located at 600 S. Michigan Blvd., Chicago 5, Ill. (M. W. H.)

Paris. Capital and largest city of France, pop. (1946) 2,725,374.

The municipal elections of Oct. 19, 1947, produced a municipal council as follows: R.P.F. (*Rassemblement du Peuple Français*—Gaullists) 52; Communists 25; Socialists 8; M.R.P. (*Mouvement Républicain Populaire*—Catholic Progressives) 5. The former council was composed of Communists 27; M.R.P. 14; Socialists 12; other groups, mainly of the right, 37. On Nov. 17, Pierre de Gaulle, younger brother of Gen. Charles de Gaulle, was elected president of the municipal council, by 51 votes to 25 for a Communist candidate and 8 for a Socialist. The Communists walked out of the council chamber after a violent scene in which they accused the R.P.F. councillors of being "Vichyites" and "collaborators."

During 1947 great progress was made in reopening the museums of Paris. From the Louvre collection the older schools of art were on exhibition at the Petit Palais and the impressionists at the Jeu de Paume while big changes were being made in their normal home. The Galérie du Louvre was reopened on Oct. 17, after being completely redecorated. All the national collections



LEAFLETS and loudspeakers on radio trucks brought the news of the day to Parisians during the seven-day lock-out following a slowdown by press operators in Paris early in 1947

from the far east were being regrouped in the Musée Guimet, which was already partly open.

The staffs of many of the big department stores struck on June 19 for higher pay, returning on June 27 after their demands had been substantially conceded. On Oct. 11 a small breakaway union of Métro (underground railway) employees struck for higher wages; this action was supported the following day when the Confédération Générale du Travail came out in favour of wage increases for all transport workers in the Paris region. The strike came to an end on Oct. 20, after the unions and the government had agreed upon a 25% wage increase. During the stoppage the government organized an improvised service of trucks and other vehicles. Further strikes which caused stoppages in many industries in the Paris region occurred during November.

The number of students at the Sorbonne reached higher figures than ever before—45,414, of which 1,520 were foreigners.

During the summer meetings were held between the foreign ministers of Britain, France and the U.S.S.R., and from July to September the Committee of European Economic Co-ordination on the U.S. offer of aid to Europe met at the Quai d'Orsay.

Paris Peace Conference: *see* PEACE TREATIES.

Parks and Monuments: *see* NATIONAL PARKS AND MONUMENTS.

Parliament, Houses of.

During the second session of parliament, which was prorogued on Oct. 20, 1947, 54 public acts were added to the statute book, compared with more than 80 in the first session. These included two nationalization measures (of inland transport and of the electricity supply industry); bills for the better planning and control of development and use of the land; for continuing the centralized buying of cotton; to continue conscription for five years from Dec. 31, 1948; and for company law reform. The transport and electricity bills were passed through the house of commons under the "guillotine," used for the first time in the standing committees, whereby amendments are voted on without discussion.

The king, accompanied by the queen and Princess Elizabeth, opened the third session on Oct. 21. The speech from the throne, outlining the proposed legislation, mentioned bills to nationalize the gas industry; to amend the Parliament act, 1911; to abolish the Poor law; and to provide a new basis of exchequer grants to local authorities.

Important debates in the house of commons not involving legislation included one for setting up a royal commission on the control, management and ownership of the press; and another on the constitution of the committee of privileges which inquires into complaints of breach of privilege. Its chairman had hitherto usually been the leader of the house, but when Herbert Morrison sought to delegate this duty to a minister of lower status, a change which the house approved after a stormy debate, Winston Churchill, as leader of the opposition, also withdrew. In October, on the appointment of the committee for the third session, W. J. Brown, Independent, made a further protest on the constitution of the committee. Three inquiries were held and reported on. W. J. Brown had complained of pressure being brought to bear on him by a trade union.

In April, Garry Allighan, Labour member for Gravesend, wrote an article in *World's Press News* on the manner in which newspapers obtained information from members. The article contained allegations against members which were proved to be unfounded. The committee declared that Allighan himself had sold reports of confidential party meetings to the *Evening Standard*. The committee found him guilty of "an aggravated contempt of the house and . . . a gross breach of privilege." On a free vote of the house in October he was expelled by 175 votes to 75. Evelyn Walkden, Labour member for Doncaster, who also supplied confidential reports, was "severely reprimanded." The editor and political correspondent of the *Evening News* were called to the bar of the house for refusing to answer questions put by the committee, and the editor of *World's Press News* was called to the bar and reprimanded by the speaker.

The cabinet was reshuffled twice; once in April, when Lord Pethick-Lawrence (secretary of state for India and Burma) resigned and was succeeded by the earl of Listowel, and Lord Pakenham succeeded John B. Hynd as the minister responsible for the occupation of Germany and Austria; and again in October when 12 ministers resigned. Sir Stafford Cripps was appointed minister for economic affairs, and was succeeded at the board of trade by Harold Wilson. Emanuel Shinwell left the ministry of fuel and power to become secretary of state for war without a seat in the cabinet. Philip Noel-Baker entered the cabinet as secretary of state for commonwealth relations (formerly the dominions office), and Arthur Woodburn, secretary of state for Scotland.

Hugh Dalton, as chancellor of the exchequer, introduced two budgets during the year, on April 15 and on Nov. 12. On Nov. 13, after apologizing to the house of commons for "a grave indiscretion" in revealing his budget proposals to a newspaper correspondent before his speech, Dalton resigned from the government and was succeeded by Sir Stafford Cripps, who retained general responsibility for economic affairs.

On Dec. 17, the house of commons voted allowances of £25,000 to Princess Elizabeth (duchess of Edinburgh), in addition to £15,000 granted under the Civil List act, 1937, and £10,000 to the duke of Edinburgh. A Labour back-bench amendment to reduce the grant to Princess Elizabeth by £5,000 was defeated by 291 votes to 165, and the select committee's proposals were carried without a division.

The house of lords met for one day during the summer recess to discuss the economic situation, but the government could not agree to a general debate. On Nov. 10, Herbert Morrison, lord president of the council, moved the second reading of a two-clause bill to reduce the veto of the house of lords, which had been fixed in the Parliament act, 1911, as two years, to one year. An opposition amendment to reject the bill was defeated

by 345 votes to 194.

In the house of lords Viscounts Wavell and Mountbatten of Burma were created earls; Lord Jowitt, the lord chancellor, and Stanley Bruce, former prime minister of Australia, were created viscounts, and 15 new baronies were created. (*See* also CABINET MEMBERS; GOVERNMENT DEPARTMENTS AND BUREAUS.)

(L. DU.)

Parodi, Alexandre (1901–), French government official, was born June 1, in Paris. He studied law and became master of appeals in the French Council of State and later secretary general of the National Economic council; in 1938 he was named director general of the ministry of labour. During the German occupation, he was active in the underground. He was president of the underground press commission, one of the guiding spirits of the Paris insurrection in Aug. 1944 and minister of labour and social security in Gen. Charles de Gaulle's provisional government (Sept. 1944–Nov. 1945). Parodi was named permanent delegate (April 12, 1946) to the United Nations Security council, replacing Henri Bonnet. On May 17, he became president of the council under the rotation plan. He supported Dr. Oscar Lange's proposal that the U.N. member states break off diplomatic relations with Spain on grounds that the Franco regime was a threat to world peace but sided with the U.S. and Britain in discussions on Greece and on atomic energy. In 1947, Parodi was named to membership on the Security council's new commission for conventional armaments, and on April 28 of that year he was elected as one of the 7 vice-presidents of the assembly's 14-man general committee.

Patel, Vallabhbhai (1876–), Hindu government official, who studied law in London, developed a flourishing practice in India as a criminal lawyer. After meeting Gandhi in 1915, Patel joined the latter's fledgling movement and in the succeeding years built up the All-India Congress party into a powerful political machine.

In the party machinery, Gandhi made policy or laid down a line to follow and Patel put it through. An able organizer as well as an astute political "boss," Patel managed the election campaign of 1937, in which the Congress party scored an overwhelming victory, as well as many civil disobedience campaigns.

Patel's revolutionary activities were not appreciated by the British authorities and he spent at least half of the period from 1931 to 1947 in prison. By 1947, he rose to eminence as one of the powers to reckon with in Indian politics. On one side, he had the respect of the Indian peasantry who had bestowed upon him the unofficial title of "Sardar" (generalissimo). On the other, he had the confidence of wealthy Hindu and Parsee industrialists who contributed heavily to the Congress party.

In the first all-Indian government formed by Jawaharlal Nehru on Sept. 2, 1946, Patel was made minister of home affairs, information and broadcasting. After partition of India into Hindu and Moslem states, he was given the same portfolio in the government of the dominion of India.

Patents. The United States patent office in the year 1947 granted a total of 22,433 patents, which included 2,102 for designs, 52 for plants and 130 reissues. This was a decrease of 2,342 from the total of 24,775 patents granted in 1946.

Applications for patents filed in the U.S. patent office for the first 11 months of 1947 totalled 76,517. For the entire year 1946, a total of 91,994 applications were filed; nearly 250,000 applications had been received from Jan. 1, 1945. Approximately 150,000 applications were awaiting action by the office in Dec. 1947; in addition, about 70,000 cases were awaiting response from applicants and attorneys to office actions. In an effort to cope with this backlog the patent office was expanding its staff of examiner personnel, training the recruits and instituting administrative and other reforms.

Trade-marks registered (8,981) and renewed (6,140) during 1947 totalled 15,121, compared with 13,841 in 1946. Applications for registration of trade-marks filed in the first 11 months of 1947 (26,698) and for renewals (4,562) totalled 31,260, nearly 4,000 more than the record filing for the entire year 1946. Some of this increase is attributable to the New Trademark act which became effective July 5, 1947. Rules of practice in trade-mark cases, for use under the new act, had been prepared and together with the statutes and other information were published in a newly styled booklet.

Approximately 19,000 patents had been entered on the register of patents available for licence or sale after it was established in May 1945. About 7,000 were added during 1947. Patents listed on the register are published in the *Official Gazette*.

The patent office had by 1947 granted more than 2,430,000 patents, printed copies of which may be purchased for 25 cents each; designs and trade-marks cost 10 cents each. During the year ended June 30, 1947, nearly 5,500,000 copies of patents were distributed, 500,000 going to libraries and 1,250,000 to foreign countries under exchange agreements.

During 1947 the patent office was actively engaged in the administration of the Boykin act (public law 690, 79th congress) which extends temporarily the time for filing applications for patents, and for taking other actions in the patent office, not capable of being done during World War II. Certain portions of this act were extended to a date not later than Feb. 29, 1948, by public law 220, 80th congress. After congress ratified the treaties of peace with Italy, Hungary, Bulgaria and Rumania, legislation (public law 380, 80th congress) was enacted to carry into effect certain parts of the treaties relating to patents. Since this law provides for the filing of patent applications, it is administered by the patent office. With certain limitations it also permits filing by nationals of Germany and Japan.

Innovations and improvements in the patent office made during the year to carry out a policy of better service to the public include institution of a perpetual inventory system of printed copies of patents, availability of complete, prewar search room facilities on Saturdays and evenings, the printing on copies of patents of references cited during pendency of the application, and abolition of certain restrictions on interviews with examiners.

Net receipts for the fiscal year ended June 30, 1947, were $4,815,260.47, an increase over the preceding year of $312,977.30, and obligations incurred under all patent office appropriations amounted to $7,262,472.27 as compared with $5,914,470.40 for the preceding year. (L. C. K.)

Paul I (1901–), king of the Hellenes, was born on Dec. 14 in Athens, second son of King Constantine and Queen Sophia. On June 11, 1917, he left Greece with his father and his elder brother, the future King George II; he came back to Athens on Dec. 6, 1920, after the Greek people had recalled Constantine to the throne. Having been graduated from the naval college Prince Paul joined the Greek navy, wherein lay his principal interest. When King Constantine abdicated in 1922 and was succeeded by Prince George, Prince Paul became *diadoch* or heir presumptive. During King George's exile (1924–35), Prince Paul spent many years in England and visited the United States. A keen sportsman, he gained his pilot's wings in 1936. He returned to Greece when, after the restoration of

monarchy, he resumed his service with the Greek navy. On Jan. 9, 1938, he married Princess Frederika of Brunswick (born April 11, 1917). They had one son, Prince Constantine, born at Psychico, on June 2, 1940, and two daughters, Princess Sophia, born in 1939, and Princess Irene, born in Capetown in 1942. Prince Paul succeeded to the throne on the sudden death of King George II on April 1, 1947.

"Pay-as-you-earn" System: *see* TAXATION.

Peace Treaties. The peace treaties with Italy, Rumania, Bulgaria, Hungary and Finland, completed by the Council of Foreign Ministers in Dec. 1946, were signed on Feb. 10, 1947; that with Italy at Paris, the others at Moscow. Repeated threats to the contrary, the Yugoslav government signed the Italian treaty, which the Italian Constituent assembly had declined to accept or reject.

At Paris the Italian government protested against the "imposed" treaty, and Foreign Minister Count Carlo Sforza urged Italy's claim to peaceful revision. Agitation for revision had thus begun before the treaty came into force. On July 31 the Italian Constituent assembly appealed to France not to annex the Alpine territories assigned to it. In a message of Aug. 2 Secretary of State Marshall encouraged Italy to seek revision of the treaty through the United Nations or in bilateral negotiations. Panamá, Ecuador and Costa Rica had previously protested the terms of the treaty, and on Aug. 21 seven Latin American countries, led by Argentina, introduced a resolution asking the General assembly of the United Nations to recommend its revision. This resolution, placed on the assembly's agenda over the opposition of the soviet-led bloc, failed to come up during the second regular session.

The treaties came into force on Sept. 15, 1947, having been ratified by the United Kingdom on April 29, by the United States on June 14, by France on June 17, and, after long uncertainty as to its intentions, by the Soviet Union on Aug. 29. Despite violent criticisms, the treaty was ratified by the Italian Constituent assembly on July 31 by a vote of 262–68. Hungarian, Rumanian, Bulgarian and Finnish ratifications were completed by late August, and on Sept. 15 the five former axis states were again legally at peace and eligible for admission to the United Nations. The implied promise of membership was not fulfilled during 1947, however, because of disagreements among the great powers.

Under the treaties soviet forces were to evacuate Bulgaria, and British and U.S. forces were to leave Italy, within 90 days, while an unspecified number of soviet troops could remain in Hungary and Rumania to maintain lines of communication with soviet forces in Austria. In December the soviet government announced evacuation of Bulgaria. The final withdrawal of U.S. troops from Italy, first announced for Dec. 2, was hastily postponed during a period of sharp internal strife in Italy, until Dec. 14.

The shares of the Italian navy assigned to them under the treaty were renounced by the U.S. and British governments on Oct. 4 and Nov. 3. To this extent Italian pride was salved, and the Italian government was spared the expense of repairing and outfitting these vessels, which instead were scrapped. On Dec. 16 the four major Allies allowed the Italian government to scrap its remaining submarines instead of sinking them at sea. In October the Yugoslav government renounced $25,000,000 in reparations allotted to it under the treaty with Bulgaria.

The Italo-Austrian agreement on the South Tyrol was reported to be working moderately well. Use of German in education, administration and daily life was fully protected, in contrast to pre-1943 conditions, but there was no agreement concerning the repatriation of former inhabitants who had been moved to Germany and Austria under the German-Italian agreement of 1940.

Coming into force of the Italian treaty gave effect to the minor Alpine areas assigned to France except for Tende-Brigue, the only inhabited area, which, under French constitutional practice, became part of France after a plebiscite held on Oct. 11.

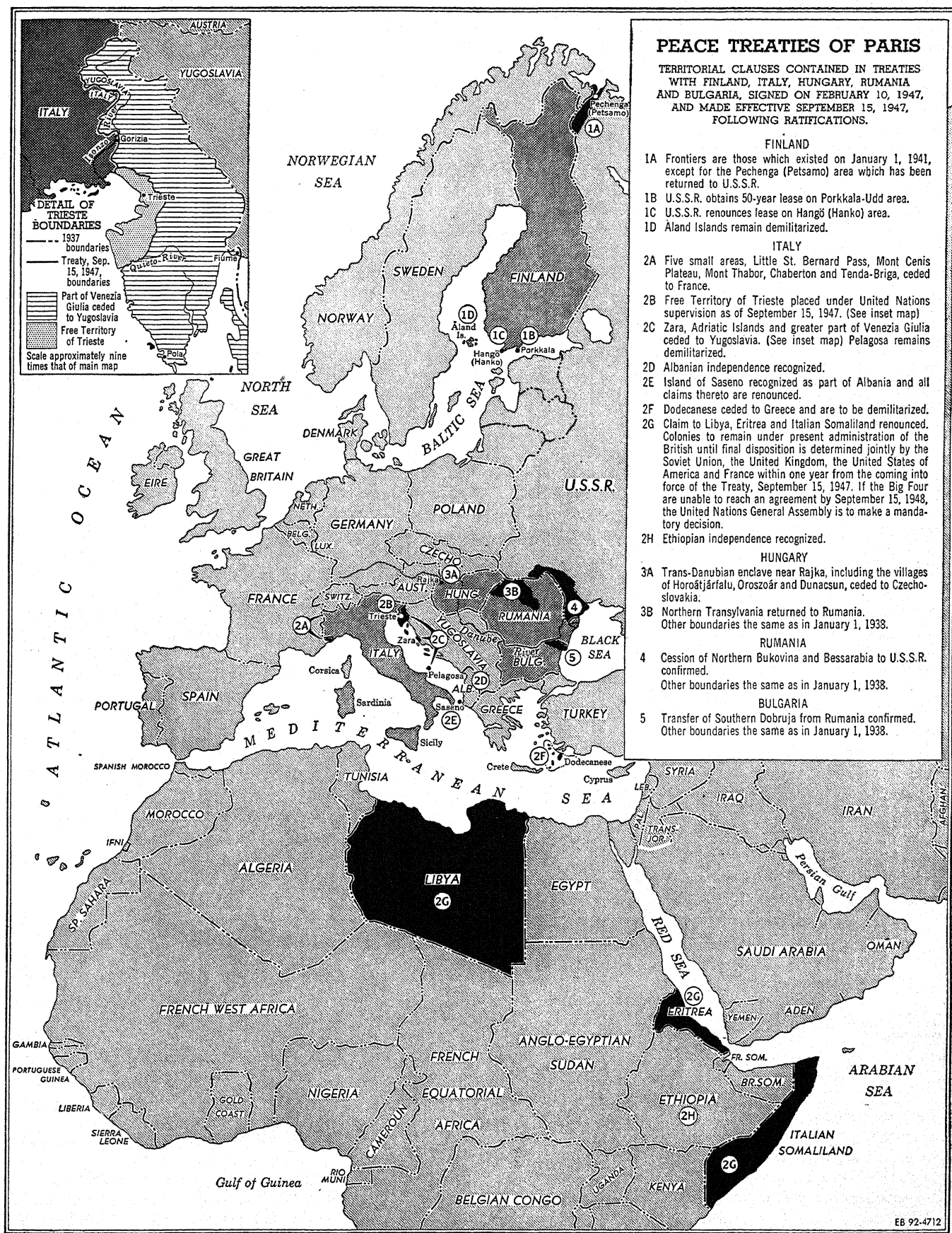
By an agreement of June 1946 the future of the former Italian colonies was to be determined in the first instance by the four major Allies, within one year of the coming into force of the treaty. The British government invited France, the U.S.S.R. and the United States to confer on this problem at London on June 6. On June 5, however, the conference was called off, because the soviet government held that negotiations could begin only after the treaty had been ratified. Meeting intermittently from Oct. 3–29, the deputies and the commission of investigation agreed to grant hearings on the future of the colonies to all signatories of the treaty, plus Egypt. On Oct. 29 the French delegation circulated a memorandum proposing rectifications in the frontier between Eritrea and French Somaliland, in addition to earlier and extensive claims to western and southern Tripolitania. After long debates the commission agreed on a schedule for its visits to the colonies and set June 7, 1948, as the deadline for its report to the deputies.

During March and April a four-power commission assisted by Italian and Yugoslav representatives marked out the provisional boundaries between Italy, Yugoslavia and the future Free Territory of Trieste. Meanwhile some 90% of the people of Pola, assigned by the treaty to Yugoslav sovereignty, migrated to Italy. Serious incidents occurred on Sept. 15–16 when Yugoslav troops attempted to advance beyond the provisional demarcation lines in Venezia Giulia. British and U.S. forces of 5,000 men each took up positions in the city of Trieste and its immediate environs while Yugoslav forces continued to occupy the part of Istria assigned to the Free Territory. In the absence of great-power agreement on a governor for the territory, Anglo-U.S. and Yugoslav military authorities continued to administer the area in two disjointed segments. (*See* TRIESTE, THE FREE TERRITORY OF.)

On July 11 the United States government took the first formal step toward drafting a peace treaty with Japan. It proposed that a conference of the 11 countries represented in the Far Eastern commission (Australia, Canada, China, France, India, Netherlands, New Zealand, Philippines, United Kingdom, U.S.S.R., United States) meet on Aug. 17 at San Francisco, Calif., or Washington, D.C., to prepare a draft treaty, which would then be submitted to a general conference of countries at war with Japan. Decisions in the preliminary conference, the U.S. held, should be adopted by a simple two-thirds' majority, without giving the great powers veto rights.

The proposal met with general approval except on the part of China and the Soviet Union. A Chinese note of July 24 proposed that decisions be adopted by a vote of two-thirds, including the votes of three out of the four great powers (China, United Kingdom, U.S.S.R., United States). On July 22 the soviet government, denouncing the U.S. proposal as a "violation" of the Potsdam agreement on treaty procedure, insisted that the treaty be drafted by the four great powers, each of the latter to retain the veto right. It also maintained that only the four powers, by agreement, could issue an invitation to a conference. The United States government denied that the Potsdam agreement applied to the drafting of the Japanese treaty and insisted that the 11 states represented in the Far Eastern commission had a special interest in all matters relating to the treatment of Japan.

A compromise was advanced informally on Oct. 18 by the



Chinese foreign minister, Wang Shih-chieh, under which the treaty would be drafted by 11 states, with retention of the great-power veto. It was intimated that China would not attend the conference without soviet participation, since such a step might be interpreted as a derogation from the agreement not to enter into separate negotiations with Japan (article 2, Sino-Soviet treaty, Aug. 14, 1945). Formally transmitted to the other three governments on Nov. 17, this proposal was rejected by

the soviet government, which insisted upon exclusive competence of the four powers, and by the British government, which was even more determined since the Canberra conference not to impose a subordinate role upon the British dominions in making peace with Japan.

The British Commonwealth conference, held at Canberra between Aug. 26 and Sept. 1, had also shown that the commonwealth governments, five of them prospective members of the 11-power conference, were in agreement on the broad lines of the peace, especially on the necessity for complete demilitarization and continuing supervision of Japan. Some differences were apparent over the extent to which reparations should be exacted.

Upon the adoption of a new constitution, by which Japan was declared disarmed "forever," it was suggested in several quarters that Japan's security should be placed under a United Nations guarantee. There were also persistent reports that the United States would seek a strategic trusteeship over the Ryukyu Islands, or at least over Okinawa. Chinese circles were reported divided on whether to press China's claim to the Ryukyus. U.S. and British commonwealth thinking was reported to be turning against the idea of large-scale removals of Japanese industrial equipment as reparation, in favour of promoting a larger Japanese contribution to the development of the despoiled nations of the far east through deliveries from current production and through revival of Japanese trade. Unofficial Japanese views also favoured current deliveries as against removals of capital equipment. (*See* articles on individual nations concerned; *see* also FOREIGN MINISTERS' CONFERENCES; INTERNATIONAL LAW.) (P. E. M.)

Peaches: *see* FRUIT.

Peanuts. The 1947 production of peanuts in the United States was estimated at 2,251,000,000 lb.—the sixth consecutive crop of more than 2,000,000,000 lb. The crop compared with 2,038,355,000 lb. harvested in 1946 and a ten-year average of 1,672,885,000 lb. The 1947 yield was 667 lb. per ac. compared with 649 lb. in 1946 and 719 lb. for the ten-year average. Acreage was 3,378,000 compared with 2,383,000 for the previous ten years and 1,900,000 ac. in the prewar decade. The top yields were harvested in Virginia, 1,230 lb. per ac., North Carolina 1,175 lb. and New Mexico, 1,100 lb. In Georgia, the leading peanut state, the average yield was 715 lb. per ac. and in Alabama 650 lb.

U.S. Peanut Production 1947, 1946 and 10-yr. Average, 1936–45

(In thousands of pounds)

State	1947	1946	10-yr. average
Georgia	780,780	716,900	561,373
Texas	372,725	395,005	211,538
North Carolina	343,100	272,875	304,772
Alabama	293,800	259,600	269,178
Virginia	199,260	191,250	169,892
Oklahoma	151,125	117,130	49,150
Florida	65,625	46,500	57,460
South Carolina	16,900	16,900	15,831
New Mexico	15,400	8,200	6,836
Mississippi	4,875	5,250	10,584
Tennessee	3,750	4,250	6,322
Arkansas	2,800	3,375	7,882
Louisiana	1,500	1,120	4,118

The price of peanuts, which at the beginning of 1947 stood at an average of about $8.90 per 100 lb., rose to $10 in May and then declined slightly. The government supported peanut prices by purchases through growers co-operation associations at about the same rate, $172 per ton, as in 1946. Loans could be made until Jan. 1948.

World peanut production in 1947 was estimated at 9,800,000 tons by the U.S. department of agriculture—a small increase over 1946, but less than the 10,160,000-ton record of 1943 and slightly above the prewar average of 9,530,000 tons for 1935–39. Increased production in the United States, India, Netherlands Indies and French Africa slightly overbalanced the reductions in China, Nigeria and Argentina. The greatest development in peanut growing was in Belgian Congo where the acreage had been doubled since 1939. The British government provided tractor equipment, and the 64,000-ton crop of 1946 was expected to increase to more than 680,000 tons by 1952. (*See* also CHEMURGY; FOOD RESEARCH.) (J. C. Ms.)

Pears: *see* FRUIT.

Peat. There is little if any demand for peat for fuel in the United States, it being mainly used for soil improvement, either added directly or as a constituent of mixed fertilizer, where it also serves to keep the fertilizer from caking. The domestic industry was recovering from the adverse effects of World War II, with production increasing from 97,000 short tons in 1944 to 107,000 tons in 1945 and 140,700 tons in 1946. At the same time imports rose from 64,383 tons to 77,673 tons and 84,078 tons. While the domestic output accounted for 60% of the supply on a tonnage basis, imports comprised more than 70% of the total value. (G. A. Ro.)

Pecans: *see* NUTS.
Pemba: *see* BRITISH EAST AFRICA.
Penicillin: *see* CHEMOTHERAPY; MEDICINE; UROLOGY.

Pennsylvania. A middle Atlantic state of the U.S. and one of the original 13 states of the union, popularly known as the "Keystone state." Area, 45,333 sq.mi., including 288 sq.mi. of inland water; pop. (1940) 9,900,180, of whom 8,453,729 were native-born white, 973,260 foreign-born white and 470,172 Negroes. The urban population in 1940 numbered 6,586,877 and the rural 3,313,303. Capital, Harrisburg (83,893). Cities with a larger population: Philadelphia (1,931,334); Pittsburgh (671,659); Scranton (140,404); Erie (116,955); Reading (110,568); Allentown (96,904); Wilkes-Barre (86,236). The Pennsylvania state planning board estimated the state's total population including its citizens in military service, as of Aug. 1946, at 10,238,012. The U.S. census estimate of civilian population, July 1, 1947, was 10,281,000.

History.—Elected to the U.S. senate, Edward Martin resigned the gubernatorial chair Jan. 2, 1947, and was followed by Lieutenant Governor John C. Bell, who headed the interim administration until James H. Duff was inaugurated as Pennsylvania's 34th governor on Jan. 21.

The 1947 legislature made extensive appropriations for the construction of mental hospitals, for public health, conservation, education, highway construction and veterans' aid. Emergency taxes were levied on a variety of luxury items. A Tax Equalization commission was created to study the structure of state and local tax systems.

Implementing the conservation program begun in 1945, a law was enacted to control certain coal stripping practices in the anthracite field. The regulations, designed to prevent the pollution of the state streams by communities and industries, were vigorously enforced.

The high prosperity of the state is reflected in the records for both agricultural and industrial production in 1947. Farm income reached a record high. Factory pay rolls for the first nine months of 1947 were 24% above those for the same period in 1946. Employment made a new peacetime record. The Pennsylvania state employment service placed 6,500 handicapped persons during the first nine months of 1947.

A significant special election of the year attracting national interest was the contest between Franklin H. Lichtenwalter (Rep.), speaker of the house, and Phil H. Storch (Dem.) for

the Bucks-Lehigh 8th congressional district seat left vacant by the death of Charles L. Gerlach. Polling a heavy rural vote, Lichtenwalter won by a majority of 16,000. Both Democratic and Republican presidential nominating conventions were scheduled for Philadelphia's Convention hall in 1948.

The principal officers in 1947 included: James H. Duff, governor; Daniel B. Strickler, lieutenant governor; T. McKeen Chidsey, attorney-general; William S. Livengood, Jr., secretary of internal affairs; G. Harold Wagner, auditor general; Ramsey S. Black, state treasurer; and George W. Maxey, chief justice.

Education.—Statistics for 1945–1946, the latest year for which complete figures were available, show an enrolment of 1,521,213 pupils in the public schools of Pennsylvania, including 40,748 in the kindergarten, 917,348 in the elementary division and 563,117 in the secondary schools. Similarly, there were 589 kindergarten teachers, 33,090 elementary teachers, 23,806 giving instruction in high schools and 1,962 supervising officials. The total expenditure, including current expense, capital outlay, and debt service was $224,117,721, of which $187,857,977 was for current expenses. School districts supplied 76% of their receipts from local taxation, with the state and federal governments contributing the remaining 24%.

Social Insurance and Assistance, Public Welfare and Related Programs.—During 1947, expenditures by the department of public assistance totalled $104,000,000, including $68,000,000 state funds and $36,000,000 federal funds. The assistance rolls contained an average of 90,000 old-age assistance cases, 38,000 cases receiving aid to dependent children, 30,000 general assistance cases, 14,000 blind pensioners.

The state maintains eight penal and correctional institutions for the support of which a biennial appropriation of $12,000,000 was made for 1947–49. In addition, it owns and operates 10 medical and surgical hospitals, which received an appropriation of $6,500,000; 4 institutions for the feeble-minded and epileptic, $8,300,000; 18 mental hospitals, $44,000,000; and contributed $12,781,275 for the aid of privately-operated hospitals and homes.

Communications.—Of the approximately 100,000 mi. of highways in 1947, 40,900 mi. were on the highway system and were under the supervision of the Pennsylvania department of highways. Included in this total were 683 mi. in the cities of Pennsylvania and 2,147 mi. in the boroughs. As of Nov. 30, 1947, 36,400 mi. were of improved type, leaving 4,500 mi. unimproved. In addition, there were 160 mi. of superhighway operated by the Pennsylvania Turnpike commission.

Banking and Finance.—On Oct. 6, 1947, there were 360 state banks, including 8 savings banks, with assets of $4,870,818,107.37. These state banks had total deposits of $4,378,020,458.65.

In addition, there were as of Dec. 31, 1946, 802 building and loan associations with assets of $390,698,946.42.

On Oct. 6, 1947, there were 655 national banks located in Pennsylvania, with assets of $7,043,991,000. The deposits of these national banks totalled $6,307,490,000.

Appropriations from the general fund and motor licence fund for the biennium ending May 31, 1949, were $769,280,749. The estimated receipts were $895,721,080. The gross debt Oct. 31, 1947, was $74,688,000, which securities in the sinking fund reduced to a net of $38,269,753.

Agriculture.—The total gross farm income for 1946 was $748,987,000, including $648,898,000 in cash receipts from farm marketings and $27,873,000 in federal government payments.

Table I.—*Leading Crops of Pennsylvania, 1946 and 1947*

Crop	Production 1946	Production 1947	Acreage 1947	Yield per acre 1947	Value 1947
Corn, bu.	59,340,000	57,460,000	1,352,000	42.5	$140,777,000
All wheat, bu.	19,912,000	22,296,000	929,000	24.0	53,510,000
Oats, bu.	30,033,000	19,865,000	685,000	29.0	21,852,000
Barley, bu.	3,942,000	4,059,000	123,000	33.0	6,088,000
Rye, bu.	341,000	279,000	18,000	15.5	558,000
Buckwheat, bu.	2,394,000	1,938,000	125,000	15.5	3,682,000
Potatoes, bu. (white)	20,066,000	17,985,000	109,000	165.0	30,574,000
Tobacco, lb.	58,808,000	61,100,000	39,400	1,551.0	19,940,000
All hay, tons	3,804,000	3,651,000	2,437,000	1.5	63,892,000
Apples, bu.	9,360,000	6,612,000			14,877,000
Peaches, bu.	1,716,000	1,920,000			4,608,000
Pears, bu.	318,000	262,000			563,000
Cherries, tons	5,300	5,100			1,291,000
Grapes, tons	18,700	17,500			1,925,000

Manufacturing.—In 1946 there were 17,516 manufacturing establishments in the state, employing 1,565,449 persons to whom $3,463,883,000 was paid in wages and salaries. The capital invested was $4,018,550,000 and the value of the goods produced was $12,010,975,100. Included as part of the latter amount, value added by manufacture was $5,412,180,100. The value of the product of the principal industries for 1940 and 1946 is shown in Table II.

Mineral Production.—The value of the principal mineral products of the state in 1940 and 1945 is shown in Table III.

Table II.—*Principal Industries of Pennsylvania, 1946 and 1940*

Industry	Value of Products 1946	1940
Metals	$4,678,357,900	$2,944,848,400
Textiles	1,756,269,100	795,457,200
Food	1,964,498,300	740,801,600
Chemicals	1,008,207,900	518,062,300
Paper and printing	729,168,400	372,074,400
Leather	383,526,500	174,963,900
Tobacco products	152,664,100	92,272,300
Lumber and its remanufacturing	185,137,500	79,733,100

Table III.—*Principal Mineral Products of Pennsylvania, 1945 and 1940*

Important Mineral Products	Value 1945	1940
Bituminous coal	$433,627,000	$237,333,374
Anthracite	323,944,435	205,490,000
Pig iron	361,684,919	282,666,561
Petroleum	46,680,000	39,700,000
Natural gas	40,270,000	41,733,000
Cement	25,549,621	38,350,998
Stone	22,266,706	19,855,478

(J. H. Df.)

Pennsylvania, University of. An institution of higher learning at Philadelphia, Pa. Buildings especially designed to house the army and navy reserve officers training corps units and their equipment were completed during the year 1947, as was a new laboratory for the school of veterinary medicine. An additional building also was acquired for use by the school of education.

Accessions through gift and purchase brought the total number of volumes in the university library and departmental libraries to 1,034,000. A rare-book room, with a specially trained administrative staff and a capacity of 30,000 vols., was opened in the main library to house extensive and valuable collections in various fields.

In the Moore school of electrical engineering a new electronic supercalculator to be known as the E.D.V.A.C. (electronic discrete variable computer) was under construction for the army ordnance department. With a so-called "mercury tank memory" as one of its most distinctive features, the E.D.V.A.C. is designed to excel the army's world-famous E.N.I.A.C. (electronic numerical integrator and computer) in capacity to solve mathematical problems and in speed of over-all operation, but is far more compact and less costly. The E.N.I.A.C. also was built in the Moore school for the ordnance department of the army.

Of particular significance among curricular developments was the announcement of a program of Indian and related Asian studies, including both teaching and research. Made possible by a grant of $155,000 from the Carnegie corporation and one of $60,000 from the Rockefeller foundation, the program was to be in full operation in the fall of 1948. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (G. W. McC.)

Pension, Old-Age: *see* RELIEF; SOCIAL SECURITY. *See* also under various states.

Pensions, Army and Navy: *see* VETERANS' ADMINISTRATION.

Pepper: *see* SPICES.

Performing Right Societies: *see* SOCIETIES AND ASSOCIATIONS.

Perfume: *see* SOAP, PERFUMERY AND COSMETICS.

Permanent Joint Board on Defense (U.S. and Canada). There are six U.S. members of the board, four of which represent the army, the navy and the air force, with one member from the department of state and a civilian chairman appointed by the president. There are five Canadian members representing the air force, army and navy, with one member from the department of external affairs and a civilian chairman appointed by the cabinet.

The two governments announced on Feb. 12, 1947, that they had decided to continue in peacetime the close co-operation which had existed between their armed forces during World War

II. The announcement declared that collaboration would include the interchange of service personnel; co-operation and exchange of observers in connection with exercises and tests; standardization of arms, equipment, organization and methods of training; mutual and reciprocal availability of military, naval and air facilities in each country and transit of military aircraft and public vessels of the one country through the territory of the other with a minimum of formality. The announcement stated that no treaty, executive agreement or contractual obligation had been entered into, and that either country might at any time discontinue collaboration. The two governments declared that they believed this arrangement was a contribution to the stability of the world and to the establishment through the United Nations of an effective system of world-wide security. A copy of the statement was sent by each government to the secretary general of the United Nations for circulation to all its members.

(W. E. TH.)

Perón, Doña María Eva Duarte de (1919–), wife of the Argentine president, Juan Domingo Perón, was born on May 7 in Los Toldos, a village in Buenos Aires province. She became an actress and in 1943 she met Juan Perón, then undersecretary of war.

They were secretly married in Oct. 1945 and about four months later Perón was elected president.

As "first lady," Señora Perón had no official job or title. Nevertheless, her power in the government was considerable. She was frequently called Perón's "minister without portfolio," and the liberal opposition referred to the Perón ménage as the "dual presidency." Señora Perón went to Europe in the summer of 1947 as an unofficial "goodwill ambassador." In Madrid, she received a 21-gun salute and conferred with Gen. Francisco Franco. After touring Spain, she went to Rome and was received in private audience by Pope Pius XII on June 27; communist demonstrations in Rome marred her Italian visit. On July 21 she arrived in Paris and was received officially by Pres. Vincent Auriol and Foreign Minister Georges Bidault. She returned to Buenos Aires on Aug. 23 and was accorded a triumphal reception.

Perón, Juan Domingo (1895–), president of Argentina, was born on Oct. 8 near Lobos, a small town south of Buenos Aires, and was educated in military schools, becoming a full lieutenant in the army by the time he was 20 years old. He became one of the leaders of the G.O.U. (Grupo de Oficiales Unidos), a clique of nationalistic young army officers which was instrumental in the coup d'état that overthrew the regime of Pres. Ramón S. Castillo, June 4, 1943. In succeeding governments, Perón was the power behind the throne, although he held only minor political posts. When Gen. Edelmiro Farrell became president in Feb. 1944, he promptly raised Perón to the war ministry and then to the vice-presidency. In 1945, Perón consolidated his grip on the government, despite a short-lived army coup, staged Oct. 9, which ousted him from power for a two-week period. On his return, he became more strongly entrenched than ever, was elected president (Feb. 24, 1946) on the Labour party ticket and was inaugurated the following June 4.

In 1947, Perón called on his supporters to crush his opponents—"stubborn oligarchs," "politicians," "the enemy press," and "native communists." On May 1, he announced a plan to modernize the army but denied that he intended to engage in an arms race with neighbouring countries. He also professed a "vehement desire for peace." With the ratification by the Argentine congress of the Act of Chapultepec and the United Nations charter, Perón had declared that the era of "misunderstandings" with the other western hemisphere countries was closed. And the restored relationship, particularly with the United States, was further strengthened in 1947 by the full-scale participation of Perón's government in the Inter-American Defense conference at Rio de Janeiro, Brazil.

Persia: *see* IRAN.

Peru. A west coast republic in South America, bounded by Ecuador and Colombia on the north, Brazil and Bolivia on the east, Chile on the south and the Pacific on the west. Area: 482,258 sq.mi.; pop. (1945 est.): 7,652,718. Racial distribution is estimated at 52.9% white and mestizo and 45.9% Indian. The capital is Lima (pop. est. 750,000); other cities (with pop. by 1940 census unless indicated otherwise) are Callao (84,438), Arequipa (79,185), Cusco (1945 est. 45,230), Trujillo (1945 est. 41,589), Iquitos (34,231), Chiclayo (32,646), Huancayo (28,679), Sullana (22,344), Ica (21,437) and Piura (1945 est. 29,674). President in 1947: José Luis Bustamante y Rivero.

History.—The assassination of Francisco Grana Garland on Jan. 7 precipitated a sensational crisis, with political and other repercussions, at the beginning of the year. Grana Garland was a prominent Lima industrialist and publisher of *La Prensa*, one of the capital's leading papers. The cabinet resigned two days later and on Jan. 12 a new cabinet, with Rear Adm. José R. Alzamora as premier and Dr. Enrique García Sayán as foreign minister, was sworn in. The cabinet reorganization after the assassination left that group without members of the People's party (Apristas), although the Apristas and their party allies continued in control of both houses of congress. Apristas became increasingly critical of government policies thereafter during the year. The regular session of congress opened on July 28 but a party deadlock in the senate prevented normal functioning for some time. Pres. Bustamante on Sept. 2 declared a state of siege in an effort to end a five-day "illegal" general strike which had partly paralyzed the Lima-Callao area; an incidental effect of the decree was to postpone by-elections in certain politically doubtful areas. On Oct. 31, an 11-man cabinet, including 8 military men, was sworn in; the navy minister, Rear Adm. Roque Saldias, headed the cabinet.

Labour difficulty was considerable, the most serious instance being the Lima general strike from Aug. 28 to the beginning of September, during the course of which 48 union leaders were arrested. The government during the year created a national housing corporation. It also signed a health agreement with Ecuador providing for research on malaria and other frontier diseases and exchange of personnel and experience. The Carnegie institution of Washington, D.C., turned over to the Peruvian government its magnetic observatory at Huancayo in the Andes during 1947.

Finance.—The monetary unit is the sol, valued on Oct. 31, 1947, at 15.38 cents, official rate, and 6.45 cents, free rate, U.S. currency. The budget for 1947 was presented March 6 to balance at 946,000,000 soles; some of the items in it were: congress 10,291,241; president 1,752,400; justice 19,170,193; interior 119,751,369; foreign relations 18,949,939; education 147,872,178; finance 213,616,207; war 107,982,388 and navy 36,890,124. Revenue collections for the first six months of 1947 were 387,800,000 soles, 82% of the budget estimate of collections for that period; the figure for the same period in 1946 was 289,100,000 soles. The 1946 fiscal year closed with a deficit of 8,000,000 soles, 1.11% of the budget figure. Total gold and foreign-exchange holdings Jan. 1, 1947, were about $40,000,000. Exchange applications for the first quarter of 1947 were $109,000,000 and exchange receipts were $28,000,000 for the same period. The government took steps to conserve foreign exchange by considerably tightening import regulations. A loan of up to $25,000,000 was authorized April 10 for irrigation projects in the departments of Piura and Lambayeque in northern Peru. It was announced June 26 that the government was unable to agree with the Foreign Bondholders' Protective council on settlement of $90,000,000 of debt defaulted in 1932 and that the government would directly approach the bondholders.

Trade and Communications.—Imports for the first five months of 1947 were 242,613 metric tons valued at 431,812,916 soles (same period in 1946: 216,499 tons valued at 286,378,588 soles); exports for the first five

months of 1947 totalled 645,949 metric tons valued at 393,461,117 soles (same period in 1946: 759,569 tons valued at 367,654,052 soles). Duty collections for the same period were 95,016,523 soles (1946: 49,915,487 soles). Export of petroleum products for the first quarter of 1947 was 1,657,294 bbl. and for the second quarter 1,557,556 bbl. Export of various products in 1946 included: copper 26,119 metric tons; lead 44,018 metric tons; zinc 59,242 metric tons; gold 4,036 kg.; silver 312 metric tons; wolfram 450 metric tons; vanadium 594 metric tons; antimony 1,096 metric tons; gasoline 3,174,201 bbl.; fuel oil 2,137,063 bbl.; crude oil 1,648,066 bbl.; Diesel oil 810,876 bbl.; kerosene 452,448 bbl. Declining production led some experts to predict an end of petroleum exports by 1953.

The government on March 8 acquired the Pato air base at Talara and 56 planes and miscellaneous equipment from the United States for $714,000. On March 11, Peru concluded a civil air lines agreement with Cuba. The Fawcett Aviation company of Peru was awarded the Inter-American Safety award for 1946 for having flown 41,000,000 passenger mi. without accident.

Agriculture.—The estimate of cotton production in 1947 was 1,275,000 quintals of 46 kg. (1946: 1,599,178 quintals). The tobacco crop for 1947 was estimated at 1,800,000 kg. (1946: 1,567,615 kg.). Tobacco stocks on hand July 31 were 1,854,740 kg., including 1,699,001 kg. of domestic tobacco and the rest for blending. The estimate of 1947 sugar production was 400,000 metric tons (1946: 377,646 tons). Cottonseed production in 1947 was estimated at 100,000 metric tons (1946: 119,025 tons). The ministry of agriculture was reorganized during the year, with emphasis on decentralization. It began developing a ten-year program to stimulate production; this would involve an application to the Export-Import bank for a loan to finance purchase of machinery and insecticides. Total cost of the irrigation program inaugurated April 10 was estimated at 191,000,000 soles; 50% was expected to be spent for equipment, materials and services from the United States.

Manufacturing and Mining.—Tobacco processing in 1946 produced 1,504,775,000 cigarettes, 1,524,230 cigars and 842 kg. of pipe tobacco; estimate of cigarette production for 1947 was 1,600,000,000. The estimate of 1947 guano production was 150,000 metric tons. Crude oil and natural gasoline production for the first six months of 1947 was 6,800,043 bbl. The number of producing oil wells June 30 was 3,011 as against 3,215 on Jan. 1, 1946. A proposal for establishment of a government-controlled coal corporation was considered in 1947; anthracite and bituminous reserves, it was estimated, were 2,000,000,000 cu.m.

BIBLIOGRAPHY.—*South American Handbook, 1947;* Violet Mary Clifton, *Vision of Peru: Kings, Conquerors, Saints* (1947); Pan American Union, *Bulletin* (Washington, monthly); *Foreign Commerce Weekly* (Washington). (R. H. FN).

Petroleum. World oil production during 1947 undoubtedly exceeded that of 1946 and broke an all-time record. Outside of the United States, the principal increases were registered in the middle east and possibly the U.S.S.R., although no official information as to the latter country was available. Gains were made in South American production. In the U.S., the estimated total production was 1,839,600,000 bbl. compared with 1,733,424,000 bbl. in 1946 and 1,402,228,000 bbl. in 1941.

The attempt by the Soviet Union to make an oil pact with Iran was defeated by the Iranian parliament late in the year. An agreement granting oil concessions to soviet Russia in northern Azerbaijan province had been negotiated early in 1946 following the soviet delay in withdrawing their military forces from Iran. It provided for a joint Iranian-soviet oil company to exploit deposits in the province, with the soviets controlling 51%. The U.S.S.R. protested the rejection of the pact.

Another significant development in the middle east was the approval granted by the U.S. department of commerce to the Trans-Arabian Pipe Line company to ship 20,000 tons of pipe to Saudi Arabia during the fourth quarter of 1947. The Iraq Petroleum company was expected to complete its new 16-in. pipe line from Kirkuk to Haifa by the end of 1947. The company already had two 12-in. lines from the Kirkuk field to Haifa and to Tripoli, respectively, with a combined capacity of 96,000 bbl. daily. The new line would provide an additional daily capacity of 120,000 bbl.

The Trans-Arabian Pipe Line company was to construct 1,040 mi. of 30- and 31-in. pipe line with a capacity of 300,000 bbl. daily to a new shipping port to be constructed near Sidon, Lebanon. This was scheduled for completion about Jan. 1, 1950.

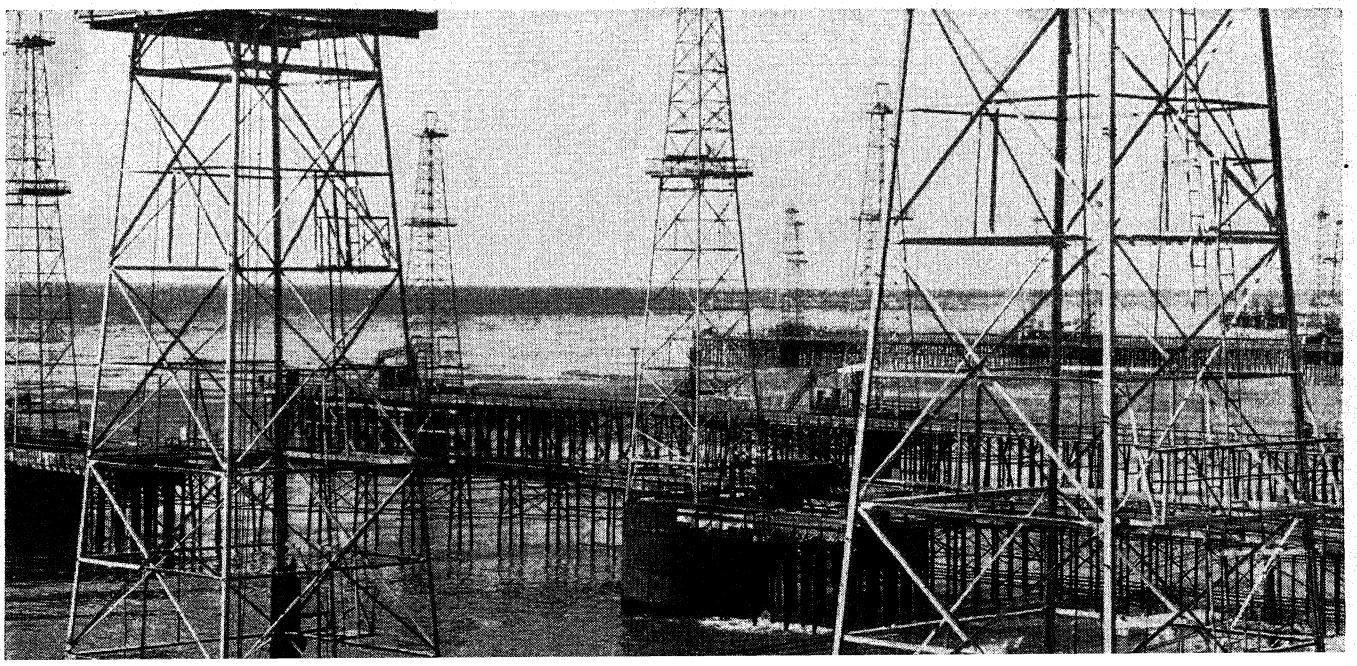
Middle East Pipe Line Co. was preparing to construct during 1950 and 1951 about 900 mi. of the biggest-inch oil pipe line yet planned, with a throughput capacity of 500,000 bbl. to 550,000 bbl. daily from Abadan and the Burghan field in Kuwait, to a Mediterranean terminus yet to be selected. Iraq Petroleum company was also planning the construction during 1952 and 1953 of a new 24-in. line, capacity about 250,000 bbl. daily, from Kirkuk to Tripoli.

These new transcontinental carriers, with Iraq Petroleum company's existing lines, would provide total pipe-line outlet from middle east oil fields to Mediterranean ports of 1,300,000 bbl. daily by Jan. 1, 1954, or shortly thereafter.

The Anglo-Iranian Oil company's refinery at Abadan had been enlarged to a capacity of 400,000 bbl. per day. Four other middle east refineries: the Arabian American at Ras Tanura, the Bahrein Petroleum company refinery on Bahrein Island, the consolidated Refineries Ltd. at Haifa and the Iraq Petroleum company's small refinery at Tripoli accounted for a total of 730,000 bbl. a day. Substantial additions were planned.

By overland shipment to the Mediterranean, the projected Arabian lines would save shipments to points west of Suez that otherwise must be made by tanker through the Red sea and the Suez canal to Port Said, involving a canal toll and an expensive tanker haul of 3,650 mi. At a lower cost by pipe line the oil would be carried only approximately 1,000 mi. to an eastern Mediterranean loading port and thence by tanker to destination.

DERRICKS of undersea oil wells in California affected by the U.S. supreme court decision of June 23, 1947, which declared tidal oil lands the property of the federal government rather than the state



The U.S.S.R. during 1947 retained its grip on the oil producing countries of Rumania, Poland, Hungary and to some extent Austria, while fighting against the Marshall plan for the economic relief of the 16 European nations which lined up for the plan. The interim aid program of the Marshall plan adopted by the U.S. congress late in the year included the furnishing of petroleum to these countries and left to the responsibility of the president a provision that commodities in short supply in the U.S. should be furnished whenever possible from outside sources. U.S. oil production, while breaking all records, was only just about meeting domestic requirements and therefore the bulk of the oil supplied under the interim aid program would come from the middle east and other outside oil areas.

There was a heavy demand for petroleum products in the British Isles, France and other European countries despite civilian restrictions on the use of automobiles. This demand reflected the acute coal situation. The shortage of coal placed a heavy burden on oil for use as fuel. Europe's oil requirements therefore, were not primarily gasolines, but rather residual fuel to replace or supplement coal in power plants, factories and transportation systems. The use of oil for ships had also increased beyond all expectations because of the extensive war losses of coal-burning ships, and their replacement with oil-burning ships.

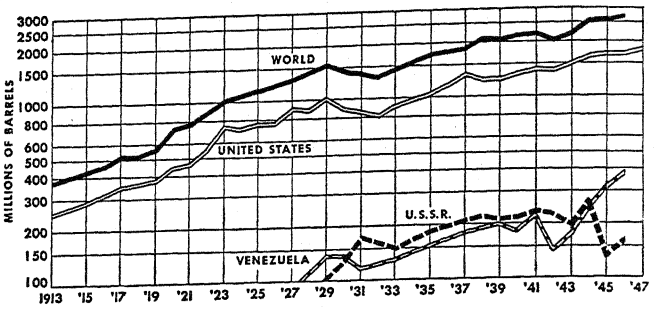
According to estimates made by B. Brewster Jennings, president of the Socony-Vacuum Oil company, presented at the annual meeting of the American Petroleum institute in Nov. 1947, oil consumption for the world, excluding the U.S. and also the Soviet Union because so little was known about the latter country, would approximate 2,700,000 bbl. daily in 1947 compared with 1,900,000 bbl. daily in 1938. By 1950 the consumption of these countries was expected to be 3,200,000 bbl. daily; by 1960, 4,500,000 bbl. daily, an increase of 1,800,000 or 67% over 1947. By comparison, the U.S., consuming in 1947 about 5,400,000 bbl. daily, was expected by 1960 to require 6,800,000 bbl. daily—an increase of 1,400,000 bbl. or 28%. In other words, oil consumption in Europe was expected to increase at a rate much faster than in the U.S.

In the U.S., consumption of oil products set new high records in 1947. Because of transportation shortages and lack of adequate quantities of steel and other materials for needed expansion of pipe lines, refineries and other facilities, gasoline and fuel oils became scarce in certain areas. This situation brought about some voluntary rationing on the part of oil suppliers and appeals to users for conservation of gasoline and fuel oil.

Prices of crude oil and petroleum products increased substantially during 1947. Pres. Truman asked congress to authorize rationing and price control of fuel oil and gasoline in case of public necessity. The U.S. petroleum industry representatives appearing before various congressional investigating committees asked freedom from re-establishment of controls such as were exercised during World War II and pointed out that the industry was making estimated record capital investments of more than $4,000,000,000 in the two-year period 1947–48 to meet rising demands for its products.

It was estimated that 35,000 new oil wells, a new high record, were drilled in 1947, including more than 5,000 wells for exploratory purposes in the hope of finding additional oil reserves. In the production division alone, the industry planned to make capital outlays estimated at more than $2,000,000,000 in the two-year period.

Plans were under way for construction of refinery facilities having a capacity of about 450,000 bbl. of crude daily, but the completion of these installations would take from 6 to 24 months from the start of work. There was a prospect that this figure would be augmented in the near future. Expenditures for refining facilities in the two years were estimated to exceed $1,100,000,000.



TOTAL WORLD PRODUCTION OF PETROLEUM and output of the three principal producing countries, as compiled by *The Mineral Industry*

Pipe line construction planned during the two-year period involved an aggregate investment of approximately $440,000,000 and about $480,000,000 would be spent expanding distribution and marketing facilities.

In 1947 export licensing restrictions on motor gasoline, kerosene, gas oil and distillate fuel oil and residual fuel oil were established under the office of international trade, department of commerce. The amounts of products to be exported during a quarterly period were determined on the basis of a uniform questionnaire sent to all foreign governments that had been buying oil in the U.S., requesting end-use information and detailed figures on consumption, their own production, stocks on hand and other statistics.

The U.S.S.R. alone among these countries refused to furnish the desired information, and thereby cut itself off from U.S. supplies. No licences were issued for shipments to the Soviet Union after June 30, 1947, except for limited quantities which then were in process of loading on the west coast and those only to avoid hardship to U.S. companies, commerce department officials explained. (*See* also BUSINESS REVIEW.)

BIBLIOGRAPHY.—*Oil & Gas Journal; National Petroleum News; World Petroleum; Proceedings* American Petroleum Institute XI Annual Meeting (Nov. 10–13, 1947). (L. M. F.)

Philadelphia. Philadelphia is the third largest city of the United States; and although the 1940 census gave the population as 1,931,334, it was estimated that the population in 1947 was about 2,100,000. Mayor: Bernard Samuel (1948–52).

As rapidly as building supply shortages would permit, Philadelphia, under its Republican administration, was going ahead with a six-year improvement program of $322,700,000. Work totalling $81,000,000 was already under way by the end of 1947. Of this amount, $6,500,000 was for extension of the Market street subway from 32nd to 36th streets; it also included new bridges and highway extensions.

The city allocates $13,000,000 a year for health and welfare services and hospitals.

In addition to many new housing developments, new construction was planned by private concerns. A seven-man rent control commission was established to settle tenant-landlord disputes.

The Better Philadelphia exhibition sponsored by the city and its citizens, revealed what the community would look like in the future.

Construction was started on a new elementary school costing $1,150,000. Plans were almost completed for two senior high schools, a vocational-technical high school, a junior high school and three elementary schools, which would cost approximately $17,000,000.

The sum of $8,500,000 was being spent to rehabilitate Philadelphia's waterworks, and $11,200,000 was being used to im-

prove and build new sewage-disposal plants.

The Civil Aeronautics authority allocated $650,000 to Southwest airport, and $15,000,000 was appropriated for airport improvement, including a terminal building at Southwest airport, with other improvements to be built as needed.

Improvements were being made to piers, including a new pier in south Philadelphia along the Delaware river front. Plans were being developed to make the port of Philadelphia second to none in the country.

Playgrounds, recreation facilities and junior guidance projects were planned in increasing numbers, with an allocation of $7,500,000 for these purposes. Juvenile delinquency decreased sharply during the year. (B. SA.)

Philanthropy: *see* DONATIONS AND BEQUESTS.

Philately. The year 1947 brought an important philatelic centenary—the centennial of the issuance of postage stamps in the U.S. Since the centenary exhibition for the birth of all postage stamps originally planned for London in 1940 had to be abandoned because of World War II, the Centenary International Philatelic exhibition (commonly called Cipex) in New York was planned to be the greatest such showing of stamps ever assembled. That the foreign exhibits were restricted was not the fault of the planners but rather of the difficulties of postwar transportation. As it was, the Cipex exhibit was impressive and great. Saul Newbury of Chicago won the grand award with his collection of U.S. 19th century issues.

The more than 175,000 persons who visited Cipex saw the first public showing in more than a decade of the world's most-publicized stamp, the unique British Guiana "1-penny in colour of the 6-pence" error of 1856.

The next International Stamp Exhibition was set for 1948, and Basel, Switz., was selected as the site.

New Issues.—In honour of Cipex, the United States issued a souvenir sheet carrying replicas of the 1847 issue—five-cent and ten-cent values. A special three-cent stamp and a five-cent stamped envelope were also issued. Six other three-cent stamps were issued as commemoratives during the year by the U.S.—for Thomas A. Edison; for Joseph Pulitzer; for the medical profession; for the "Constitution," better known as "Old Ironsides," for the state of Utah and for the Everglades National park in Florida. For the first time after 1886, a letter-sheet was issued, a ten-cent air mail variety for foreign mail. New 5-cent (small size), 10-cent, 15-cent and 25-cent air mails were also produced.

New Zealand had an interesting stamp-issuing year. The annual health stamps for 1947 portrayed the beloved statue of Eros in Picadilly square, London. For the first time after 1890, when they first appeared, the life insurance department stamps of New Zealand dropped their adaptation of England's Eddystone light as the exclusive design and blossomed forth in seven bicoloured stamps.

The wedding of Princess Elizabeth of England brought announcement of bridal issues from Australia and Canada. Britain itself used a special cancellation for ten days, embodying a chime of wedding bells on a true lover's-knot entwining the initials "E" and "P."

Luxembourg issued a set honouring Gen. George S. Patton, Jr., and the U.S. war-dead fallen on its soil. Franklin D. Roosevelt stamps were issued by 17 countries, while the centenary of U.S. postage stamps was commemorated by Mexico, Belgium and Monaco. The visit of U.S. President Harry S. Truman to Brazil was noted by that country with a stamp issue.

Errors.—Since errors in stamps often mean rare varieties, collectors are constantly on the lookout for these. However, errors in design that are not corrected by new issues merely bring embarrassment to the authorities who prepared them. The philatelic pundits discovered that the cannon depicted on the new U.S. "Constitution" stamp are British guns and that the portrait of Lt. John Shortland on the Australian Newcastle centenary issue was actually that of the discoverer's father. Neither stamp was reissued.

"Stamps for the Wounded."—This organization, which provides stamps and accessories for veterans in U.S. hospitals, continued its work on a nation-wide scale during 1947. The donations of time, stamps and materials continued to help hospitalized men pass weary hours. Most philatelic societies and clubs co-operated with personnel and material gifts.

Literature.—The 1948 edition of *Scott's Catalogue* (published in 1947) continued to revise the numbering system of the stamps of the U.S., begun in 1946, and the revision of editing was extended to Canadian issues.

The magazine *Philately,* announced in 1946, suspended publication, after influencing other magazines to new formats and general improvements.

Several new books and two important revisions appeared in 1947. *The Romance of Stamp Collecting,* by Ernest A. Kehr, and a colourful junior book on the theme of the U.S. centenary, *America's Stamps,* by Maud and Miska Petersham, appeared. *So You're Collecting Stamps,* by Mannel Hahn, which first appeared in 1940, was issued in a revised edition, and two volumes of *The U.S. Commemoratives of the 20th Century,* originally written in collaboration with Beverly King, were revised by Max Johl. (M. HA.)

Philippines, Republic of the. The Republic of the Philippines comprises an archipelago lying about 800 mi. off the east coast of Asia, and stretching from Formosa on the north to Borneo on the south.

The total area is approximately 115,000 sq.mi. The official census of 1939 gave the population as 16,000,303, including 117,487 Chinese, 29,057 Japanese and 8,709 U.S. citizens. The population was estimated in 1946 at 18,846,800. Principal cities (census of 1939): Manila (capital, 623,492); Cebu (146,817); Zamboanga (131,455); Davao (95,546); Iloilo 90,480; Legaspi 41,468.

History.—July 4, 1947, marked the completion of the first year of Philippine independence. The first elections since the establishment of the republic were held the following Nov. 11, and constituted an impressive triumph for the Liberal party. Seven of the eight senatorial seats were won by Liberal candidates; one lone Nacionalista, Camilo Osias, emerged victorious in the senatorial elections. Despite their failure to win many offices, the Nacionalistas showed unexpected strength.

During the first year of the republic important steps had been taken to provide for national security. A military base agreement was concluded with the U.S. on March 14, 1947, and a military assistance agreement on March 21. Vigorous steps were also taken by the Philippine government to reorganize and democratize the Philippine army.

The People's court continued to try accused collaborators during 1947, with results that were far from impressive. Difficulties in securing witnesses and arranging trials hampered the efforts of Solicitor Generals Lorenzo Tanada and Manuel Lim. Much talk was heard during 1947 of the possibility of an amnesty for accused collaborationists, but the administration continued to deny that such action was planned.

The main problem continuing to confront the Philippines was that of economic rehabilitation and reconstruction. U.S. Am-



FILIPINO WOMEN receiving U.S. money payments in May 1947, for past services rendered to U.S. forces during the World War II fighting in northern Luzon

bassador Paul V. McNutt, reviewing conditions in the Philippines on Nov. 27, 1946, had described the Philippines as ". . . a land ravaged, brutalized, burnt over, destroyed, economically crippled, psychologically shocked, and physically devastated. . . ." The great destruction and economic chaos resulting from the war made independence for the Philippines all the more difficult. Nevertheless, despite these great handicaps much progress was made during the first year and a half of Philippine independence in reviving the economic life of the country. The trade agreement with the United States continued to be the basic stimulus for revival of trade. Under terms of this act, free trade was to exist between the two countries until 1954, after which date duties would be assessed progressively at the rate of 5% each year until 1974, when all preferential trade relations were scheduled to cease. In a national plebiscite of March 11, 1947, the Filipino people accepted the "equal rights amendment" to their constitution as stipulated by the agreement, which was thus brought into full effect.

Philippine export trade developed rapidly. Exports of Philippine products during 1947 totalled $53,028,693, not including re-exports amounting to $11,158,831. Of the 1946 exports, about 73% went to the U.S. Imports totalled $295,858,574, of which 87% derived from the U.S. and Hawaii. Imports totalled $280,335,333 during the first six months of 1947, and exports $125,339,900.

The 1947–48 crop of Philippine sugar was estimated to be 429,929 short tons from a total area planted of 73,752 hectares. Shipments of copra for the first 9 months of 1947 totalled 681,930 long tons, also 25,000 tons of inedible coconut oil equivalent to about 40,000 tons of copra. Abaca production was 586,412 bales during the first 9 months. The tobacco crop in the Cagayan valley was estimated at 107,000 quintals, and the crops in La Union, Pangasinan, and Ilocos provinces were estimated to total about 50,000 quintals.

Progress of the Rehabilitation Program.—During 1947 the various U.S. agencies concerned with implementation of the Philippine Rehabilitation act (passed by the U.S. congress in 1946) made progress in carrying out this program. Included among these agencies were the army engineers, public health service, weather bureau, coast and geodetic survey, fish and wildlife service, Public Roads administration, U.S. Maritime commission, and Civil Aeronautics administration.

The Philippine War Damage commission faced one of the most difficult tasks of all agencies in attempting to disburse the $400,000,000 authorized in the act. By the end of 1947, however, the commission was rapidly increasing the tempo of its payments and was playing a vital role in the reconstruction of many public buildings, schools and hospitals. Most of the surplus property granted the Philippines under the Rehabilitation act had also been received by the end of 1947.

In his message on the state of the nation on January 27, 1947, President Manuel A. Roxas declared that "the consistent thread running through the entire program I have outlined for the immediate future of our country is industrialization." A firm of technical engineers and technicians appointed to survey the republic's industrial potential presented a report popularly known as the "Beyster report" which indicated possible small-scale industrial development for the republic in the years to come.

In September the U.S. had agreed upon the formation of a joint finance commission to consider the financial and budgetary problems of the Philippine government and to make recommendations regarding taxes, budget, public debt, currency and banking reforms, exchange and trade problems and reconstruction and development. This commission began its work in Manila in Jan. 1947 and after six months of study presented its report, which provided basic information concerning the Philippine financial situation. The commission urged that the Philippines take advantage of extraordinary U.S. expenditures in the islands and suggested that encouragement be given to imports of capital equipment for the reconstruction of farms, mines, fisheries and factories. Imports of luxury goods and other nonessentials should be strictly limited, according to the commission. The report proposed in summary: (1) a program for the conservation of foreign exchange for economic development; (2) a taxation program designed to reduce the budget deficit to manageable proportions in the fiscal year 1948 and to eliminate it in the fiscal year 1949; (3) a domestic borrowing program to cover the deficit in fiscal year 1948 and to provide capital funds thereafter; (4) a strengthening and expanding of banking and credit facilities to assist both private and public financing; (5) the establishment of a central bank and a managed monetary system to assist the government in implementing the above program.

Nevertheless, there were certain long-range economic needs of the Philippines which could not be met out of current funds, and it was believed that the government would attempt to obtain certain project loans from various banking and credit sources. Projects such as those for the development of hydroelectric power plants at Maria Cristina falls and at Caliraya River falls required immediate capital. (E. W. ML.)

Philology. In the varied fields of philological study during 1947 there was an attempt on the one hand to assess the loss of important source material in World War II and to resume undertakings that had been interrupted by hostilities. On the other hand, there was an evaluation of the status of investigation in many fields and the shaping of plans for initiating new undertakings.

It was still too early to determine accurately what important manuscripts, incunabula and rare books were war losses. Preliminary reports indicated that the loss among documents of this type probably was not heavy; they were usually given top priority in bombproof shelters, and such damage as occurred was frequently the result of the immediate postwar confusion. It was still quite possible that some manuscripts reported miss-

ing, like that of the *Hildebrandslied,* might be discovered in unusual hideaways. Apparently more serious was the destruction of much standard reference material and important stocks of secondary sources. A survey of damage to German scholarly libraries was contained in Georg Leyh's *Die deutschen wissenschaftlichen Bibliotheken nach dem Krieg* (Tuebingen, 1947).

Much of the important material which had been collected for dictionary projects in Europe previous to the war apparently was saved. The Egyptian dictionary records, for instance, were once again in the hands of the Berlin academy. But the task of reorganizing staffs was difficult, and the scarcity of paper and printing materials limited actual publication. The middle English dictionary centre at the University of Michigan reported steady progress in collecting and organizing material. A short dictionary based on modern U.S. usage and directed by a number of linguistic scholars made its appearance: *The American College Dictionary,* published in trade and text editions.

New outlets for publication aided in replacing some of the casualties of the war years. Several new periodicals representing a wide range of interests welcomed philological material. Among these were the *Journal of Cuneiform Studies,* published by the American Schools of Oriental Research at New Haven, Conn.; *Studia Linguistica,* of Lund, Sweden, concerned with general problems in linguistics; *Symposium,* issued by Syracuse university in Syracuse, N.Y., emphasizing modern languages and literatures other than English; and *Die Welt des Orients,* for eastern studies, appearing under the editorship of Ernst Michel in Wuppertal-Ronsdorf, Germany. *Word,* which started its career in 1945 as a venture of the Linguistic Society of New York, offered a further outlet for philological contributions despite some delay in appearance.

The philological aspects of Biblical scholarship were accorded attention in the survey, *The Study of the Bible Today and Tomorrow,* edited by Harold R. Willoughby.

Among programs at U.S. universities which offered promise for philological development were those in east European studies at Indiana university, where Finno-Ugric investigation was to receive special attention, and those in near eastern studies at Princeton, emphasizing Arabic, Turkish and Persian.

Plans were under way to preserve valuable European material and, if possible, to distribute copies widely in the United States. Although intended primarily as a precautionary measure, this move should eventually stimulate U.S. research. (G. J. M.)

Philosophy. Philosophy in 1947 followed the same general lines of postwar development that had appeared in 1946: (1) French existentialism still held the attention of the public and dominated the conversation of the interested but untechnical layman; (2) although students of symbolic logic and semantics, particularly the logical positivists, went on with their researches, the already well-developed opposition to the more extreme claims of positivism reached a new vigour of statement; (3) U.S. scholars continued to probe into their own tradition and seek a stronger basis for and a clearer justification of the ideals of democracy; (4) political philosophers strove for such an assessment of man, the state and historic process as would clarify the complex and critical age in which they lived; (5) notable special studies in the history of philosophy and in systematic philosophy were published.

Jean Paul Sartre's *Existentialism* appeared in English translation. It contained his reply to the charges of various critics, including both communists and Christians, that existentialism invited a mood of "desperate quietism," that it dwelt on human degradation, that it disregarded human solidarity, and that it ignored the reality and seriousness of human efforts, leaving only caprice as a principle of conduct. Sartre answered that since existence precedes essence (that is, since there is no fixed human nature), man shapes his own character and destiny, and this implies the responsibility of each person for all men and a demand for decisive action within a social context. Though the subjective self is the real starting point, Sartre argued, other selves are just as real as it and are the condition of its own existence; though there is no universal human nature, there is a universal human condition in which every man is involved; and since no God exists to take care of him, man is condemned to freedom, and in his forlornness and despair is confronted with the terrible responsibility of making himself and his society whatever they are to be. This view Sartre called a tough optimism, denying that it was either quietism, pessimism or a discouragement to action.

The opposition to the excessive claims of positivism, and especially the protest against irrationalism, came from diverse quarters, revealing a deep and widespread concern for a return to a view of man's nature which would do justice to his higher powers and restore belief in the dignity of reason. Empiricist as well as rationalist sought for a valid corrective to the belief in the relativity of knowledge and of ethical standards which had weakened liberalism between World Wars I and II and had given rise to cynicism and philosophical irresponsibility.

Paul Weiss, in *Nature and Man,* maintained, on a naturalistic basis, an ethic of freedom and responsibility. But this naturalism was not at all that of the existentialists, for nature itself became transformed into a realm containing value as well as fact. Weiss resisted the absorption of man into a meaningless or brutal nature on the one hand and his absorption into a Hegelian absolute on the other. The reality of the individual with his uniqueness and his specific concerns was vigorously defended, although a common and absolute good toward which human life is oriented was equally upheld. "Man is a natural being with a fixed core, directed toward a good which is pertinent to all that exists." (Paul Weiss, *Nature and Man.* Copyright, 1947, by Henry Holt and Company, Inc.)

In the volume *Our Emergent Civilization,* edited by Ruth Nanda Anshen (published by Harper and Brothers, 1947), the reaction against positivism, materialism and existentialism was explicit. That "objectivity of reason in human affairs which leads to the establishment of justice" was strongly defended, in the editor's introductory essay, as against the view which makes reason the mere subjective tool of biological needs. In the second essay, Brand Blanshard, also cogently defending the existence of an independent, objective factor accessible to reason which can and at times does control the course of our thought, took as his special targets three prominent denials of this thesis: (1) the reduction of thought to neurological processes; (2) the psychoanalytic explanation of thought in terms of the subconscious; and (3) the subjectivism of logical positivism. Several other distinguished philosophers, writing in the same volume, carried forward the criticism of contemporary materialistic naturalism as related to other problems of man and civilization.

Another careful analysis of the modern overemphasis upon the subjective aspect of reason and its resultant irrationalism was given in *Eclipse of Reason* by Max Horkeimer, who traced the series of relentless steps by which modern thinkers came to reject the Greek view of objective truth. He showed how the modern view, so useful in dispelling dogmatism and superstition, itself spawned a host of evils such as ideological lies, deceptive propaganda, obscurantism and reaction, until not only man's mind but even man himself had become a means rather than an end. His solution was not to return to dogmatic philosophy, still less to authoritarian religion, but rather to probe more deeply into the historic relationship between spirit and nature.

In similar vein, Arthur E. Murphy in a paper, "Ideals and

Ideologies: 1917–1947," protested the reduction of philosophical ideas to mere toys, tools or weapons and hoped for a return to philosophical responsibility in which ideas and ideals may be regarded as "reasons addressed to a community" functioning persuasively in the common life and serving as a basis for reasonable social change (*Philosophical Review,* Arthur E. Murphy, Sage School of Philosophy, Cornell university, Ithaca, N.Y., 1947). Donald Williams in *The Ground of Induction* (Harvard University Press, 1947) warned that the skeptical claim that there is no foundation for empirical judgments "will slowly shatter civilized life and thought" for it is "to deny that reason and good-will have a purchase on reality."

Clarence Irving Lewis in *An Analysis of Knowledge and Evaluation,* a work hailed by many empiricists as the most important book of the year, tried valiantly to find a satisfactory middle way, on empirical assumptions, between a transcendental view of value on the one hand and Protagorean relativism and moral skepticism on the other.

Essays in Science and Philosophy, by Alfred North Whitehead, a collection of previously scattered writings, rounded out a distinguished career. Notable among historical studies was Harry Wolfson's *Philo.* Arnold Toynbee's *A Study of History,* published in 1946, continued to dominate the field of philosophies of history. (E. L. MN.)

Phosphates. The heavy demand for fertilizers in the war ravaged countries was rapidly stimulating world output of phosphates, and the 1946 world total is back about to the prewar level.

World Production of Phosphates, 1941–46

(In thousands of short tons)

	1941	1942	1943	1944	1945	1946
Algeria	492.2	368.8	84.7	242.9	442.4	644.
Egypt	123.1	362.0	347.9	350.7	385.1	?
France	108.8	125.0	144.4	102.5	66.8	93.0
French Oceania	211.9	194.1	207.7	224.1	285.5	?
Indo-China	78.4	140.9	93.1	7.7	—	?
Morocco, French	543.5	788.6	888.7	1,592.7	1,272.2	3,068.4
Sweden	34.3	87.5	159.0	177.3	?	?
Tunisia	1,186.2	969.7	368.9	575.7	778.7	1,543.1
United States (sales)	5,252.4	5,201.6	5,741.4	6,021.9	6,503.5	7,684.0
Total	10,483	8,488	8,311	9,561	9,837	13,100

United States.—Production rose from 6,047,708 short tons in 1945 to 8,029,100 tons in 1946, and sales from 6,503,530 tons to 7,683,999 tons, both new high records. Consumption increased from 6,112,566 tons to 7,041,565 tons. (G. A. RO.)

Photography. Many of the important developments in photography during 1947 were in the fields of science and industry. "Nuclear track" photographic plates recorded the splitting of atoms, rocket photography became a reality, the automatic Mirar camera gave a complete radar chart of navigation conditions, and important new developments took place in colour processes. All these new applications of photography pointed up the need for trained operators in the more specialized photographic fields.

Perhaps the most spectacular event in photography during 1947 took place on March 7, 1947, when the highest aerial photograph ever made, showing 200,000 sq.mi. of the earth's surface, was taken from an altitude of 101 mi. This amazing photograph by the U.S. navy, was exposed automatically in a V-2 rocket at White Sands Proving Ground in New Mexico and actually showed the curvature of the earth. Two aerial cameras were installed amidship in the rocket. They operated automatically, taking pictures through infra-red filters to eliminate the usual aerial haze.

Colour Photography.—Kodak Ektacolor was announced on Aug. 25 as a revolutionary new negative colour film that could be processed by the photographer. A three-layer cut-sheet film for standard cameras using sheet film holders, it simplified the making of colour prints and photo-mechanical reproductions by eliminating the need for masking and for separation negatives.

After development, Ektacolor has a negative colour image combined with positive coloured masks, which give it an overall orange appearance. The effective printing colours are complementary to those in the original subject. The coloured couplers incorporated in the film effect automatic colour correction. In colour print making from positive colour films such as Kodachrome and Ektachrome (a positive film announced by Kodak in 1946), colour correction is achieved by making one or more masks (low density black and white negative images) and binding them in register to the positive colour transparency. Ektacolor eliminates these steps. The film is slower than other colour films. Black and white prints may be made from Ektacolor negatives for use as proofs.

Positive printing matrices may be made directly on the new Kodak Pan Matrix film, from the original Ektacolor negative with the appropriate colour filters.

Kodak Pan Masking film became available for preparing masks for colour transparencies. In use, the new masking film is exposed through the colour transparency by filtered light. After development it is taped in register with the original and forms a colour-correcting and contrast-reducing mask which improves the results in the final reproduction.

A new improved type of Ansco Color Printon was put into production with softer gradation, cleaner whites and more brilliant colours. The improvement in colour print quality made possible by these changes represented a real advance in three-colour photography for the making of colour prints from colour transparencies. Simplified processing formulas and a wider control of contrast during development were additional features.

New Cameras and Equipment.—In the United States there were important developments in cameras and in photographic equipment. Graflex, Inc., released a new line of Pacemaker cameras which included the Speed Graphic line with focal plane shutters and the Crown Graphics without this built-in feature. These cameras were a complete redesign of the former Anniversary Speed Graphic cameras. The focal plane shutters in the Pacemaker Speed Graphic cameras were simpler to operate and more accurate in exposure timing, and contained built-in flash synchronization contacts.

A Kodak Flash Bantam camera, equipped with f/4.5 Anastigmat special lens was introduced for the amateur photographer during the year by the Eastman Kodak company. Another new product designed for the advanced amateur and professional photographer was the 4x5 Kodak Master View camera. This camera had a monorail track 19 in. long to permit the front or back of the camera to be racked back and forth for focusing.

Eastman Kodak company disclosed an interesting account in March of how they had secretly built 1,000 miniature MB (match box) cameras for use by the Office of Strategic Services and underground forces during World War II. The MB camera could be concealed in the hand and made negatives about one-half inch square which could be enlarged later. Kodak also supplied vestpocket darkroom kits containing several rolls of 16 mm. film, developing and fixing chemicals in pill form and other small items. The MB camera made about 30 exposures on 2 ft. of 16 mm. film. The 1-in. f/5 lens had one stop to close the aperture to f/11. The shutter operated at a speed of 1/50 sec. A close-up lens was also provided when using the MB camera for copying documents and similar material.

Argus, Inc., introduced its 35 mm. Argus Model 21 camera equipped with the new Markfinder direct-vision viewer. This new view finder, a development of the wartime illuminated gunsight contained guide lines to indicate picture limits and cross lines for centring the subject. The Markfinder showed 25%

more of the picture area than was actually recorded on the film. However, the guide lines served as marks for the actual picture framing. Argus also brought out its Minca camera for the low-priced camera market. The Minca was equipped with an f/9.7 47 mm. lens and a fixed shutter operating at 1/80 sec. The camera uses Bantam-size film, making a 26x38-mm. negative.

Ansco produced the Panda and the Rediflex cameras during 1947. These were both inexpensive cameras taking 12 $2\frac{1}{4}$x$2\frac{1}{4}$-in. pictures on 620 roll film. Such cameras showed a trend toward the wider use of new war-tested materials in small cameras. The camera bodies were made of polystyrene plastic. In December Ansco made a formal showing of the new Ansco Reflex camera, which had been announced a year previously. It was somewhat similar to the well-known Rolleiflex.

Kodak announced a line of Commercial f/6.3 Ektar lenses corrected for the most exacting uses by commercial photographers, using the modern black and white or colour emulsions. They were fitted in the No. 3 Ilex Acme Synchro shutters. The Ilex Optical company announced its new No. 2 Acme Synchro shutter with top speed of 1/300 sec. for use with $6\frac{1}{2}$-in. f/4.5 lenses. The outside diameter of the shutter, which had a built-in mechanism for flash synchronization, was only $2\frac{3}{4}$ in.

A new line of Rapax shutters was brought out by the Wollensak Optical company, known as the Standard Rapax, "X" Synchromatic-Rapax, and the Full Synchromatic-Rapax. The "X" type had a built-in contact for flashing the electronic high-speed flashtubes and the Full Synchromatic-Rapax had a built-in synchronizer for use with the standard flashlamps. Wollensak also introduced the Raptar series of lenses for various photographic uses.

Trivision, the lenticular system of producing third dimensional still pictures, was nearly ready for public showing by the end of 1947. Bausch & Lomb Optical company delivered the first $14\frac{1}{2}$-in. f/2.2 Trivision lens to the Naval Experimental Aeronautical laboratory during the year. The lens was 8 in. in diameter to give maximum depth perception. The Trivision film used with this lens was embossed with minute ridges or lenticulations, to give the direct vision stereoscopic effect without the use of spectacles or a special viewing device.

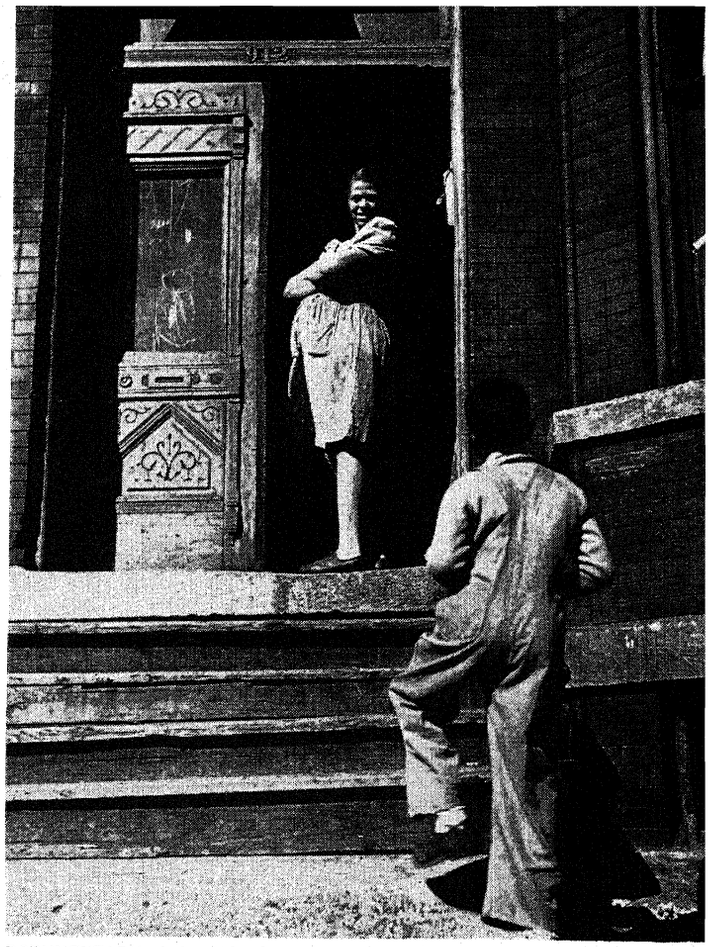
High-speed electronic flash lighting was applied to a new shipboard enlarger to provide continuous enlargement without the difficulty of interference from shipboard vibrations. With this equipment, exposures could be timed at 1/10,000 sec.

Cameras for Specialized Purposes.—In the scientific and industrial fields there were a number of important new camera developments. Fairchild Camera and Instrument corporation produced the 35 mm. Mirar camera (marine investigators rada aid record). This camera automatically recorded on 35 mm. film the image appearing on a vessel's radar scope, thereby providing reliable and tamper-proof legal evidence for court cases involving marine accidents. It also made possible the radar charting of harbours, rivers and coast lines as an additional aid in navigation.

The Mirar camera system was composed of three separate, interchangeable units assembled to form a single operating unit: a camera body, a magazine accommodating 100 ft. of standard 35 mm. roll film, and a periscope for transmitting, by means of mirrors, the scope image to the camera lens while at the same time permitting the image to be viewed by the operator.

The camera body was equipped with a prefocused 35 mm. f/2.3 Baltar lens; diaphragm stops from f/2.3 to f/16 were provided. A sequence control mechanism within the camera operating control permitted the camera to take a picture of every cycle of radar antenna scan, every other scan, 3 consecutive scans out of every 12, or 5 consecutive scans out of 60.

A new Oscillo-Record camera by Fairchild made photographic records of high-speed transients, stationary patterns of periodically recurring phenomena, or any type of phenomena that could be put on a cathode-ray oscilloscope. A 35 mm. roll film camera, electronic film speed control unit, periscope cone, mount, cables and data card unit comprised the complete assembly of the camera. Either an f/2.8 or f/1.5 lens was available. A shutter, adjustable for speeds up to 1/400 sec., was supplied for taking single exposures but was not used when making continuous motion recordings. Film transport speed could be varied from 1 in. per minute to 3,600 in. per minute. With a 100-ft. reel, the camera could operate from 20 sec. to 20 hr.; with the 1,000-ft. film magazine, from $3\frac{1}{3}$ min. to $8\frac{1}{3}$ days. The rate of film movement was automatically registered along the film edge and handwritten data could be recorded directly on the film. Direct observation of the cathode-ray tube while the camera was operating was made possible through the use of the periscope cone.



DOCUMENTARY photograph of a tenement on Chicago's west side, taken by Wayne Miller while on a 1946–47 Guggenheim fellowship. A group of photographs by Miller was exhibited at the Museum of Modern Art, N. Y., during Oct.–Nov. 1947

A cut-sheet film Fluoro-Record camera supplemented the Fairchild Roll Film Fluoro-Record camera (announced in 1946) and was designed specifically for small-scale chest X-raying surveys. The fluoride coated lens is rated at f/1.5 with a focal length of approximately $4\frac{3}{8}$ in. No shutter is provided because exposure time is determined by the duration of the image on the X-ray unit's fluorescent screen.

The Electron Microscope.—After World War II many large electrical concerns in Europe designed electron microscopes for commercial production. The instruments were both electrostatic and magnetic and incorporated a number of ingenious features. One of these new instruments was produced by the Philips company in Eindhoven, Holland.

From the photographic point of view, two new devices developed for the electron microscope were of interest. The first

was a new method of determining the exact focus of the instrument which is quite analogous to the use of a coupled range finder on a photographic camera. This device consisted of deflecting plates which deflect the electron beam bombarding the specimen. The arrangement was such that the specimen was illuminated alternately by two parallel beams arriving from different directions. This resulted in doubling the out-of-focus final image; the displacement between the two images was determined by the degree to which the system was out of focus. The system made it extremely easy for the relatively inexperienced operator to achieve exact focus. The basic idea of deflecting the illumination was introduced by the Philips company in their instrument. The Radio Corporation of America (RCA) modified it in their own lens by using a square wave alternating deflecting potentials. Thus, in the Philips system an enhanced blurring of the image in the out-of-focus condition was achieved, while in the RCA instrument two sharp and separated images were observed.

The other development, which came entirely from the RCA laboratory, was an extremely high contrast magnetic objective lens. In electron microscope lenses, unlike ordinary lenses, the contrast in the image is controlled by the size of the aperture used, the contrast increasing as the aperture is decreased. The new objective had two components, the first with a focal length ten times longer than normal (22 mm., instead of 2.2 mm.) so that the same effective numerical aperture could be achieved with diaphragm openings ten times greater. With this it was possible to achieve numerical apertures as small as 5×10^{-4} ($f = 1/2000$). While such small apertures result in considerable loss of resolving power, because of diffraction phenomena and Abbe's law, they give an enormous improvement in the contrast obtainable, with the result that internal structures of bacteria can be observed where the older type of lens shows a complete blank. This lens had already resulted in some startling discoveries concerning the growth of the bacteriophage particles within the bacterial cells.

Eastman Kodak company announced the development of a "photographic memory" camera for use by the U.S. navy in a large electronic calculator. This new camera would record mathematical data at superhuman speed—1,000 numbers, of 12 digits each, every second. The electronic calculator controlled and presented information in the form of spots of light on the face of a cathode-ray tube, resembling the viewing tube of a television receiver. The Kodak "memory" camera would then photograph each pattern of spots as it was produced by the moving electronic beam within the tube. Thus the numbers were permanently recorded. The film goes through a rapid development and then is projected onto photoelectric tubes for reading.

Other Developments.—In the field of sensitized films and paper the Eastman Kodak company produced: Kodak Velite paper for making contact prints in normal artificial illumination, eliminating the use of a darkroom; Kodak Platino paper for enlarging purposes; Kodak Illustrators' Azo paper, a contact printing paper designed for the commercial photographer; Kodagraph Autopositive paper developed to give high contrast in modern drawing reproduction.

Special "nuclear track" photographic plates made in the Eastman Kodak laboratories were used by scientists to picture actual atomic fission and to study action of highly charged nuclear particles. These sensitized plates were supersensitive to the electrical charges carried by atomic particles. At the same time they were relatively insensitive to light, which affects ordinary film, and to X-rays. When a highly charged particle sped into the emulsion a dotted line of affected silver grains was produced. This was the path of the nuclear particle through the emulsion.

The Kalart camera was the first completely new design in postwar cameras. Made by the Kalart company of Stamford, Conn., it featured many innovations for a camera using $3\frac{1}{4}$x$4\frac{1}{4}$ cut-sheet films. The built-in features included batteries for operating the front shutter, flashing the photoflash lamps and illuminating the focuspot in the range finder. There were unusual safety devices to ensure the making of exposures. A picture could not be made until the dark slide was withdrawn, thus preventing any blanks as in the case of the ordinary press cameras using cut-sheet films. Also the flash would not operate until the shutter was cocked and the dark slide withdrawn, thus preventing misfiring of lamps.

The combination range finder and view finder was built into the camera body, and could be operated from either the right or left side of the camera. The same dual operation was also possible with the built-in body release for the front shutter, which was operated electrically. Within the view finder there was an illuminated rectangle indicating the actual picture area covered on the film. When both eyes were kept open this illuminated rectangle appeared to be seen externally in the subject field of view. In this way the photographer could see the limits of the picture area superimposed upon the subject area in front of the camera. This was the first time that such a view finder system had ever been put on a camera.

Other features of the Kalart camera included mechanical synchronizing adjustment from 0 to 20 milliseconds, interchangeable lenses, triple extension bellows, automatic focusing brake and the usual rising and sliding front lensmount. There were no visible wires on the camera for the operation of the flashlamps. The flashlamp reflectors were inserted into brackets and automatically attached for flash use.

There were few changes during the year in the field of synchronized flash photography. The Kalart company produced the Kalart Compak Battery-Flector, a Master Battery Case and Paraplanatic Reflector, the Synchrostrob for repeating flash tubes and a Sistogun Model II for use on the Speed Graphic focal-plane shutters.

A new Kodaslide 1,000-watt projector was an important addition to projectors using 2x2-in. lantern slides. With continued increase in the use of colour slides, this new Kodak projector would be important for use in larger rooms and to project a large brilliant image. Kodak also brought out a Brown Toner for making warm-tone prints and a ready-to-use Durol developer for photofinishers.

The new Agiflex, first all-British postwar camera, was shown in England the latter part of the year. This single-lens reflex camera made $2\frac{1}{4}$x$2\frac{1}{4}$ pictures with an f/3.5 Agilux Anastigmat lens of 8 cm. focal length and a focal plane shutter. In appearance it was similar to the prewar Korelle Reflex camera.

Pictorial Photography.—Revived interest in amateur photography during 1947 was nowhere more evident than in the pictorial field. According to the *American Annual of Photography*, 3,041 pictorialists had one or more photographs accepted in a recognized salon with a total of 17,498 prints being exhibited to the public—an increase of $33\frac{1}{3}$% over 1946.

The Museum of Modern Art in New York city presented three photographic exhibitions during the year of unusual interest. One was a magnificent display of the work of Alfred Stieglitz. Another presented the candid shots of the great French photographer, Henri Cartier-Bresson. A smaller show displayed the work of Leonard McCombe, Wayne Miller and Homer Page. Announcement was made in the fall of the appointment of Edward J. Steichen as director of the museum's department of photography.

The Photographic Society of America, largest organization of amateur photographers in the world, continued to grow, pass-

ing the 7,500 mark. With 34% of its membership actively engaged in pictorial photography, the interest of the others lay in such fields as colour, nature, technology, photo-journalism and motion pictures. (*See* also MOTION PICTURES; NEWSPAPERS AND MAGAZINES; TELEVISION; X-RAYS AND RADIOLOGY.)

(W. D. MN.)

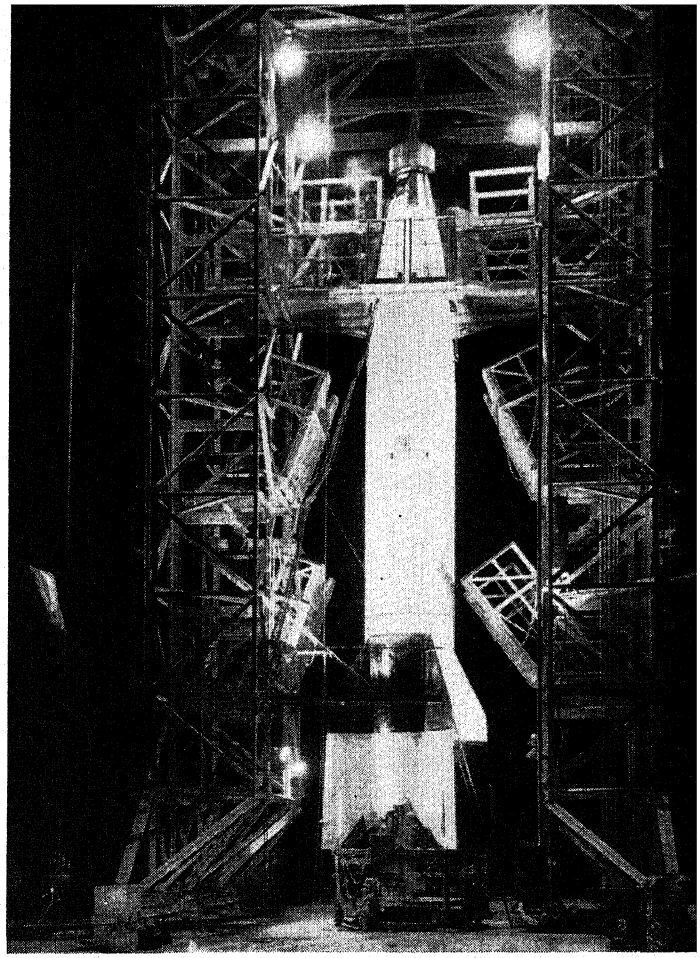
Physics. The year 1947 was not marked by any discovery of such importance as to demand a re-evaluation of existing crucial experimental evidence upon which the fundamental concepts of physics were based. A great deal of work, hidden during the years of World War II, was released for publication. It was believed that "declassification" had made public nearly all fundamental progress in nuclear physics, with the exception of a few numerical constants of great importance in fission. In the U.S., in 1947 the world's most active research centre of physics, the need for trained physicists in government laboratories, the strong demand from industrial organizations, and the high enrolments of students in colleges and universities combined to create an acute shortage of trained personnel which would require at least several years to ease. Never were U.S. physicists in so good a position to do good service.

Accelerating Machines.—Modifications of the cyclotron and betatron had been discussed theoretically in the literature for nearly two years, with the purpose of creating beams of particles of greater energy than the standard instruments could attain. The modification consisted in adding the synchrotron principle, often called the principle of phase stability, to the machines in their conventional form, following an idea suggested independently by V. Veksler in the U.S.S.R. and by E. M. McMillan in the U.S. The modified instruments were called synchrotrons when their use was restricted to electron acceleration, and synchro-cyclotrons when the design was for the acceleration of ions only. The most notable example of the latter type was the 184-in. instrument in the radiation laboratory of the University of California. The 184-in. dimension indicated the diameter of the two circular pole pieces.

Although this instrument was originally planned as a conventional cyclotron, it was adapted to the synchro-cyclotron principle, and developments were contained in two important papers appearing in *The Physical Review.* The first of these, by D. Bohm and L. L. Foldy (*Physical Rev.,* 72: 649) treated the theoretical problem of starting an ion beam in the accelerating chamber. The second, by W. M. Brobeck, E. O. Lawrence, K. R. MacKenzie, E. M. McMillan, R. Serber, D. C. Sewell, K. M. Simpson, and R. L. Thornton (*Physical Rev.,* 71: 449), recorded the initial performance of the instrument. That the work of eight scientists could be recorded within the limits of a two-page article was merely a sign that physics dealt with such large and complex machines that a whole team was required to design, adjust and maintain each of them.

Tests were made with hydrogen ions (protons) and with helium ions (alpha-particles), and though direct measurements of the energies reached were not made, it was expected that these would be 195 and 390 Mev. respectively. The latter figure is exactly twice the former on account of the double charge carried by the alpha-particle. The energies fall in the range which was theoretically needed to carry out systematic experiments on the production of mesons. Since knowledge of the meson's properties appeared to be the key to a proper understanding of the forces in the nucleus, reports of new experiments, planned or performed, with particles from the synchro-cyclotron were awaited eagerly.

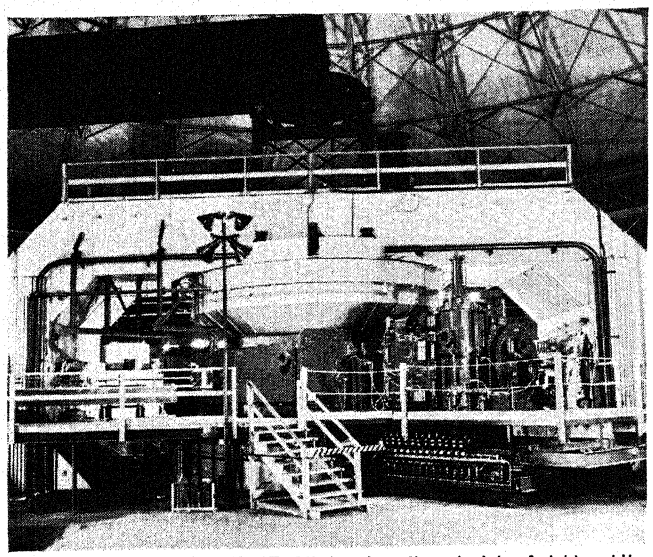
Although the pole pieces were 184 in. in diameter, it was not possible to use the whole of the inter-polar volume effectively. For a variety of reasons, difficulties occurred in keeping the ion beam up to full strength as it spiralled outward from the centre of the dees. These difficulties were not overcome completely. The ion beam was good as far as a diameter of 80 in., after which it fell rapidly, and was lost at 164 in.



V-2 ROCKET on its launching stand ready for test firing, as part of an upper atmosphere research program conducted by the U.S. army and scientists of the Naval Research laboratory in 1947

Columbia university was busy with preliminary work on a 450,000,000-v. synchro-cyclotron, and larger instruments of the "race-track" variety were being designed to reach the 1,000,000,000-v. mark.

The Uranium Pile.—The active material of an atomic bomb, either uranium 235 or plutonium, had to be separated or manufactured in pure form from natural uranium. During World War II the preparation of these materials on a military scale was carried on only in the U.S., although scientists of other nationalities were called in to help. Plutonium was one of the final products created in a chain-reacting pile, usually of uranium and graphite. In 1945, Great Britain began to set up her own atomic energy research establishment at Harwell, where a uranium-graphite pile was operated for the first time in Europe in Aug. 1947. An account of this event under the encouraging title "Peaceful Applications of Nuclear Fission" was carried by *Nature,* 160: 451 (1947) in the form of a report of speeches made by J. D. Cockroft and others at the British association meeting in Dundee. Cockroft, the director of the establishment, emphasized that the pile was a potential though not a certain new source of power for the world. The low-power pile at Harwell, designed for experimental work only, contained several hundred tons of graphite, and probably tens of tons of uranium. So dense is uranium, however, that only about one per cent by volume was composed of that metal. Surrounding it was a concrete shield about five feet thick. Loading the pile, which meant inserting uranium in spaces purposely left in the graphite, occupied ten days. During loading, the neutron flux increased steadily, and towards the end, very rapidly, as the



THE 184-IN. SYNCHRO-CYCLOTRON, based on the principle of stable orbits, which was being used in nuclear research at the Radiation laboratory of the University of California at Berkeley in 1947

multiplication constant increased towards the critical value, unity.

This first Harwell pile was a low-power one, designed for operation at about 50 kw. Its chief function was to be the production of radioactive isotopes for use as tracer elements in physiology, metallurgy and other sciences.

A second pile for the study of power production was to be built at Harwell, using uranium sheathed in aluminum, to prevent oxidation and escape of fission products. The presence of aluminum set a serious limitation on the use of the pile for power production (via steam) since it is thermodynamically impossible with ordinary condensers to achieve high efficiency in a steam turbine operated at a temperature low enough to preserve the essential properties of the aluminum sheathing. This second pile was planned for 1,000 kw., which would permit about 1 gram of useful fission products to be manufactured per day as a side-line.

Neutrons.—During the fission of uranium, it was known that temporary products, lying in positions near the middle of the periodic table and possessing an unusually high neutron-proton ratio were first produced. They were unstable. They decayed, and some atoms emitted neutrons in the process. All this, however, took time. Those neutrons which were not liberated at the instant of fission, but which were freed later, were termed delayed neutrons.

The presence of four groups of delayed neutrons was apparently known in 1942, but the half lives then determined were only approximate. W. C. Redman and D. Saxon (*Physical Rev.*, 72:570) gave these half lives with much greater accuracy than before, and also gave the results of experiments they carried out on delayed neutrons from plutonium 239 irradiated in the Argonne pile. It turned out that the delayed neutrons from plutonium also occurred in four groups with the same half lives as the corresponding groups from uranium 235. The relative intensities of the four components were, however, different in the uranium and plutonium cases. The number in each component was generally greater for uranium than plutonium, and the total number of delayed neutrons, including the four components, was about twice as great per fission for U 235 as for Pu 239.

From the point of view of the structure of the nucleus these results indicated that upon fission U 235 and Pu 239 broke down in similar fashions, which suggested that the component particles were arranged in the same way in both nuclei. It was also surmised that the four mass units by which Pu 239 exceeds U 235 represented the stable alpha-particle which Pu 239 emitted in the course of its normal decay, and that the addition of this alpha-particle to the lighter nucleus did not disturb its fundamental structural plan.

After 1940, great emphasis was put on the study of slow neutrons, partly because it was upon these that the action of a chain-reacting pile depended, and partly because nuclear transmutations in general could be achieved more readily with slow than with fast neutrons. Information describing the interaction of neutrons with matter was usually given in terms of cross sections. A neutron cross section of (say) gold represents the effective target area which one atom of gold presents to oncoming neutrons. Typical cross sections were found to be between 10^{-21} and 10^{-24} cm.^{2} per atom. The values, however, varied greatly from one kind of atom to another and from one neutron velocity to another.

A great many papers were published in 1947 on the cross sections of atoms for neutrons. The results were reached by a variety of methods, including mechanical velocity selectors, crystal diffraction, and time of flight techniques. When the researches of men in different laboratories were compared it was found that reasonable agreement existed as to the order of magnitude of the results, although discrepancies in matters of detail were fairly common.

Significant Research.—Other important developments during 1947 included the following: The mass of the charged meson, the key to nuclear structure, was determined by William B. Fretter (*Physical Rev.*, 70: 625) to be unique and to be about 200 electron masses. Thus earlier speculations and interpretations of experimental results on the basis of charged mesons with much smaller masses were discarded. At the University of Bristol, England, a group of physicists (*Nature*, 160: 453) studied the tracks of cosmic ray particles recorded in the emulsions of special photographic plates, and offered some evidence, not entirely decisive, for the existence of neutral mesons of the same masses as charged mesons.

Experimental flights of captured German V-2 rockets conducted by the ordnance department of the United States army at its proving grounds, White Sands, N.M., were utilized by scientists to measure the pressure and temperature of the atmosphere far above the maximum level (about 25 km. or 15½ mi.) previously accessible to free balloons. Reliable data were obtained up to 120 km. or approximately 75 mi., at which altitude the measured pressure was less than 0.0001 mm. of mercury. With these new data it was possible in some respects to improve upon the information given in "Tentative Tables for the Properties of the Upper Atmosphere," a 1947 publication of the National Advisory Committee for Aeronautics. On two flights the V-2 rockets carried spectrographs with which the solar spectrum was photographed at an altitude of 80 km., giving spectrograms representing the distribution of intensity in the sun's radiation more truly than ever before obtained directly.

Horace W. Babcock's measurement (*Physical Rev.*, 72: 83) of the polar magnetic field of 78 Virginis provided the third celestial object whose angular momentum and magnetic dipole moment were known. The other two were the sun and the earth, for which two it had long been known that the dipole moments and angular momenta were directly proportional. Babcock's observations on 78 Virginis confirmed the same regularity for this third body, so that, as P. M. S. Blackett remarked, the principle must be taken seriously as a possible general law of nature for all massive rotating bodies. The effect was so small that it could not be detected using masses and angular velocities attainable in laboratory experiments.

A group of U.S. chemists and physicists established the

numerical values governing the amount of radioactive carbon (C^{14}) normally present in living organisms. That it actually existed could be the result only of the occurrence of some neutrons in the flux of cosmic rays. An interesting deduction was that in organic matter, once dead, the quantity of radiocarbon would decrease exponentially, at a known rate. This offered a possibility of determining the age of items like wheat kernels stored in the burial places of past civilizations.

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Physiology.

Physiology of Discipline.—The physiological mechanisms of discipline were lucidly discussed in 1947 by R. P. MacKay, who pointed out that the conditioned reflex is the unit of character in that it is the basis of all learned or acquired behaviour. The amount and kind of discipline (or conditioning) that children are subjected to will largely determine their adult character, including their moral stature and their tendency toward neurotic behaviour. The elements required for the inculcation of good behaviour habits are the same elements that are involved in establishing conditioned reflexes. Among the most important of these elements may be mentioned the objective, which in terms of discipline should be ethical standards such as love of truth and devotion to duty. Another element is an atmosphere of friendliness, which, for discipline, means that the child must be loved by the parent. Further factors for successful conditioning are teaching by example, intelligent use of reward and punishment and consistency of attitudes.

Experimental Insomnia.—Prolonged wakefulness was maintained in a large group of young men for the purpose of studying the physiological changes which occurred. With the exception of an increase in the electrical activity of the brain, no other significant physiological or biochemical changes were observed during 112 hr. of experimental insomnia. This indicated that the fatigue is confined to the higher centres of the central nervous system.

In tests of short duration, little change occurred in performance as measured by a wide variety of tests of psychomotor skills. When sustained effort was required, however, poorer performance resulted. This effect first became evident after about 60 hr. of sleeplessness. The inability to sustain effort is related to the increased difficulty of remaining awake and not to any muscular weakness.

The chief disturbances produced by sleeplessness are psychological. The principal symptoms noted were apathy, bursts of unreasonable laughter, autistic expressions and the tendency toward hallucinations. (In the great majority of the subjects these changes are mild and disappear following sleep.)

Restricted Caloric Intake and Longevity.—Several studies published in 1947 confirmed the fact that restricted caloric intake increases the average length of life of animals. An effect upon fertility and upon the incidence of tumours was also noted. When the diet of mice was limited to two-thirds of the calories consumed by litter mate controls which were fed large amounts, the protein and vitamin intake of the two groups being the same, 25% of the mice on restricted intake were alive at an age when all of their full-fed litter mates had died. The special strain of mice used in this study showed an incidence of cancer of the breast of 19% when fed a normal diet. This fell to zero in the group whose food intake was restricted. Caloric restriction for eight months, with subsequent full-feeding, did not prevent a significant incidence of mammary cancer although it raised the average age of onset of cancer above that in comparable fully fed controls. The caloric restriction employed in these studies retarded sexual maturation and thereby depressed the fertility of the animals. Remarkably, the calorie underfeeding did not prevent subsequent maturation and normal gestation at an age when full-fed litter mates had become sterile from senility. The mechanism of action of restricted caloric intake in increasing longevity and decreasing tumour incidence remained unknown and offered a fruitful field for research.

Radioactive Red Cells in Determination of Blood Volume.—The radioactive isotopes continued to find ever more extensive use as tools for physiological research. An excellent example of the application of this new technique was afforded by the use of "tagged" red blood cells for the purpose of determining the volume of blood in human subjects. Volunteer normal medical students served as donors. They were fed one of the radioactive isotopes of iron (in these studies iron 59 was used) for several weeks so that the radioactive iron became incorporated into their red blood cells. A small portion of the donor's blood was then injected into a recipient with compatible blood type in whom the volume of circulating blood was to be determined. By determining, by means of Geiger-type counters, the radioactivity of the donor's blood cells and the radioactivity of the recipient's blood cells, after enough time had been allowed to permit thorough mixing of the donor's blood with the recipient's, the amount that the donor's cells had been diluted could be determined. From this dilution factor an accurate calculation of the total blood volume of the recipient was made. It was believed that this method of determining blood volume was more accurate than those previously used. When this new method was compared with the widely used dye-dilution method, large discrepancies were observed. The greatest error in the dye method is the removal of a portion of the dye from the circulating blood by the cells which line the smallest blood vessels. Since this adsorption onto the lining cells is variable, correction for it cannot properly be made.

Toxicity in Animals of Processed White Flour.—For about 25 years mills had been exposing flour to nitrogen trichloride gas for the purpose of aging flour artificially. Such treatment (called "agenizing") improves the baking quality of flour so that a larger, softer loaf of bread with a silkier, somewhat whiter crumb results. It was shown in 1947 that dogs and several other species of animals are susceptible to a toxic principle produced by the action of nitrogen trichloride on the proteins of flour. Dogs were found more susceptible than any other species so far studied. When fed to dogs as a major portion of their diet, such bread produces a set of symptoms variously termed canine epilepsy, canine hysteria, running fits and fright disease. Manifestations of the condition consist of inco-ordination of movements, weakness and epileptiform convulsions. The convulsive seizures begin with a premonitory howl, followed by falling over, salivation, running or paddling movements and finally jerking movements. Electroencephalograms showed irregular brain waves similar to that seen in human epilepsy. The symptoms in rabbits, cats and ferrets appeared comparable with those in dogs, though considerably larger or more prolonged dosing was required to produce them in cats and ferrets. Monkeys showed no convulsions but in some instances displayed changes in the encephalogram. Chickens, guinea pigs and hamsters gave no evidence of toxic reactions. Twelve human volunteer subjects revealed no symptoms or encephalographic changes after eating agenized flour in amounts and for periods of time which would unfailingly produce hysteria in dogs. The decision as to whether agenized flour has any toxic effect in man awaited the outcome of detailed experiments.

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Pig Iron: *see* IRON AND STEEL.
Pigs: *see* HOGS; LIVESTOCK.
Pineapples: *see* FRUIT.

Pittsburgh. Recovering from labour disturbances of the previous year, production and trade in Pittsburgh, Pa., rebounded to peaks in 1947. For 11 months industrial production stood at 187% of the 1935–39 average or 24% above the same period of 1946, as compared with the federal reserve board's national index, which was only 9% higher. Steel operations averaged 97% of capacity, or 27% above 1946, and preliminary estimates for bituminous coal production indicated a gain of 17%.

The Bureau of Business Research of the University of Pittsburgh reported employed persons in the Pittsburgh district at 128% of the 1939 average or more than 10% above 1946. The bureau's index for pay rolls for the district stood at 242% of the 1939 level or 24% above 1946.

Retail trade in the 11 months reported 17% higher dollar volume than in the corresponding months of 1946, while department stores reported an increase of 9%.

Substantial progress was made in meeting the housing shortage. Federal Housing administration insured mortgages increased 117% in western Pennsylvania in the first eleven months.

The city council and the board of public education enacted new taxes for 1948 on personal property and on the gross volume of mercantile enterprises. The city also enacted a tax upon amusements admission fees, and the school board adopted a per capita levy. As 1947 ended, several of these new levies were under court attack as unconstitutional.

Long effort to eliminate excessive smoke over Pittsburgh culminated when a city ordinance took effect, requiring the burning of smokeless fuel or the use of equipment which would burn bituminous coal smokelessly. Steps were under way to extend control throughout Allegheny county. The Pittsburgh Consolidation Coal company announced plans to build a $120,000,000 plant to convert coal to gas and other smokeless fuels.

The Pittsburgh Parking authority was organized to erect municipally-owned, multilevel garages in the downtown district. Construction was vigorously advanced on the Penn-Lincoln high-speed parkway to bring the traffic of U.S. routes 22 and 30 from the east into the business district.

Political history was made when, at the November election, the Democratic party made a clean sweep of county offices for the first time.

A sample survey for the U.S. census bureau indicated that the metropolitan district increased in population about 5% or 106,000 to a total of 2,100,000 after the 1940 census. Latest official population figure for Pittsburgh was 671,659 as enumerated in 1940, slightly less than half that of Allegheny county, including 3 other cities, 74 boroughs and 51 townships. City area was approximately 54.3 sq.mi. and county area 747 sq.mi. Taxable real estate was assessed in Allegheny county at $1,925,000,000 of which $970,000,000 was in Pittsburgh. (C. F. Ls.)

Pius XII (1876–), the 262nd successor of St. Peter in the see of Rome, was elected by the cardinals in conclave on his 63rd birthday, March 2, 1939, and was crowned as pope on March 12. (For details of his early life, see *Encyclopædia Britannica.*)

Consolidation of the peace and reconstruction of the world, particularly Europe, on humane and Christian lines continued to be the foremost concerns of the pope during 1947. Addressing members of two Italian women's organizations on Jan. 22, he urged them to enkindle in themselves an ardent zeal to collaborate in the redemptive work of Christ by living the greatness of a Christian life in its fullness with persevering constancy. Quoting St. Ignatius of Antioch, the pope said: "In times during which it is the object of the world's hatred, Christianity is not a matter of persuasive words, but of greatness." In similar vein on the feast of St. Benedict, March 21, 1947, he issued an encyclical letter, *Fulgens Radiatur,* urging the peoples of the Christian world to pattern their lives upon the principles of religion else human society will collapse.

During an audience with members of the United States delegation to the International Labour Office conference in Geneva on July 16, the pope re-emphasized the right and duty of the church to teach the moral aspects of economic problems. He called attention to basic principles of sound social order including respect for human dignity and the dignity of labour, the solidarity of all people in the human family, and the demands of the common good over individual gain.

On Oct. 29 in the course of an address to the minister plenipotentiary of the republic of El Salvador to the Holy See, the pope urged all who have the cause of a just peace at heart to make use of the opportunities offered by the United Nations, even if it appears that their appeals for peace remain unheeded at present.

While receiving members of the United States subcommittee on immigration and naturalization on Nov. 3, Pius XII pointed out that the question of immigration today "presents a wholly new problem"; that while always the welfare of a country as well as that of the prospective immigrant must be considered, and will sometimes dictate restrictive legislation, "circumstances will at times almost cry out for the easing of the application of the law."

The most important papal document of the year was the encyclical on the liturgy, *Mediator Dei,* issued on Nov. 20. It stressed the importance of social worship, at the same time warning against abuses and unauthorized innovations.

On Dec. 18, the pope issued a short encyclical letter, *Optatissima Pax* ("Most Desired Peace"), calling especially for the prayers of children for the peace of the world. In his radio message of Christmas Eve, the pope pointed the way to international peace and reconstruction: "Only through prayer and work, through truthfulness and courage, through a genuine and universal spirit of brotherhood, will the year 1948 be for wounded Europe and for the nations torn by discord, a year of rebirth and peace." On Dec. 31, warning that 1948 would be a year of decision and crisis, he rejected the idea it would also be one of the most calamitous in history.

On several occasions Pius XII became the target of soviet press attacks. After telling visiting newspapermen on Jan. 18 that a new totalitarianism had succeeded naziism, the *New Times,* Moscow, condemned him as an international reactionary and said the Vatican conducted an "anti-Soviet, antidemocratic campaign throughout the world." In October, the U.S.S.R. *Literary Gazette* attacked him for backing U.S. foreign policy; previously Pius XII had mentioned to visitors that sometimes force is legitimate in enforcing law and order.

During the year the pope addressed several messages to U.S. Catholics. On the first day of Lent, in a radio broadcast, school children were urged to contribute "pennies and dimes" to aid starving youth in Europe. In October Holy Name men, at their

national rally in Boston, Mass., were told laymen have an important task to perform in social and spiritual reconstruction. On Oct. 12, in a radio address to the National Conference of Catholic Charities convention at New Orleans, La., Pius XII warned of the dangers from "social and racial bias." To the national meeting of the Catholic Rural Life conference (*q.v.*) he sent a telegram commending work for displaced persons and their resettlement. On Nov. 29 U.S. Catholics were urged to aid the hungry of Europe and the Orient.

The Swedish government specially honoured the pope in February, conferring upon him a medal for his outstanding services to humanity. (*See* also ROMAN CATHOLIC CHURCH; VATICAN CITY STATE.) (J. LAF.)

Plague, Bubonic and Pneumonic.

Recurrences or new eruptions of plague in alarming proportions were not reported during 1947, but an outbreak occurred in Turkey along the southern frontiers of Urfa during March and April after several years of quiescence or absence of the disease. It was assumed that the source of this outbreak developed from sporadic cases among the nomadic peoples of Syria, among whom recurrences of minor degree had not been uncommon. Human cases were reported also from large sections of Africa, eastern and western Asia, Oceania, and smaller numbers from South America.

Establishment of the infection among rodents of the field and countryside (sylvatic plague) served as a reservoir of endemicity in some countries. A review of investigations in the United States which had been conducted consistently for the ten years prior to 1948 specified 9 genera of rodents, and 9 species of the genus *Citellus* in which plague was found; 6 additional genera and 2 species of *Citellus* from which plague-infected fleas were collected; and 25 species of fleas which served as vectors under controlled experiments in the laboratory. Determinations were made from collections of more than 595,000 field animals of 5 orders and 45 genera, which included 26 species of the genus *Citellus* and its subgenera; and from more than 1,186,000 fleas among which were one or more species of 53 genera. These systematic investigations extending over approximately the western half of the United States among the indigenous rodents and their fleas indicated the potentialities for tenacious persistence of the enzootic.

Observations in other countries were confirmatory. Canada reported the presence of plague in fleas collected from ground squirrels (*Citellus richardsonii*) in Alberta and Saskatchewan, and the reporters remarked that there was no colonization of domestic rats in Alberta, though there was in the larger cities of Saskatchewan. During 1947 evidence was obtained also of an enzootic among field animals along the Peruvian-Ecuadorean boundary, which gave rise to 19 human cases among a scattered and sparse agricultural population. The investigator reported there was a complete absence of domestic rats in the region; and the fleas (*Xenopsylla cheopis, Ceratophyllus londiniensis*) which are the transmitting vectors elsewhere in the country were not present. The tissues of a black squirrel and of a pool of seven brown ground squirrels were infected with plague, and five dead native field rats were found. The predominant flea was of the genus *Rhopalopsyllus,* whose ability as a vector was being subjected to experimental examination.

The explanation of the persistence of plague over years in areas of northern latitudes or seasonal cold temperatures (Canada, United States, Manchuria, etc.), in which principal rodent hosts hibernate for several months, was a subject of speculation based on the survival of fleas under protected conditions in the laboratory, and on suggestive observations in the field. It was demonstrated that infected fleas (*Diamanus montanus*) will survive in a temperature of 40° C. from October to March in nests with hibernating ground squirrels (*Citellus richardsonii, C. townsendii*), and, though most of them become cleared of the bacterium, a few remain infected and an occasional one will produce the disease in other hosts by biting when removed from the nest after the period of hibernation.

It was determined during the same series of experiments that an occasional ground squirrel into whose skin the microorganism of plague (*Pasteurella pestis*) was introduced artificially within a few days after the animal had begun its hibernation continued its sleep without interruption, awoke four months later, and was alert, active and appeared entirely normal through a period of six days after awaking. On the seventh day illness with plague developed, followed by death on the eighth day, with infection at the site of inoculation, an adjacent bubo, and a bacteremia with distribution of the microorganism throughout the organs. Thus it was demonstrated that the infection can be carried four months in fleas under the conditions of hibernation of ground squirrels; and in a latent state in the squirrel which was infected shortly after the beginning of its winter sleep.

It may be noted as a possible contributing factor to the recrudescence of the disease in spring that the fleas began active copulation upon removal from the nest at 40° C. to a temperature of 65° C. Thus the nest in nature would probably have a greatly increased population of potential flea vectors at the time of the increase of the host numbers with the birth of the young.

Pneumonia of plague can be induced in white mice, and in other experimental animals by instillation of a suspension of *P. pestis* into the nares. It was shown that treatment with streptomycin of mice infected by this method will prevent the development of the pneumonia, even though the drug is administered 48 hours after the instillation. It appeared also that mice immunized by the administration of suspensions of the microorganisms which have been killed by chemicals will not develop pneumonia when the instillations are made subsequently.

Preparations for immunizing purposes were made by extracting masses of the dried bacteria with acetone followed by neutral saline solution. Two water soluble reagents (antigens) were obtained which produced antibodies in the serum of the animals to which they were administered.

The destruction of rats on ships by the periodic application of 1080 (sodium fluoracetate) was adopted by U.S. quarantine authorities in lieu of ship fumigation. The poison is dissolved in water contained in small paper cups which afford drinking water for the animals at suitable stations in their runways on the ships.

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Plant Industry, Soils and Agricultural Engineering, Bureau of: *see* AGRICULTURAL RESEARCH ADMINISTRATION.

Plasma, Blood: *see* PHYSIOLOGY.

Plastics Industry.

During 1947 the plastics industry underwent, for a few months, a rather painful but very salutary recession which resulted in a strengthened industry and in important new applications for plastic products. This slump, first felt in March, was apparent chiefly

in the thermoplastic materials which, among other things, find a large market in household applications, and was the direct result of the reduction of inventories and curtailment of orders by retailers.

By the end of July, however, retailers had liquidated their stocks of uneconomic plastics products; the industry was in the course of developing new applications for its materials and was paying more attention to merchandising. As a result, statistics indicated, the industry used about 10% more resins and cellulosics in 1947 than in 1946.

In view of the fact that many moulders had considerable idle machine time during the year, the record of new machine sales, while far below that of 1946, was surprisingly high. Totals for the year were estimated at 420 compression presses, 350 injection presses and 180 extruders, making a new total of machines in the moulding and extrusion industry as follows:

Type	1941	1945	1946	1947
Injection*	1,000	1,720	3,275	3,625
Compression	8,000	12,065	12,975	13,390
Extrusion	—	850	1,150	1,327

*The figures do not include "made to order" or "made in the plant" injection presses now operating in the industry.

The new and modernized equipment, coupled with speed-producing accessories such as preheaters for thermosetting materials, resulted in production which was actually much larger than could be indicated by machine statistics; pieces were being moulded in both thermoplastic and thermosetting materials of a size that would have been considered impractical two years previously.

The Cellulosics.—Improved industrial design in the direction of heavier moulded cross-sections, made possible by advances in moulding equipment and technique, raised cellulose acetate out of its consumption slump in the fall of 1947. Examples were brush handles, toys and luggage handles. Cellulose acetate sheet material for packaging use held its ground throughout the thermoplastic recession period; new automatic machinery for the manufacture of set-up acetate boxes was a contributing factor.

In places where low-cost, high-impact material was required, such as in toilet seats, football helmets and even in telephone bases cellulose acetate butyrate made decided advances. The speed of injection moulding and the colourability of the materials gave them wider acceptance in new fields.

Ethyl cellulose, famous as the nose of the proximity fuse during World War II, came into wider usage in practically unbreakable toys, in bowling pins, golf club heads, small radio cabinets, hearing aids and refrigerator parts. Its biggest uses continued to be in mixture with amorphous wax as a strip coating for the packaging of machine parts, and in lacquer for the coating of wire insulations.

Cellulose propionate and cellulose acetate propionate, two fairly new moulding compounds, were under continuous test for new applications in many fields.

Polystyrene.—Consumption of polystyrene was approximately 92,000,000 lb. in 1947 compared with 67,000,000 lb. in 1946. This 37% increase was far less than was expected at the beginning of the year and was considerably less than the capacity for producing the polymer. The entire styrene production outlook was influenced by the synthetic rubber program, using 75% of butadiene and 25% of styrene monomer.

Ethylene, one of the bases of styrene monomer, with heavy use in antifreeze, detergents and other chemicals, was in short supply in 1947. Benzol, another base material for styrene, and a material with many markets apart from the plastics industry in which it is also a source of phenol, was also in short supply.

Household applications for polystyrene in 1947 were innumerable, including small radio cabinets, refrigerator parts, electrical applications and wall tile. More than 40 moulders went into the production of polystyrene wall tile.

A surface coating for polystyrene mouldings was introduced which was declared to improve the scratch resistance of the pieces, cut down their electrostatic quality and make them more resistant to hydrocarbons. During 1947 a new high temperature resistant polystyrene was also introduced which was declared to be boilable for short periods of time. It was being used in kitchen utensils, such as tea strainers, and in other objects where high heat may be encountered. Some progress was made in the use of polystyrene foam as insulating material for freezer plants and cold storage buildings and even for domestic construction.

Acrylics.—Because of the limitations of the peacetime market for acrylic sheet in large aircraft construction and because of the partial collapse of the immediate postwar market for fabricated acrylic ornaments and novelties, the acrylic business in 1947 was limited. Late in the year, however, the industry was given a boost by newly-developed applications of this material to signs and displays of all kinds. In these applications acrylic was formed into large shapes, coloured and lighted from the interior.

Acrylic moulding powder also showed a volume increase late in the year because of its increased use in the automotive industry for escutcheons, horn buttons and other decorative elements. Here the process for moulding and applying metallics and colour to the interior, making a very beautiful three-dimensional ornament, became standard as it did in the refrigeration field. In addition to these new uses, there were developments in monomer castings for display purposes; watches, silverware and similar fine merchandise were embedded in acrylic castings for store counter and window displays. A high heat-resistant or boilable acrylic was being used in 1947 to a greater extent in medical equipment.

Polyethylene.—Of all the thermoplastics, polyethylene probably made the most spectacular progress in application during 1947. This material, developed in England during the war, and later produced in large quantities by two U.S. firms, has the lowest specific gravity of any plastic and floats in water.

Polyethylene was used in moulding refrigerator bowls and covers, bottle caps and closures, squeezable bottles for the cosmetic industry, electrical parts and chemical equipment including pipe fittings. It was extruded over wire for coaxial cable for use in the television field. In sheet form it was used in flexible packaging, as well as for refrigerator bowl covers and several kinds of low-temperature protection including masts or pylons for television broadcasting. Through a new development called flame spraying, it was applied experimentally as a surface coating or paint with the expectation that it would prevent the collection of ice. It was also extruded in monofilament form for use in textile weaving and in very fine tubes for medical applications.

The Vinyls.—Although the vinyls with a volume of 180,000,000 lb. in 1947 came second only to phenolics, neither in production nor consumption did they hit the peaks expected. As it was, shortage of plasticizers was serious.

A peculiarity of the vinyls in marketing, because of the wide range of formulation available, is that when one market falls off another can be opened. The use of polyvinyl acetate put up in collapsible tubes for the blowing of balloons by children diverted 400,000 lb. in one month from normal channels. When shower curtains became seriously over-produced, the use of vinyl in flooring came to be significant. In 1947, there were five manufacturers of vinyl floor tile or roll material for flooring. Vinyl butyral as a coating for textiles, spread on with a knife, became popular in the manufacture of tablecloths. For upholstery, both supported and unsupported vinyl chloride sheets

were used.

The extrusion of vinyl progressed enormously during 1947, one of the main items being garden hose. Extruded vinyl for wire and cable covering remained an important application. More than 1,000,000 lb. of vinyl were used to coat wall covering materials. Vinyl for moulding did not expand, although some of the new plastisol or paste compounds showed progress.

An important contribution to vinyl technology during 1947 was the development of the nitrile rubber-type plasticizer which literally bonds or alloys itself with the vinyl and does not migrate. A sheet material made from nitrile-plasticize vinyl was put into use in a package for oleomargarine. The colour capsule of gelatin was placed inside the package and the housewife merely took the package at room temperature and kneaded it until the colour was well dispersed through the margarine.

Polyvinylidene Chloride.—This material, the base resin for which was produced by only one U.S. maker in 1947, maintained a fairly steady market in woven monofilament form for use as window screening and automobile slip cover upholstery. It also was given new uses in chemical, paper and textile plants.

Nylon.—Production and use of this material for moulding purposes increased during 1947. Improvements in moulding techniques led to its being moulded into gears, grommets and washers. Tap washers of nylon received a thorough market testing and were shown to outlast fibre or rubber washers by many months. Dip-dyed nylon moulded tumblers and infants' feeding dishes which are unbreakable, boilable and permanent were marketed with some success although price was a deterring factor. Nylon was also used in medical instruments, an important example being a holder-applicator for a radium capsule used in cancer treatment.

Phenolics.—Consumption of phenolic materials in 1947 was beyond expectation. Moulding powder use alone increased from 140,000,000 lb. in 1946 to almost 200,000,000 lb. in 1947. Much faster press cycles and larger pieces accounted largely for the increase. Large radio cabinets, vacuum cleaners, office equipment, handles and knobs, caps and closures, communication and electrical equipment were among the uses.

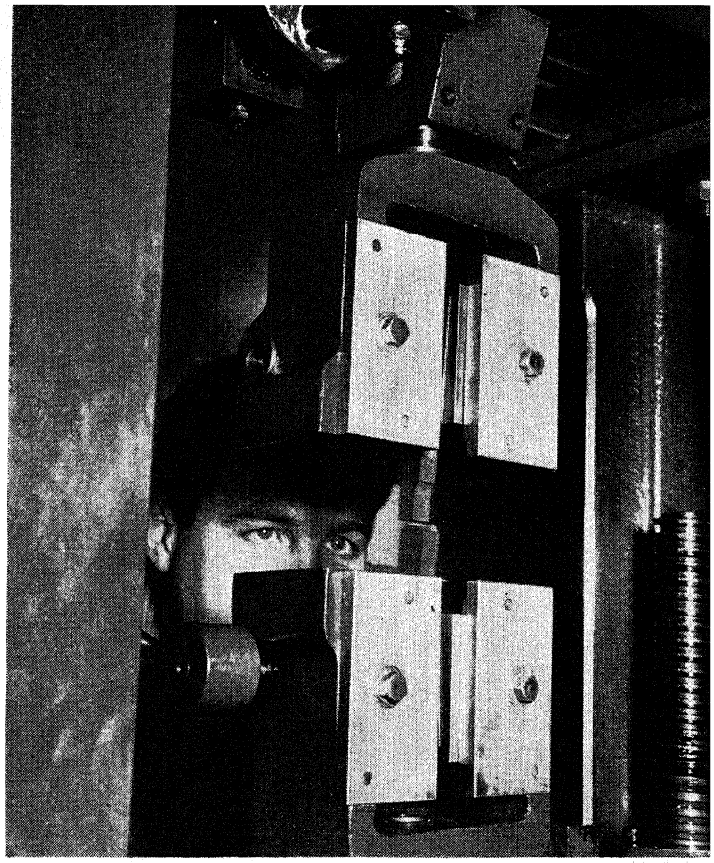
Urea and Melamine.—Production of both urea formaldehyde and melamine formaldehyde moulding materials was short of demand in 1947, although the supply of both improved rapidly. A new development in moulding of urea and melamine, particularly applied to melamine tableware, was the use of a sheet of paper printed in several colours to provide a multicolour effect in a one-colour moulding.

Melamine laminating resins were increasingly used in 1947, particularly in the decorative laminates but also with glass fibre in the electrical field. Melamine and urea adhesives for plywood and furniture manufacture were used in greater quantities than ever before.

The Polyesters.—These peculiar war-born materials showed very little except promise until 1947, chiefly because the resins were all tailor-made for each job or doctored in the processing plants, and rather antiquated and slow production methods were used in the moulding. In 1947, however, at least a few large applications for low-pressure moulded polyesters (with glass mat and fabric fillers) developed—including large size boats and luggage.

High-Pressure Laminate.—About 65,000,000 lb. of high-pressure laminates were produced in 1947, this figure being quite a bit lower than the wartime high level of production but higher than 1946 production. Approximately 15% of the U.S. laminate manufacture was in decorative material with melamine surface. Plant capacity increased materially during 1947.

World Developments.—Great Britain, while still short of many materials, expanded its plastics industry during 1947 and worked out countless new applications. One peculiarity of the industry was its concentration on the construction field. Wallboard was made of sawdust with resins, acrylics were used in formed pieces for bathroom and kitchen sinks and extensive uses were developed for extrusions in construction.



ALLOY of synthetic rubber with plastic resin being tested at the Bayway refinery, Linden, N.J., in 1947. Evidencing tremendous strength, the plastic alloy broke only after a pressure of 5½ tons per square inch was applied

In Canada lignin, waste material derived from wood in the manufacture of paper, was combined with phenolic resin and surfaced with melamine sheet to make solid sheets of various thicknesses which could be used for either table tops or for wall surfaces.

Australia's plastics industry also expanded in both material production and moulding and fabrication. An all-plastic refrigerator, cylindrical in shape, was produced.

Western Europe and the Scandinavian countries were not back to prewar levels in plastics, although some progress was made. India, Palestine, Egypt, every country in South America, China and the Philippines all had entrepreneurs working toward the opening of plastics industries. (*See* also CHEMISTRY; ELECTRICAL INDUSTRIES; MACHINERY AND MACHINE TOOLS; MUNITIONS OF WAR; PAINTS AND VARNISHES; RAYON AND OTHER SYNTHETIC FIBRES; RUBBER.) (C. A. BN.)

Platinum Group Metals.

The metals of this group, platinum, palladium, iridium, osmium, rhodium and ruthenium, are so closely associated that world production must be reported as a group.

Table I.—*World Production of Platinum Group Metals, 1940–46*

(In thousands of fine ounces)

	1940	1941	1942	1943	1944	1945	1946
Canada, total	200.0	221.7	507.8	345.7	200.4	666.9	244.6
Platinum*	108.5	124.3	285.2	219.7	157.5	208.2	130.4
O. P. M.†	91.5	97.4	222.6	126.0	42.9	458.7	114.2
Colombia‡	35.9	37.3	49.2	40.0	36.1	35.1	43.8
So. Africa§	72.0	73.3	73.8	73.7	80.6	75.9	75.1
United States‖	41.6	32.7	33.0	37.6	40.5	31.0	26.3
World Total (est.)	465	479	778	634	520	971	576

*Platinum content of nickel refinery residues. †Other platinum metals, mostly palladium. ‡Crude platinum. §Crude content of ores and concentrates; ordinarily these figures are increased by about 10% by recoveries of osmiridium in gold mining. ‖Total crude and refined.

Table II.—*U.S. Production of Platinum, 1941–46*

(In fine ounces)

	1941	1942	1943	1944	1945	1946
Production, total	32,730	33,044	37,552	40,549	31,046	26,312
Crude	26,236	23,239	27,162	33,625	26,551	22,949
Refined	1,805	4,333	5,205	3,286	1,068	555
O. P. M.*	4,689	5,472	5,185	3,638	3,427	2,808
Imports, total	309,995	315,002	362,251	356,212	383,298	407,210
Crude	244,849	263,376	263,893	137,192	172,029	76,012
Refined	9,865	32,254	41,272	70,150	72,849	119,853
O. P. M.*	55,281	19,372	57,086	148,876	138,420	211,345
Supply, platinum						
Refinery, output	98,376	244,226	234,320	132,452	162,032	92,947
Secondary	37,522	56,150	68,613	85,942	58,942	40,385
Imports, refined	9,865	32,254	41,272	70,150	72,849	119,853
Total	145,763	332,630	344,205	288,544	293,823	253,185
Sales	190,075	269,176	344,719	275,648	336,851	234,479
Stocks	150,887	160,724	176,560	159,173	138,839	187,624

*Other platinum metals.

In addition to the countries in Table I, there are several minor producers, while the U.S.S.R. has an undisclosed output which has been variously estimated at 100,000–150,000 oz. annually. There was an appreciable output in Canada during the years 1938–44 which had not previously been accounted for, and which is now included in the 1945 figures.

United States.—The salient statistics on platinum production and supply in the United States are summarized in Table II.

Shifts in the use of platinum to the various consuming industries are shown in Table III.

Table III.—*Sales of Platinum in the U.S. to Consuming Industries*

(In fine ounces)

	1939	1943	1945	1946
Chemical	20,306	131,716	115,816	31,107
Electrical	11,952	185,281	107,260	35,007
Dental and medical	13,755	27,044	30,871	21,859
Jewellery	47,385	438	81,305	144,015
Others	6,868	240	1,599	2,491
Total	100,264	344,719	336,851	234,479

During the first three quarters of 1947 there was a reduction in refining activity, imports, and sales to well below the level of 1946. Platinum recovered by refiners dropped to 73,387 oz., crude imports to 38,944 oz., refined imports to 88,889 oz., and platinum sales to 157,878 oz. (G. A. Ro.)

Plums: *see* FRUIT.

Plutonium: *see* ATOMIC ENERGY; PHYSICS.

Pneumonia. Transmission of primary atypical pneumonia was accomplished in 1946 by spraying bacteria-free filtrates of throat washings and sputum from patients sick with this disease into the nose and throat of normal human volunteers. The disease was again reproduced by inoculating similar materials from experimentally infected persons into a second group of volunteers. In both instances some of the inoculated volunteers came down with minor respiratory illnesses without signs of pneumonia. These studies suggested a possible relationship of the group of minor respiratory diseases to the atypical or viral pneumonias.

Further studies were reported in 1947 by the Commission on Acute Respiratory Diseases concerning the transmission of some of these minor respiratory illnesses to healthy human volunteers by means of bacteria-free filtrates of throat washings obtained from persons with such illnesses. Two distinct types of illness were induced. One was an infection like a head cold of brief duration which developed after an interval of 24 to 48 hr.; the prominent features included nasal congestion and profuse watery discharge with a minimum of sore throat. The other was an infection characterized by a longer and more severe illness, prominence of sore throat, minimal nasal symptoms and an incubation period of five to six days. These illnesses were distinguishable. Primary atypical pneumonia did not develop in any of the subjects. The results of these experiments indicated that at least two filtrable agents, presumably viruses, may induce minor respiratory illnesses in man.

Additional experiments were then undertaken to determine whether persons recovering from the experimentally induced minor respiratory illness had become immunized to reinoculations with bacteria-free filtrates from patients acutely ill with these two types of illness or with atypical pneumonia. Persons who had received the filtrates which had induced the illness having the relatively long incubation period (that is, five or six days) were found to be immune to reinoculation with similar material. Those who received filtrates which induced the coryza-like illness after an incubation period of two days or less were still susceptible to infection with the same material. Cross-immunity was not demonstrable with either filtrate. Furthermore, primary atypical pneumonia could be induced in some persons after they recovered from either of these minor illnesses. The results of these reinoculation studies provided additional proof that at least two distinct filtrable agents or viruses may induce minor respiratory illnesses (common cold, pharyngitis and tracheobronchitis) in man and suggested that these agents are probably distinct from the virus or viruses of primary atypical pneumonia.

Q Fever.—An influenzalike disease caused by a rickettsial agent, and often associated with a severe form of atypical pneumonia, Q Fever was first described in Australia. The disease had already achieved prominence in 1947 because of a number of epidemics among laboratory workers in the National Institute of Health and in certain army medical laboratories as well as among British and U.S. troops in the Balkan area. Sporadic cases were reported in certain parts of the United States where the rickettsia had been isolated from ticks, and later in Panamá, where the agent had not yet been found in animals or insects.

Two outbreaks of Q fever among stock handlers and slaughterhouse workers were also reported in the United States. In one, which occurred in Amarillo, Tex., there were 55 cases and 2 deaths among 136 employees in 3 establishments, an attack rate of 40%. Epidemiological investigations revealed that cattle were probably the source of the infections. Apparently, a single shipment could account for all of the cases, and interestingly enough, there was no detectable illness in these cattle.

The second outbreak took place in one of the large packing houses in Chicago and involved primarily men working on a sheep- and calf-killing and dressing floor. There were 33 cases among 81 men employed on the floor. The spattering of blood and other body fluids was particularly noticeable in such operations as the washing of carcasses and the handling of viscera, and studies made among the 19 men who worked at these jobs revealed 15 cases of the disease, an attack rate of 79%. The average incubation period of the disease in this epidemic was 19–25 days.

The long incubation period of Q fever makes it possible for a person to acquire the infection in one part of the world, remain well for a considerable period and then come down with the symptoms of disease in a remote area where Q fever is not known to occur. This was illustrated by an isolated case reported from Boston. In that case, which was proved to be Q fever by demonstrating the development of specific antibodies in the patient's blood, the disease was acquired near Naples, Italy, an area where the Q fever rickettsia had been shown to be the cause of many severe infections in U.S. troops and in natives. The patient became ill while crossing the Atlantic en route home and had a full-blown pneumonia when he arrived in Boston.

Treatment by Streptomycin.—The availability of streptomycin had extended the field of usefulness of antibacterial therapy to include certain infections caused by organisms not affected or only slightly influenced by penicillin or sulfonamides.

Pneumonias caused by certain gram-negative bacilli, notably *Klebsiella pneumoniae* (Carl Friedländer's bacillus) or *Hemophilus influenzae* (influenza bacillus of Richard Pfeiffer) are among these infections, and some reports of treatment of such cases appeared. The results were not uniformly favourable, largely because of the nature of the infections. In addition, the rapid development of extreme degrees of streptomycin resistance by the bacteria during treatment sharply limited the effectiveness of streptomycin in the pneumonias, as in many other types of infection. In Friedländer's pneumonia particularly, the early occurrence of areas of destruction of lung tissue with abscess formation militated against the rapid and complete destruction of the organisms by the antibiotic. Resistant strains soon appear and render further treatment practically useless. Nevertheless, rapid recoveries were reported with streptomycin in severe cases of this disease in which the mortality with other forms of therapy is high.

Pneumonia and Old Age.—Bacterial pneumonia remained a serious and highly fatal disease to people in the older age groups. The case fatality rate in patients with pneumococcal pneumonia who were more than 50 years old was still between 25% and 50% in 1947, even after treatment with penicillin or sulfonamides. Results of attempts to prevent the occurrence of some of these pneumonias by immunization with vaccines consisting of the specific sugars contained in the capsules of types I and II and later types I, II and III pneumococci were reported.

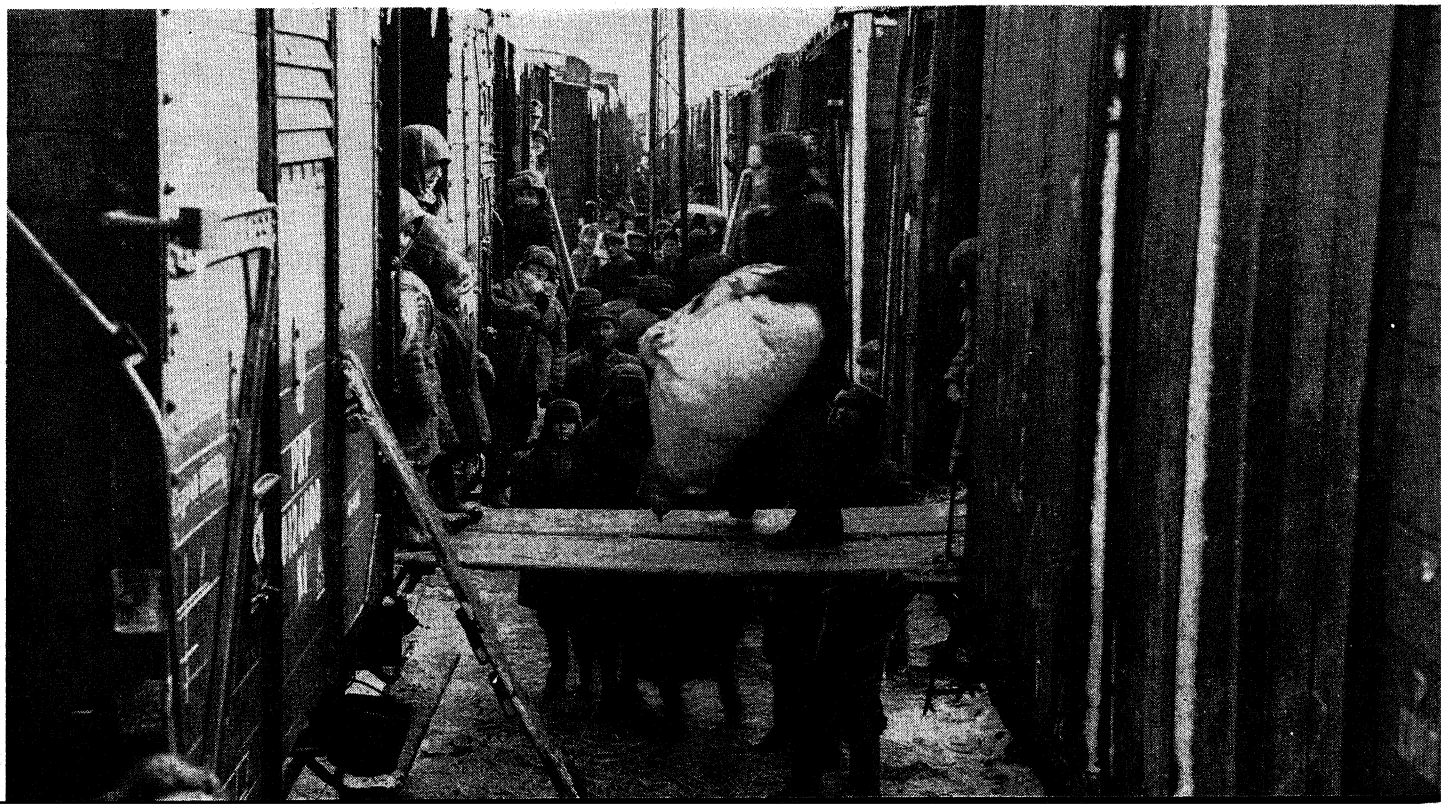
The study was carried out among aged persons in some New York institutions over a period of 6 years; 5,750 persons were immunized and 5,133 comparable persons served as controls. During the total period of observation, there were 99 cases of pneumonia with 40 deaths among the immunized, and 227 cases with 98 deaths caused by pneumonia among the controls. Among the immunized persons, the incidence rate was 17.2 per thousand and the mortality rate was 6.2 per thousand as compared with an incidence of 44 per thousand and a death rate of 19.0 per thousand among those not immunized. The case fatality rate was similar in the 2 groups: 40% in the patients with pneumonia who had been immunized and 43% in those who had pneumonia and had not received the polysaccharide injections. Similar though less striking results in younger persons had been reported previously by other workers. The results suggested that immunization with a polyvalent pneumococcus polysaccharide antigen might prove useful during epidemics of pneumonia, in persons in institutions, in elderly persons and in those who have a tendency to recurring pneumonia.

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Poetry: *see* AMERICAN LITERATURE; BOOK PUBLISHING; CANADIAN LITERATURE; ENGLISH LITERATURE; FRENCH LITERATURE; LITERARY PRIZES; RUSSIAN LITERATURE; SPANISH-AMERICAN LITERATURE; SPANISH LITERATURE.

Poland. A republic in northeastern Europe between the U.S.S.R. in the east and Germany in the west, the Baltic in the north and Czechoslovakia in the south. Area: 119,734 sq.mi. (before Sept. 1, 1939: 149,922 sq.mi.); pop. (Feb. 14, 1946, census): 23,911,172 (Sept. 1, 1947, est.: 24,775,000; est. Sept. 1, 1939: 35,339,000). Area of eastern Poland annexed by the U.S.S.R.: 69,469 sq.mi. with a pop. of *c.* 10,772,000, including about 3,900,000 Poles. Area of the "recovered lands" in the west (former territories of Germany and free city of Danzig): 39,120 sq.mi. with a pop. (1939 est.) of 8,300,000, including *c.* 1,067,000 Poles. Chief cities (pop. Jan. 1, 1947, est.): Warsaw (cap., 550,000); Lodz (596,000); Cracow (305,000); Poznan (268,000); Wroclaw (Breslau) (201,000); Gdansk (Danzig) (170,000). Language: Polish (99.6%). Religion: Roman Catholic (99.3%). President: Boleslaw Bierut;

DISPLACED PERSONS in Poland shown in transit in their unheated boxcars during the early months of 1947



prime minister: Józef Cyrankiewicz.

History.—In 1947 communist control in Poland considerably increased and the constitutional opposition practically disappeared. The main political event of the year was the election of Jan. 19; the official figures showed that 11,413,618 voted out of 12,701,056 persons entitled to do so: 9,003,682 (89.8%) voted for the communist-controlled Democratic bloc and 1,154,847 for the Polish Peasant party; the pro-government (so-called Catholic) Work party received 530,979 votes, the dissident Peasant (New Liberation) party 397,751 and other smaller groups the rest. Out of 444 seats in the diet (*Sejm*) the Democratic bloc received 382 seats (118 Communists, 108 communist-controlled Peasants, 118 left-wing Socialists and 38 Democrats), the Polish Peasant party 28, the Work party 17, the New Liberation 13 and the Independents four. That the elections were neither free nor fair was officially stated both in the U.S. and Britain.

The new diet on Feb. 5 elected as president of the republic Boleslaw Bierut, who two days later appointed a new government. Although the premiership was held by a left-wing Socialist, Józef Cyrankiewicz, the Communists controlled all key posts.

On Feb. 19 a provisional constitution was adopted which enabled the government to rule by decree, and provided for only two short sessions of the diet, in spring and autumn, lasting together only three months. The government might not pass decrees affecting certain important matters of state (budget, monetary system, taxation, conscription and ratification of international agreements), and all decrees on other matters were to be submitted to the diet for confirmation. But the constitution created a state council composed of five persons, president of the republic (chairman), the speaker and two deputy speakers of the diet and the president of the state audit chamber, whose powers were great indeed, since it could promulgate as law any measure proposed by the government which the diet refused to pass within three months.

With its decisive majority in the diet and control of the government the Communist party did not show any tolerance toward its political opponents. Shortly before the elections it refused the demand of Zygmunt Zulawski to form an independent Socialist party and it made certain that the so-called Catholic Work party should be subservient by vetoing Karol Popiel as its leader and putting forward in his place a Communist, Feliks Widy-Wirski. It was announced in July that 23 prominent Socialist leaders, critical of Cyrankiewicz's submissiveness to the Communists, were arrested and charged with plotting to overthrow the government and with spying for a foreign intelligence service. In August and September a big trial of 17 leading Poles accused of organizing an underground patriotic body, the W.I.N. (*Wolność i Niepodległość*, or Freedom and Independence), took place in Cracow. Eight of the accused were condemned to death and nine to terms of imprisonment. Among the latter, two well-known leaders of the Polish Peasant party, Stanislaw Mierzwa, its deputy secretary general, and Karol Buczek, editor of the party newspaper in Cracow, were condemned to 10 and 15 years, respectively. The charge of subversive plotting and of espionage was, therefore, brought right to the door of Stanislaw Mikolajczyk, who had tried to carry out the Yalta policy. On Oct. 12 Mikolajczyk was accused of being "an ally of foreign imperialists." It was a danger signal. The leader of the Polish Peasant party and three of his closest political friends decided to escape. Mikolajczyk arrived in London on Nov. 3. Wincenty Bryja, the treasurer of the party, was arrested in Czechoslovakia and handed back to the Polish security police, but two prominent members of the executive committee, Kazimierz Bagiński and Stefan Korboński, managed to join Mikolajczyk in London. On Nov. 25 Mikolajczyk left by plane for the United States.



POLISH bargeworkers on the Vistula are shown dredging the river bottom for the fine sand used in reconstruction work on the buildings of Warsaw during 1947

Foreign Policy.—The overriding consideration of the government in all matters of foreign policy was to side with the U.S.S.R. The soviet decision to make the Marshall plan ineffective caused the Polish government to start a campaign against the west in general and "American imperialism" in particular. As a result, it was announced in Washington on July 23 that there would be no U.S. post-U.N.R.R.A. credits for Poland and that an already agreed loan of $40,000,000 by the U.S. Export-Import bank was cancelled. The ravaged economy of Poland could, however, profit during 1947 from a credit, granted in June 1946, of $50,000,000 for the purchase of U.S. surplus property abroad.

The most vital issue in Polish foreign policy was that of its western frontier. George C. Marshall, U.S. secretary of state, asked on April 9 at the Moscow conference for a final delimitation of this frontier. He did not question the incorporation of Danzig, of the southwestern part of east Prussia and of the former German Upper Silesia with Poland, but proposed the division between Poland and Germany of the remaining area east of the Oder-Neisse line. Vyacheslav Molotov, in the name of the soviet government, opposed the U.S. suggestion, pointing out that the Potsdam conference of the Big Three did not restrict itself to establishing the new frontier between Poland and Germany, but also adopted a decision on the immediate transfer of all Germans from Polish territories east of the Oder-Neisse line. Accordingly, by April 1947, this transfer of the Germans was practically ended and in their place nearly 5,000,000 Poles were already settled on the former German lands. Molotov stated that the Potsdam decision was formally provisional so long as no peace treaty with Germany was signed; essentially, however, it was final and not subject to revision.

There was practically no difference of opinion among Poles in Poland or abroad on this issue. The Polish press stated that out of about 8,500,000 Germans who were living before World War II on the Polish territory as existing in 1945, only about 2,100,000 remained there by Feb. 1, 1946. From that date to Sept. 1, 1947, 2,002,827 Germans were repatriated. At the same time 1,486,351 Poles from the former Polish eastern provinces and 1,368,544 coming from Germany and other countries of western Europe returned to Poland mainly to the "recovered

lands." Finally, an important migratory movement took place from 1945 onward from the overpopulated central Polish provinces toward the west. In this situation the cession was bound to be regarded as final at least by the Poles.

The British-Polish agreement for settlement of outstanding financial questions, signed on June 24, 1946, was ratified on June 19, 1947. In order to meet the debts for civilian expenditure by the former Polish government-in-exile, amounting to £32,000,000, the Warsaw government undertook to hand over to Britain £3,000,000 of the £7,000,000 Polish gold reserves deposited with the Bank of England, and to pay £10,000,000 in sterling in 15 annual instalments, the first payment to be made in 1952. The debt of £47,500,000 expenditure on the pay of the Polish armed forces in the west was left in abeyance, and Britain was to make no claims for repayment of £73,000,000 spent on the armament and equipment of the Polish forces. Finally, surplus British military stocks of £6,000,000 were to be made available to Poland.

A 20-year treaty of friendship and mutual assistance between Poland and Czechoslovakia was signed in Warsaw, completing the network of bilateral pacts uniting the four Slav republics of eastern Europe between themselves and each of them with the U.S.S.R.

Poles Abroad.—By May 1947 there were in Great Britain about 123,000 Polish soldiers of the former Polish armed forces who had fought with the Allies in the west. Of these about 79,000 enrolled in the Polish Resettlement corps, the administrator of which was Lt. Gen. G. I. Thomas, appointed by the British government under the Polish Resettlement act of March 5, 1947. It was estimated that by Oct. 1947 of those outside the corps 30,000 were repatriated to Poland; 6,000, who had so far refused either to join the corps or agree to be repatriated, were contained in "recalcitrant" camps; 8,000 emigrated to France, Canada, Argentina and other countries. These figures did not include the Poles described as displaced persons in Germany and Austria. It was announced on Jan. 1, 1947, that there were still 388,861 Polish citizens (many of them Ukrainians or Jews) refusing to return to Poland. Of the Poles remaining in Great Britain, by Dec. 1947 about 55,000 had found employment there.

Education.—For the school year 1946–47: primary schools 20,132, teachers 80,440, pupils 3,260,000; secondary schools 758, teachers 9,914, pupils 225,200; vocational schools and courses 1,992, teachers 12,154, pupils 154,505; universities and other establishments of higher education 34, professors and teachers 7,094, students 80,841.

Banking and Finance.—Budget (est. for 1947): revenue Zl.185,512,800,000, expenditure Zl.174,400,509,900. National debt (pre-1939 indebtedness excluded): Zl.29,380,000,000. Bank notes circulation: (Aug. 31, 1946) Zl.44,217,900,000 (Aug. 31, 1947) Zl.73,086,000,000. Exchange rate (official): 1 zloty = 1 U.S. cent; in Nov. 1947, however, it was officially announced that the National Bank of Poland was paying Zl.400 for every dollar for certain kinds of transfers from abroad.

Trade and Communication.—Foreign trade (official figures for 1946 published in Warsaw in dollars): imports $139,628,000 (70.4% from the U.S.S.R.); exports $132,834,000 (49.4% to the U.S.S.R.). The value of Polish foreign trade in 1946 was nearly half the prewar level, but, because of the rise in prices, its volume was considerably lower. Merchant shipping: clearance of vessels in external trade (monthly averages for Gdańsk and Gdynia): (1938) 938, (Jan.–Aug. 1947) 332. Railways: passenger journeys (monthly average in million persons): (1938) 18.8, (Jan.–Aug. 1947) 26.2; freight traffic (monthly average in million short ton miles): (1938) 1,279, (Jan.–Aug. 1947) 1,428. Civil aviation (Jan.–June 1947): number of flights 2,416; miles flown 465,874; passengers transported 26,334; freight carried 258.5 short tons.

Mineral Production and Manufacturing.—(In short tons) coal: (1946) 52,016,800, (Jan.–July 1947) 35,447,500; monthly average (1938) 3,493,000, (Jan.–July 1947) 5,065,500. Iron ore: (1946) 466,095, (Jan.–July 1947) 308,997; monthly average (1938) 80,300, (Jan.–July 1947) 44,143. Zinc and lead ores: (1946) 650,547, (Jan.–July 1947) 495,813; monthly average (1938) 46,200, (Jan.–July 1947) 70,830. Pig iron: (1946) 798,310, (Jan.–July 1947) 504,266; monthly average (1938) 81,400, (Jan.–July 1947) 72,038. Raw steel: (1946) 1,341,371, (Jan.–July 1947) 945,908; monthly average (1938) 132,000, (Jan.–July 1947) 135,129. Crude petroleum: (1946) 128,416, (Jan.–July 1947) 79,903; monthly average (1938) 46,530, (Jan.–July 1947) 11,415. Artificial fertilizers: (1946) 382,051, (Jan.–July 1947) 247,755; monthly average (1938) 93,436, (Jan.–July 1947) 35,394. Index numbers of industrial production (1938 = 100): (Jan.–July 1947) 112. Index numbers of employment, excluding agriculture (1938 = 100): (Jan.–July 1947) 118.

Food and Agriculture.—In short tons 1946: wheat 680,449, rye 3,039,135, barley 741,092, oats 1,118,711, potatoes 20,580,472, sugar beets 3,381,608. Livestock (June 30, 1946); horses 1,729,500, cattle 3,910,500, pigs 2,674,000, sheep 727,100, goats 547,000. By July 1947 it was estimated in Warsaw that about 9,000,000 town dwellers would be compelled to live on 1,800 calories a day (500 calories below normal). U.N.R.R.A. shipments to Poland (from July 1, 1945, to June 30, 1947): $481,260,000 ($20.1 per head of population). Cost-of-living index numbers of a working-class family in Warsaw (1938 = 100): (June 1945) 5,358, (June 1947) 9,450.

(K. Sm.)

Pole Vaulting: *see* TRACK AND FIELD SPORTS.

Police.

Although more than two years had elapsed since hostilities ceased in Europe, Africa, Asia and on the seven seas, the closing days of 1947 still found police protection in most parts of the world operating under the influence of World War II. Inside the ring of communist states and their satellites, secret police still held sway. In Japan, Germany and Austria the dual operations of civil and military police served to emphasize divided objectives of domestic tranquillity for the peoples of defeated countries and military security for the occupation forces. In France and Italy the year was marked by political and industrial rioting and political upheavals that shook those democratic states to their foundations and put their police and military forces to severe tests of competence. On the other hand, the police of the United States, which had handled almost 5,000 industrial disputes in 1946, were somewhat relieved of their burden when the number fell by 28% in 1947. Moreover the strikes were of lesser magnitude. Thus, police in the United States were returning to something like normal conditions affecting public order. In the matter of police manpower, which had declined slightly from 1942 to 1945, there was quick recovery in 1946 to levels that topped those of record-high 1942; and a new upthrust in 1947 brought various population groups of cities to still higher ratios of police to population.

Table I.—*Numerical Strength of U.S. Municipal Police Forces, 1941–47*

(Number per 1,000 inhabitants)

Population groups of cities	1941	1942	1943	1944	1945	1946	1947
Group I—Over 250,000	2.12	2.13	2.07	2.02	1.94	2.14	2.23
Group II—100,000 to 250,000	1.45	1.50	1.47	1.45	1.42	1.56	1.61
Group III—50,000 to 100,000	1.37	1.46	1.40	1.36	1.35	1.52	1.59
Group IV—25,000 to 50,000	1.23	1.29	1.24	1.21	1.22	1.36	1.43

In England and Wales the return to prewar police strength was much slower in arriving. In fact, the shortage in regular police personnel was still more than 10% in 1947. A part of this was due to natural attrition during the war years and to continuance of many police in military service overseas. Part of it, also, was traceable to lagging police pay-scales in the face of rising costs. Steps were taken to secure the release of police still in military service, and police recruiting missions were dispatched by the home office to encourage new police enlistments in the military theatres of the middle east, far east and India. Meanwhile compensation scales and allowances were increased, but still the strength quotas lagged behind authorized levels.

In the United States active recruiting for replacements and enlargements apparently was more productive in attracting recruits of satisfactory quality, partly no doubt as a result of substantial increases in compensation for many federal, state and city forces. This was reflected in a rise of municipal police expenditures for salaries by about 20% over 1943 levels. Highest salaries for patrolmen in U.S. cities were close to $4,000 per annum, though the average for large cities was still only slightly in excess of $3,000, and for small places around $2,400.

The percentage of U.S. crimes cleared by arrest continued to be slightly lower than the levels attained in the years immediately preceding World War II. The crime problem itself was somewhat less than in prewar years, though substantially higher than the midwar trough. Traffic accidents likewise had risen

Table II.—*Per Cent of Crimes Cleared by Arrest in U.S. Cities, 1941–1946*

Uniform Crime Classification	1941	1942	1943	1944	1945	1946
Murder and nonnegligent manslaughter	88.1	90.6	90.5	90.8	86.9	88.5
Negligent manslaughter	86.6	86.1	84.0	81.5	82.7	81.8
Rape	76.2	81.2	74.0	74.8	74.1	74.1
Robbery	40.4	43.3	38.1	38.7	36.2	37.1
Aggravated assault	75.0	80.5	73.7	75.7	76.2	78.7
Burglary; breaking or entering	32.0	31.5	30.7	31.6	31.3	29.1
Larceny (except auto theft)	22.7	25.0	24.1	23.6	22.8	22.0
Auto theft	24.4	24.6	26.5	24.4	26.4	28.8

from the low points recorded during the war, though still below the high point reached in 1941. While improvements had been made in many respects, 1947 brought no new factors into the police training situation. The Federal Bureau of Investigation (FBI) through its national academy still trained each year some highly selected and experienced men from state and municipal forces. Some of the latter were themselves leaders in their police training programs and the widespread net of zone schools sponsored by the FBI and state and local authorities brought brief instruction to the members of many smaller police forces. But there were as yet no means by which thorough police preparation and supplementary training could be made available to all members of some thousands of small local forces.

On this score the police outlook in England and Wales was far more favourable. Comprehensive coverage for all police forces was effected through 9 district schools for basic police training covering 13 weeks of resident instruction. A management committee of chief constables in each district operated under the general supervision of a central advisory committee on recruitment and training representing the local authorities.

Moreover, under the terms of the Police act of 1946, it was provided that after April 1, 1947, only two noncounty boroughs (Cambridge and Peterborough) might maintain police forces of their own. Forty-five local police forces, most of them quite small, thereby were absorbed into existing county constabularies.

One of the questions absorbing much official attention in the United States was the matter of police unions. With few exceptions, professional police administrators vigorously opposed the introduction of such media into their respective forces, and police regulations often expressly prohibit membership in them. While the process of unionization was slow, it was not everywhere halted by official opposition. In 77 cities of more than 100,000 population, police unions were in 1947 established in only 10.

The year 1947 was notable not only for the number of decisions in state courts upholding police regulations that prohibit police unions, but the supreme court of the United States on two occasions declined to hear appeals by police officers who had been dismissed from police employment for violating such regulations.

Most important conference was that of the International Association of Chiefs of Police, which held its 54th annual meeting in Duluth, Minn., Sept. 21–25. Though consisting chiefly of U.S. and Canadian representatives, delegates were present from Costa Rica, Mexico and Sweden. Subjects discussed included a proposal that the association set up regional organizations in various parts of the world, thereby facilitating the active participation of its members in many lands. Public relations of police, police communications and radio allocation problems, professional standards, interforce co-operation, police training, model police buildings, traffic safety, control of commercialized vice, and mass picketing and strikes as a police problem also received extended consideration.

The state and provincial forces of the United States and Canada also held special sessions in conjunction with the meeting at Duluth. The subject matters discussed were in many respects related to the topics covered by the general meeting, though with special reference to both urban and rural police problems.

(*See* also CRIME; FEDERAL BUREAU OF INVESTIGATION; KIDNAPPING; SECRET SERVICE, U.S.).

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Poliomyelitis: *see* INFANTILE PARALYSIS.

Political Parties: *see* COMMUNISM; DEMOCRATIC PARTY; ELECTIONS; POLITICAL PARTIES, BRITISH; REPUBLICAN PARTY; SOCIALISM.

Political Parties, British.

Labour Party.—The clear-cut program with which the Labour party started the year 1947 left little scope for innovation. In home politics the government was committed to the nationalization of electricity and transport before the second session of parliament was over. By the use of the "guillotine" and the imposition of a strenuous parliamentary timetable, involving the continued prohibition of private members' bills, it showed itself determined to remove all obstacles to the rapid discharge of its electoral promises. Its immense majority and continued success at by-elections seemed during the first half of the year to put this program beyond the scope of effective opposition, and its main tactical preoccupation was the activity of a body of dissidents in its own ranks.

In May a large body of Socialists voted against the government's National Service bill imposing peacetime conscription, and in deference to this criticism the period of service was reduced from 18 months to a year. This rebuff was administered by a combination of highly incongruous elements, comprising Welsh Nationalists, conscientious objectors, the representatives (always numerous in the ranks of Labour) of traditional British radicalism, with its inherited aversion to large armies, and a handful of intellectuals who took the occasion to attack Ernest Bevin's foreign policy. This last group had already achieved some coherence under the banner "Keep Left" and had published a pamphlet condemning the government's dependence on the United States, urging it to create a western European bloc, to preserve strict neutrality between the U.S.S.R. and the United States, and to conclude discriminatory trade agreements with soft currency countries. The official Labour reply to the criticisms of Bevin's policy, contained in a pamphlet published by Labour party headquarters on May 22 called *Cards on the Table,* firmly placed the blame for Anglo-soviet misunderstandings on Russia's policy of pursuing "the elimination of Britain as a European and middle eastern power," denied the charge of dependence on the U.S. and said that if more coal could be produced the country would be still more independent. At the annual conference of the Labour party at Margate the issue was joined between the government and its critics, and Bevin secured an overwhelming majority. "Keep Left's" demand for more stringent action against restrictive practices won little support from the trade unions, and the conference made it clear that organized Labour insisted on collective bargaining as the proper means of determining wages. At the Trade Union congress at Southport in September the scene was re-enacted, with the difference that the government's new crisis and Bevin's favourable observations on economic co-operation with the commonwealth and western Europe had already anticipated some of the main criticisms of the left. The real test of left-wing opposition came when the government postponed the Iron and Steel bill for a year, and the dissidents accepted with little protest a series of social reforms and a promise to deprive the house of lords of half its delaying power as an adequate program for 1948. The crisis had brought about a closing in the ranks of the

Labour party, which ended the year far more united than it had begun it.

Conservative Party.—Much of the Conservative party's energy during the first half of the year was absorbed in administrative reorganization and a vigorous campaign for recruitment. The special attention given to local government was handsomely rewarded in November by a net gain of 625 seats. Within the party there was a broad division of opinion between the advocates of *laissez-faire* economics, on which the general election had been fought, and those who, reverting to an earlier Tory tradition, asserted the need for a measure of central control over national economic life. Within both groups there were innumerable shades of emphasis.

As the year advanced Conservatives became increasingly sceptical of the wisdom of an indiscriminate attack on economic controls. After the coal crisis the burden of most opposition criticism was not that the government had planned too much but that it had foreseen too little. In October the party conference at Brighton supported, with only three dissidents in a meeting estimated to be about 3,000 strong, the Industrial charter, elaborated by a committee under the chairmanship of R. A. Butler and published in May; this statement of policy became the accepted basis of party activity. It accused the government of lacking policy at the centre and imposing too much control at the circumference. It urged the appointment of a minister of economic affairs to be charged with strategic planning, and to be assisted in determining the outlines and objectives of economic policy by a committee of employers and trade-unionists. The detailed application of these plans would be left to industry (*e.g.*, the government would determine the rationing of raw materials among industries, but would leave their distribution in each industry to be settled in consultation among members of that industry). The party would not denationalize the Bank of England or the mines but would introduce into all nationalized industries new methods of management and administration. These methods, which would gradually be extended to private industry, would assure the worker certain fundamental rights, reasonable remuneration, opportunity for promotion, protection against unjust dismissal, participation in the running of industry and a share in profits. At the same time the conference passed by a large majority a motion reaffirming the party's imperial tradition and protesting against proposed reductions in imperial preference. In spite of the persistence of some individual eccentricities of approach these broad principles of policy commanded general assent in the party and provided a coherent basis for attacks on the government.

Liberal Party.—In spite of its electoral defeat and many disappointments at by-elections, the Liberal party refused association with the Tories and continued to expand its activities. A statement of party policy in April reaffirmed its faith in proportional representation, the reform of the house of lords and free trade, declared the party to be inexorably opposed to nationalization and to favour economic planning by means of fiscal policy and supported joint control in industry. In some respects the party's program was indistinguishable from that of the Tories, but historical animosities apart, free trade could not be reconciled with imperial preference, and many Liberals also discerned in plans for industrial self-government, when advanced by the Tories, the germs of industrial fascism, a system under which workers would be induced to surrender the contractual basis of their employment in return for subjection to the authority of their employers. The Liberal party in practice assumed the function of an independent critic of government on points where the special principles of liberalism were involved.

Communist Party.—The Communist party suffered heavy losses at the local government elections in November. It attacked Bevin's foreign policy as anti-Russian and Sir Stafford Cripps's economic policy as wanting vigour. The fact that the party was not invited to join the Cominform was variously interpreted as a tribute to the strength of socialism and a rebuke to the Communists for insufficient zeal in the execution of their program.

Fascist Movement.—A political phenomenon, attracting much attention, some hostility and a little anxiety, appeared in East London. The British League of Ex-Servicemen bore marked resemblances to Sir Oswald Mosley's prewar British Union of Fascists and strongly attacked the Jews. Its proceedings were closely watched by the police, but the government refused to introduce coercive legislation against them. (T. E. U.)

Polo. For the second successive year a Mexican team visited the United States. Although they won their way to the final round of the National Open championship, which they had won in 1946, they were defeated in that match by the Old Westbury team of Pedro Silvero, Clarence Combs, Jr., Stewart B. Iglehart and George Oliver. In the Monty Waterbury Memorial cup matches which followed the Open, the Hurricanes were victorious. A special East-West match was also held at the Meadow Brook club, Westbury, Long Island, with the West winning.

Because of the continued shortage of players it was not held feasible by the United States Polo association, governing body of the game, to renew any but the top polo championships. A step toward remedying this shortage in ensuing years was taken when the Polo association inaugurated a school for youngsters at the Blind Brook Turf and Polo club at Port Chester, N.Y. A group of selected boys from all over the country took the six-weeks' course with Stewart B. Iglehart, Cecil Smith and Michael Phipps, the three top rated 10-goal men in the country, and others doing the instructing. Robert E. Strawbridge, Jr., was re-elected chairman of the association with George C. Sherman secretary-treasurer and Devereux Milburn, Jr., vice-chairman.

Indoor polo was played throughout the winter and spring of 1946–47, with championships held at the Squadron A armoury in New York. Indoor polo outdoors was successfully inaugurated at the Orange Bowl in Miami during the Florida season. The beginning of the 1947–48 season saw Chicago re-enter the game for the first time after the beginning of World War II.

(R. F. K.)

Popcorn. The U.S. popcorn crop of 1947 was poor, only 96,395,000 lb. compared with the 1936–45 average of 151,152,000 lb. and the 253,092,000 lb. harvested in 1946. The small crop was the result of a sharp reduction in acreage and yield caused by wet weather in the spring and early frost in the fall. Acreage was 80,700, compared with 154,600 in 1946 and a 10-year average of 109,994. The average yield was 1,194 lb. per acre compared with 1,637 lb. in 1946. California was the only state that exceeded its 1946 production. In 1947 Ohio had only one-third of a normal crop, Indiana three-fifths and Oklahoma one-half. Improved hybrid varieties were being grown to a large extent. About three-fourths of the Illinois crop of 1947 was of the Yellow Pearl variety.

Popcorn prices ranged around $4.00 per bushel to growers in 1947 compared with $3.50 in 1946, $3.77 in 1944 and an average of $2.25 during 1935–43. The retail price generally rose from 5 cents to 10 cents per bag. (J. C. Ms.)

Popular Music: *see* MUSIC.

Population, Movements of: *see* REFUGEES.

Populations of the Countries of the World: *see* AREAS AND POPULATIONS OF THE COUNTRIES OF THE WORLD.

Porto Rico: *see* PUERTO RICO.

Portugal. A republic of western Europe, forming part of the Iberian peninsula and bounded on the north and east by Spain and on the south and west by the Atlantic ocean. Area (including Azores and Madeira): 35,413 sq.mi.; pop. (est. 1946) 8,223,000. Chief towns: Lisbon (cap., 709,179); Oporto (262,309); Coimbra (35,437). Language: Portuguese; religion: predominantly Roman Catholic. President: General Antonio Oscar de Fragoso Carmona; premier: Dr. Antonio de Oliveira Salazar.

History.—At the end of January, sentences were finally passed on the army officers implicated in the revolt of Oct. 1946. In April a new revolt failed: it began with a dock and shipyard strike and the sabotaging of 20 army planes at Sintra airfield; a plot to organize garrison revolts against the regime at Tomar, Tancos and Entroncamento was discovered. For two days a state of alarm was proclaimed.

Four senior officers, two of them Monarchists, were sent to Funchal and the Cape Verde Islands, ostensibly on special missions, and numerous arrests were made.

Celebrations of the 800th anniversary of the capture of Lisbon from the Moors by Afonso Henriques began in May and lasted throughout the summer.

In May, the 20th anniversary of the revolution which brought in the existing regime was celebrated by a military parade in Lisbon.

The first half of the year showed an adverse trade balance of more than £12,000,000, following an excess of imports over exports of £22,000,000 during 1946. Both the wine and the olive harvests of 1947, however, were exceptionally good.

Air development continued, and a new air agreement with Canada, providing a return service from each country, was concluded in May. (E. A. P.)

Education.—(1945) Primary schools 10,079, scholars 528,109; secondary schools 43, scholars 17,281; universities 3, students 7,813.

Banking and Finance.—Revenue (est. 1946) ordinary 3,018,000,000 escudos; extraordinary 1,363,000,000 escudos; expenditure (est. 1946) ordinary 3,017,000,000 escudos; extraordinary 1,363,000,000 escudos; public debt (Dec. 1944) domestic and foreign 9,389,000,000 escudos; notes in circulation (1947) 8,199,000,000 escudos; commercial bank deposits (1947) 9,000,000,000 escudos; savings bank deposits (1947) 8,403,000,000 escudos; gold reserve (June 1946) 6,057,000,000 escudos. Exchange rate (1946) 1 escudo = 4.03 U.S. cents; (1947) 1 escudo = 4.028 U.S. cents.

Trade and Communication.—External trade (1946): imports 6,864,000,000 escudos; exports 4,584,000,000 escudos. Communications and transport (1945): roads, first and second class, 9,180 mi.; railways open to traffic 2,191 mi.; passengers carried (1946) 49,200,000; goods carried 5,646,600 short tons; vehicles licensed (1944): cars 47,469, motorcycles 4,604, cycles 141,872; shipping: (Jan. 1, 1943) 313,534 gross tons.

Agricultural and Other Production.—Production (1946) in short tons: coal 409,900; lead 1,520; tin (exports) 385; cement 392,640; butter 1,520; cheese 1,150; meat 50,400; wheat 435,600; maize (1945) 243,012; rye (1945) 132,944; oats (1945) 81,344; barley (1945) 73,224; potatoes (1945) 692,000; wet fish (1945) 4,537. (*See* also PORTUGUESE COLONIAL EMPIRE.)

Portuguese Colonial Empire. Total area (approx.): 803,835 sq.mi.; total population (1940 census): 10,879,000 excluding metropolitan Portugal, the Azores and Madeira. Certain essential facts and figures relating to the colonial possessions of Portugal are given in the accompanying table.

History.—The appointment of Capt. Teófilo Duarte as colonial minister was followed in March 1947 by the announcement of the granting to Mozambique of a loan of 600,000,000 escudos (£6,000,000) for industrial developments. Previously, a similar loan of 250,000,000 escudos had been granted to Angola.

At the beginning of the year Portuguese India was granted a statute giving it the status of a metropolitan province.

The 17th century Portuguese Jesuit missionary to India, João de Brito, was canonized in June; the ceremony was made the occasion for an empire pilgrimage. (E. A. P.)

Portuguese Colonial Empire

Country and Area (in sq.mi.)	Population Census, 1940 (000's omitted)	Capital, Status, Governor	Principal Products Exports—1945 (in short tons)	Imports and Exports (in thousand escudos) (1945)	Road, Rail (1943) and Shipping	Revenue and Expenditure est. 1945 (in thousand escudos)
AFRICA						
Angola (Portuguese West Africa) 481,351	3,738	Luanda, colony, *governor-general:* Commander Vasco Lopes Alves	maize 116,676 cane sugar 40,796	imp. 587,750 exp. 645,525 (1946, 6 months) imp. 320,750 exp. 441,110	rds. 21, 949 mi. rly. 1,477 mi. shpg. (entered) (1946, first 6 months) 301,270 tons (cleared) 315,265 tons	rev. 368,252 exp. 368,252
Cape Verde Is. 1,557	181	Praia, colony, *governor:* Commander João de Figueiredo	salt 6,907 preserved fish 640 coffee 160	(1945) imp. 165,750 exp. 151,100 (1946, 7 months) imp. 182,257 exp. 151,182	rds. 326 mi. shpg. (entered) (1946, first 6 months) 1,573,797 tons (cleared) 1,574,758 tons	rev. 22,778 exp. 22,778
Portuguese Guinea 13,948	351	Bolama, colony, *governor:* Commander Manuel Maria Sarmento Rodrigues	groundnuts 40,105 palm kernel oil 560	(1945) imp. 82,275 exp. 94,775 (1946, 9 months) imp. 65,625 exp. 70,548	rds. 1,649 mi. shpg. (entered) (1946, first 10 months) 41,271 tons (cleared) 43,228 tons	rev. 44,616 exp. 44,616
São Tomé and Principe Is. 372	60	São Tomé, colony, *governor:* Capt. Carlos de Sousa Gorgulho	cacao 7,039 coffee 415	(1945) imp. 27,775 exp. 52,600 (1946, 8 months) imp. 34,095 exp. 73,346	rds. 199 mi.	rev. 11,831 exp. 11,831
Mozambique (Portuguese East Africa) 297,731	5,086	Lourenço Marques, colony, *governor-general:* (vacant)	cane sugar 502,203 copra 44,415 wood 82,354	(1945) imp. 768,900 exp. 521,875	rds. 16,667 mi. rly. 1,349 mi. shpg. (entered) 4,521,425 tons	rev. 636,398 (actual) exp. 636,398 (actual)
ASIA						
Portuguese India 1,538	624	Nova Gôa, colony, *governor-general:* Dr. José Bossa	fish, spices, coconuts and copra	(1940) imp. 102,025 exp. 16,900	(1940) rds. 411 mi. rly. 50 mi. shpg. (entered) 698,414 tons	rev. 47,013 exp. 47,013
Macao 6.2	375	Macao, colony, *governor:* Commander Gabriel Mauricio Teixeira	fish, preserves and cement	—	rds. 12 mi.	rev. 64,121 exp. 64,121
Timor 7,332	(est. 1936) 464	Dilli, colony, *governor:* Capt. Oscar Ruas	coffee, sandalwood, wax and copra	(1940) imp. 3,625 exp. 4,150	(1939) rds. 1,039 mi. shpg. (entered) 91,215 tons	rev. 9,430 exp. 9,430

Portuguese Possessions in Africa: *see* PORTUGUESE COLONIAL EMPIRE.

Post Office. The audited revenues of the post office department for the fiscal year 1947, as stated in the records of the comptroller general of the United States, amounted to $1,299,141,041.43.

There was also reported to the treasury department the items stated in the act of June 9, 1930, indicating the estimated postage that would have been collected if the services had been on a regular pay basis, in the case of penalty and franked mail, free-in-county mail, differentials in second-class mail matter and free matter for the blind. These amounted to $92,198,225.

The expenses of the department for the fiscal year as audited amounted to $1,504,798,756.42, of which amount $45,613,793.94 was on account of prior years. There was $103,329,796 unpaid on account of the 1947 fiscal year. This left a total expense for the fiscal year 1947 of $1,562,514,758, resulting in a gross operating deficit on an accrual basis of $103,329,796. This amount does not include pending retroactive payments to railroads and air mail service in Alaska.

The tremendous increase in the volume of mail handled by the post office department for other branches of the government had been a matter of concern to congress and the department for a number of years. Thousands of tons of forms, pamphlets, circulars and supplies were sent by government departments and establishments free of postage under the "penalty privilege." In order to control and limit the use of the penalty mail privilege, congress passed the "penalty mail law," effective July 1, 1944, which provided that departments and agencies (except the war, navy and post office departments) account for all matter bearing the penalty indicia and pay into the treasury as miscellaneous receipts, and not as postal revenue, the cost of handling such matter. The records disclosed that during the fiscal year ended June 30, 1947, there were mailed 1,602,267,019 free pieces, weighing 223,122,507 lb., a decrease of 92,727,730 pieces and a decrease of 28,817,667 lb. from the 1946 fiscal year.

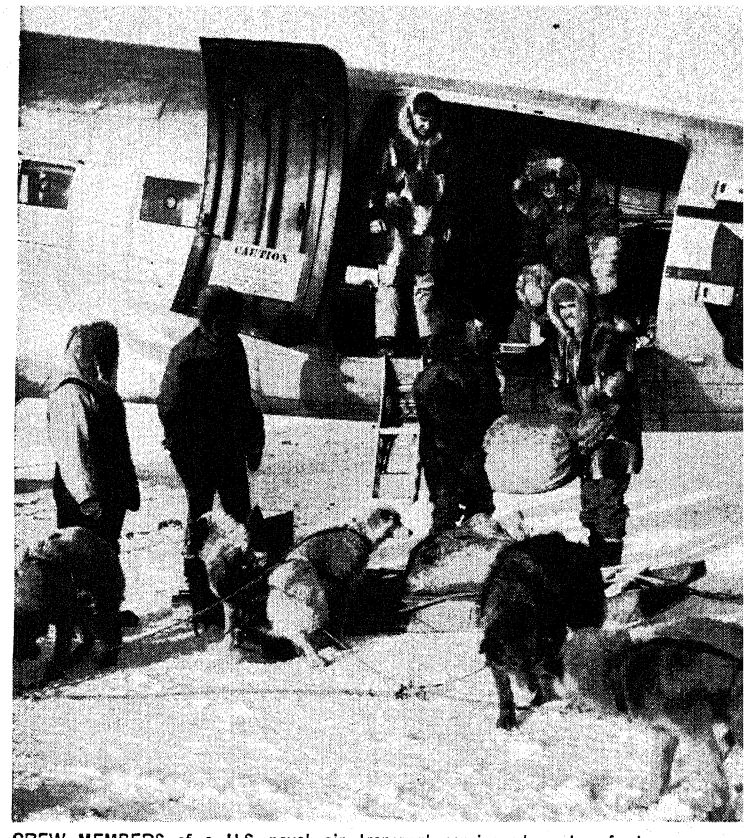
On June 30, 1947, war savings stamps were on sale at 41,759 offices. Sales from July 1, 1946, to June 30, 1947, amounted to $24,700,908.05.

During the fiscal year ended June 30, 1947, 7,189,836 U.S. savings bonds, having a sale value of $426,714,375 were sold. At the close of 1947, bonds were on sale at 26,774 post offices, including 1,373 branches and stations, a net decrease of 153 over the preceding year. Through the 41,759 post offices and 3,383 stations being conducted under contract agreement as well as 1,967 stations and branches, there were received, transported and delivered 37,500,000,000 pieces of mail matter during the fiscal year, having a weight of 4,500,000 tons, representing an increase from the previous fiscal year of 1,300,000,000 pieces of mail and 1,000,000 tons.

On June 30, 1947, there were 3,383 stations being conducted under contract agreement. The average cost per contract unit was $798, and the total cost of operation during the fiscal year amounted to $2,699,032, whereas the receipts from the sale of stamps at these contract stations amounted to $36,381,031 during the calendar year 1946.

During the fiscal year, city delivery service was established in 984 additional cities, thereby increasing to 5,067 the number of cities in which this service was operated. Of this number two were changed from village delivery to city delivery service. Village delivery was in operation at 109 post offices.

Postmasters.—During the fiscal year there were 440 presidential appointments of postmasters at offices with salaries of $1,800 to $12,400 per annum. Fourth-class postmasters were commissioned to 2,103 offices during the year as vacancies occurred through various causes.



CREW MEMBERS of a U.S. naval air transport service plane transferring mail and priority cargo to a dog sled for more localized delivery in Alaska during 1947

Dead Letters.—During 1947, it was impossible to deliver 18,184,742 letters, a decrease of 2.63% from the previous year. A total of 4,353,906 were returned to the senders, of which 363,180 were found to contain valuable enclosures; 81,443 of them contained money, amounting to $223,445.91. There were also 695,110 unclaimed parcels and articles found loose in the mails. These parcels were sold at public auction and $183,061.51 realized.

Air Mail.—On June 30, 1947, there were 102,454 mi. of domestic air mail routes, an increase of 45,077 over June 30, 1946. During 1947 six new domestic air mail routes were established. On October 1, 1946, the domestic air mail rate was reduced to five cents an ounce. This includes not only the United States and its territories and possessions, but wherever the United States postal service is in operation. The new rate also applies to Canada and Mexico.

"Air Letter" service was inaugurated to all foreign countries on April 29, 1947. Designed for the purpose of world-wide mailing for ten cents, the air letter sheet is the postwar sequel to the V-mail. Unlike V-mail, however, air letter sheets are not photographed but are designed to average a minimum of 150 to the pound. No inclosures are permitted in the air letter. Messages are written in the inner side of the sheets, which can be folded into the form of an envelope on which is printed a postage stamp and bears regular air mail markings. Air letter sheets manufactured by private concerns under permit will be accepted for mailing after ten cents in postage has been affixed. The air letter marks another step toward closer linking of communication with the rest of the world.

The first helicopter air mail service was inaugurated by the post office department in the Los Angeles, Calif., area on Oct. 1, 1947. This route gave direct air mail service between the Los Angeles airport and nine outlying communities to the north. Many other towns were served indirectly through these offices. On the same day, a shuttle service began operation between the airport and the terminal annex post office in downtown Los

Angeles. Two other helicopter air mail routes were serving cities to the east of Los Angeles. Savings in transit time of from 4½ to 19 hr. was possible in the Los Angeles area through the operation of the helicopter service. More than 2,000,000 people would benefit from this new air mail service.

In the foreign field air mail rates were reduced Nov. 1, 1946, from a previous high of 70 cents a half ounce to a maximum of 25 cents. To South America the new rate was 10 cents per half ounce; to Europe and North Africa, 15 cents per half ounce; the rest of Africa, near east, Asia and South Pacific, 25 cents per half ounce.

The air mail service performed a total of 68,000,000,000 pound miles of service during the fiscal year 1947.

Rural Delivery.—The rural delivery routes in operation on June 30, 1947, required a total daily travel of 1,449,767 by rural carriers in providing service to approximately 29,810,927 patrons. The policy of consolidating rural routes to absorb vacancies was continued. Operation of the rural delivery service resulted in an expenditure of $129,481,821 for the fiscal year as compared with $117,335,322 for the previous year, an increase of $12,146,499. The amounts saved through consolidation of routes were utilized to establish new routes and provide extension of existing routes. Thereby 8,229 more miles were covered by rural carriers at the close of the fiscal year 1947 than in 1946.

Postal Savings.—The postal savings system continued to merit a widespread public demand for its services: the depositors numbered 4,196,517 for 1947, an increase of 1.47% above the preceding year. The balance due depositors by outstanding certificates of deposits was $3,392,621,491, an increase of $273,100,681 or 8.75%. In addition there was held in trust for depositors accrued interest of $100,974,847.07 and unclaimed deposits of $151,970, making a total of $3,493,748,308.07.

At the end of the year, postal savings certificates were on sale at 7,225 depositories, including 916 branches and stations, but savings stamps were on sale at all post offices and practically all branches and stations.

Buildings.—During the fiscal year ended June 30, 1947, the post office department operated 3,262 government-owned buildings. No new buildings were completed during the fiscal year. Through reassignments of space within these buildings, agencies of the government which were occupying or had intended to occupy commercial quarters were accommodated, with a saving of $405,202.

Expiring leases numbering 617 were renewed in the year 1947. The square foot cost of renewing leases was increased from 92.8 cents in 1946 to 96.4 in 1947. There were 153 new leases made, including 101 for offices previously occupying space on a monthly rental basis, the new contracts providing improved quarters and in many instances complete new equipment. (I. Gg.)

Canada.—For the fiscal period 1946–47 gross postal revenue exceeded $86,400,000, the highest figure in post office history. In the same period the post office issued $321,728,000 of money orders payable in Canada and $7,829,000 payable abroad. Air mail postage was reduced, through the establishment of the quarter-ounce weight unit in place of the half-ounce weight unit, to countries in Europe, Asia, Africa, Central and South America, Oceania, Australia and New Zealand.

The post office facilitated the sending of gift parcels of food, clothing, and medical supplies to the war-devastated countries. Parcel post rates to the United Kingdom were reduced at the commencement of 1947 and the 20-lb. weight limit for parcels was restored. Money order services on a restricted basis were resumed during 1947 to such countries as Norway and Iceland, and to several countries in the orient and the South Pacific.

During the 1946–47 fiscal year a 4th transcontinental flight in both directions was added to the trans-Canada air mail system. New services linked Montreal, Que., Ottawa, Ont., and Washington, D.C.; Toronto, Ont., and Cleveland, O.; Fort William, Ont., and Duluth, Minn.; Victoria, B.C., and Seattle, Wash.; Halifax, N.S., and Boston, Mass. On the prairies, mail planes commenced stopping at Saskatoon, Sask.; Swift Current, Sask.; and Medicine Hat, Alta. New air mail services were opened to Flin Flon, Man., and Prince Rupert, B.C.; and air mail stops began at Cranbrook, Castlegar and Penticton, in British Columbia. Air stage services were extended during 1947 to Richmond gulf and Port Harrison, Que., on the eastern shore of Hudson bay, and frequency was increased to four trips annually. Air mail miles flown in Canada in the fiscal year 1946–47 totalled 20,104,976 (1945–46: 15,215,816 miles).

During 1947 special delivery service for air mail and surface mail was adopted. (C. Cy.)

Great Britain.—Post office transactions during the year ended March 31, 1947, totalled £3,354,000,000, an increase of £196,055,000 on the previous year's figures. Savings bank deposits, which in 1945–46 had amounted to £647,588,000, reached the figure of £753,688,000 in 1946 (including release benefits to service personnel), while the number of deposit accounts in March 1947 was 25,000,000, 3,000,000 more than in March 1946. The capital value of deposits was £1,980,000,000 at the same date. Savings certificates purchased during the year amounted to £209,461,000, an increase of £5,250,000 on the previous year.

The number of letters and packets delivered was more than 7,000,000,000, as compared with 6,230,000,000 in 1946, and that of parcels handled was 239,000,000. The total for letters and packets was still below the prewar level, and the number of parcels handled dropped from 257,000,000 in 1945–46 and 284,000,000 in 1944–45.

In 1946 air mail services had been made available to most countries overseas. By the end of the year a daily service was in operation over the North Atlantic, and air mails reached New York and Montreal a day after leaving London. British South American airways service carried mails several times weekly to Brazil, Uruguay, the Argentine and Chile and linked up with a network of air services in South America. Increased availability of services to Australia and South Africa brought both countries postally within five days of London.

In March 1947 the post office staff numbered 352,000, with a yearly wage bill of £95,336,000, compared with £72,300,000 for the previous year. There were still some 12,000 experienced members with the forces or on loan to other government departments.

Wilfred Paling succeeded the earl of Listowel as postmaster general in June 1947. (*See* also PHILATELY; PHOTOGRAPHY; TELEGRAPHY.) (C. Ns.)

Potash.

Production statistics for all of the major countries except Poland and U.S.S.R. are presented below.

World Production of Potash, 1941–46

(In thousands of short tons of K_2O content)

	1941	1942	1943	1944	1945	1946
France	742	692	786	552	160	562
Germany	2,394	2,291	2,300	2,123	?	?
Spain	129	99	96	128	125	?
Palestine	56	57	52	58	?	?
United States	525	679	739	835	874	932
Total (est.)	3,970	3,900	4,030	3,760	?	?

United States.—Within the past few years the domestic potash industry has become self-sufficient, and with a surplus for export. Production of crude salts rose from 1,588,305 short tons in 1945 to 1,687,735 tons in 1946, with a potash content of 931,812 tons. Consumption increased from 1,490,719 tons to 1,569,225 tons, with 867,197 tons of potash content. Output

kept ahead of sales, and in spite of increasing consumption and exports, stocks were being accumulated. (*See* also FERTILIZERS.)

(G. A. Ro.)

Potatoes. Total production of all types of potatoes grown in the United States was estimated at 384,407,000 bu. or about 100,000,000 bu. less than the record crop of 484,171,000 bu. grown in 1946, and only slightly above the 376,122,000 bu. average of 1936–45. In the 19 late potato states, the 1947 crop was 19% less than 1946 and 2% less than the average. The acreage grown in 1947 was 2,111,900, about 15% less than the area of 1946 but more than the average. The yield was put at 182 bu. per acre—less than the 186.3 bu. record of 1946 but 50 bu. more than the average.

In Maine and New York yields were only slightly less than in 1946, and the quality of the crop was good. Idaho, the second largest potato-producing state after Maine, had a low yield because of the short growing season and harvested a total crop of less than the average. The early potato states had below average crops while the midseason states' crop was near the average.

Farm prices of potatoes ranged higher in 1947, from an average of $1.29 per bushel in January to $1.69 in July. They then declined, as the harvest advanced, to a level of about $1.50 per bushel in the fall, but advanced to $1.72 in December. Government price support operations were conducted on a large scale to care for the 90,000,000-bu. surplus of potatoes remaining at the end of 1946. About 25,000,000 bu. were estimated as a total loss by decay in storage and in the field. Export shipments in 1947 were not generally successful, large quantities spoiling in transit. Early in 1947 the government announced the price-support program to be 90% of parity, which was about 12% higher than a year earlier. The government purchased only 2,000,000 bu. of the early 1947 crop. By mid-September about 11,000,000 bu. had been purchased.

Table I.—*U.S. Potato Production, 1947, 1946 and 10-year Average, 1936–45*

(In thousands of bushels)

State	1947	1946	10-yr. Average
Late Crop			
Maine	62,790	78,402	47,572
Idaho	25,600	45,390	32,797
New York	20,130	23,760	12,616
North Dakota	20,100	18,750	15,616
Colorado	19,240	19,780	14,871
Pennsylvania	17,985	20,066	20,184
Minnesota	14,520	17,365	18,839
Michigan	12,390	18,327	20,976
California	11,220	13,110	10,574
Oregon	10,140	13,520	8,620
Wisconsin	10,080	11,865	14,593
Washington	8,840	10,120	8,120
Nebraska	8,060	11,725	9,657
Ohio	5,460	7,560	9,539
Indiana	3,750	4,480	4,946
Connecticut	3,425	4,392	3,043
West Virginia	3,375	2,860	2,935
Massachusetts	3,178	3,604	2,749
Colorado	2,498	3,330	2,419
Wyoming	2,480	2,542	2,011
South Dakota	1,840	2,842	2,107
Montana	1,820	2,210	1,798
Rhode Island	1,512	1,742	981
Vermont	1,080	1,392	1,694
Illinois	1,056	1,764	2,754
Iowa	975	2,880	4,524
New Hampshire	893	1,250	1,192
Nevada	483	672	467
New Mexico	306	340	306
Intermediate Crop			
New Jersey	13,140	14,076	9,988
Virginia	9,450	10,676	8,706
Kentucky	3,366	3,996	3,540
Missouri	2,120	3,354	3,910
Maryland	2,087	2,244	2,246
Arizona	1,740	1,836	588
Kansas	1,188	1,636	2,200
Delaware	336	354	356
Early Crop			
California	26,040	33,210	13,016
North Carolina	9,216	12,616	8,453
Texas	4,536	5,883	4,009
Alabama	3,330	4,646	4,288
Florida	3,272	6,249	3,973
Tennessee	2,880	3,404	3,121
Arkansas	2,520	3,293	3,226
South Carolina	2,440	3,576	2,541
Louisiana	1,643	2,280	2,725
Mississippi	1,460	2,160	1,596
Georgia	1,422	1,909	1,450
Oklahoma	1,035	1,500	1,948

The world potato crop of 1947–48 was estimated at 7,081,000,000 bu. in September, slightly below the 7,133,000,000 bu. crop of 1946–47 but only 16% less than the 8,418,000,000 prewar average (1935–39). Total 1947 acreage was put at 51,000,000, not much below the prewar average of 53,000,000. Smaller crops in Europe resulted from drought and shortage of fertilizer. The world's average yield was estimated at 139 bu. per acre compared with 160 bu. per acre in prewar years. Before World War II the crop of central and western Europe amounted to 71% of the European total, but the five countries—Austria, Germany, Belgium, France and Poland—produced only 56% of the 1947–48 crop. The German crop was estimated at only two-thirds of prewar and Poland's total only one-half the 1935–39 average.

Table II.—*U.S. Sweet Potato Production in Leading States, 1947, 1946 and 10-year Average, 1936–45*

(In thousands of bushels)

State	1947	1946	10-year Average
Louisiana	7,470	10,800	8,267
North Carolina	7,360	7,320	7,847
Georgia	6,545	7,020	7,180
South Carolina	5,940	6,090	5,165
Alabama	5,084	5,525	5,885
Mississippi	4,350	5,152	5,801
Virginia	3,500	3,250	3,566
Texas	4,675	6,570	4,828
Tennessee	2,325	3,150	3,886
Maryland	1,330	1,690	1,254
Florida	1,275	1,088	1,182
California	1,200	1,224	1,232
Arkansas	1,190	1,558	1,969
Kentucky	1,040	1,118	1,360

Sweet Potatoes.—The U.S. sweet potato crop was estimated at 57,178,000 bu. in 1947, compared with a crop of 66,424,000 bu. in 1946 and an average (1936–45) of 64,200,000 bu. The acreage dropped 5% below 1946, to a total of 611,400, compared with 676,100 in 1946 and an average of 737,700. The average yield was 93.5 bu. per acre compared with 98.2 in 1946 and a ten-year average of 87.2 bu. The mid-Atlantic states of Virginia and North Carolina had larger crops but the reduction in Louisiana, Mississippi and Texas brought down the total.

Prices of sweet potatoes rose to $2.70 in Aug. 1947, then declined to $2.04 in December. The high August prices were mostly for the stored 1946 crop which was still being shipped. The government announced support prices in August to extend from September to April 1948. Some purchases were made by the government in September when prices began to decline. These quantities were diverted to school-lunch uses. (*See* also FOOD SUPPLY OF THE WORLD; VEGETABLES.) (J. C. Ms.)

Poultry. U.S. production of poultry decreased in 1947. On Jan. 1, 1947, the number of chickens on farms was estimated at 475,442,000—10% less than the 530,203,000 counted in 1946 but 3% more than the ten-year average for 1936–45. Because of the smaller number of chickens raised in 1946, the number of pullets was 12% less than a year earlier. The chicken flocks were made up of 60% pullets, 32% hens and 8% other chickens. By July 1 the number of young chickens of 1947 hatching was estimated at 567,400,000, about the same as in 1946 but 1% less than the ten-year average.

Great confusion developed in Oct. 1947, when the government's campaign to save grain for Europe was begun. Consumers were urged to consume no poultry one day a week. The wisdom of this action was challenged by poultrymen, who argued that the reduced consumption of poultry meat would result in delayed marketing and the feeding of more grain to poultry. They urged that the policy be changed to encourage the consumption of fowl, thereby reducing the amount of grain

for poultry feeding. The net result of the campaign showed in December that farmers had not greatly reduced their flocks nor limited egg production. The price of chickens to producers in Jan. 1947 was 25.6 cents per pound; it continued steady with a small advance to 27.9 cents in September followed by a decline to 25.2 cents in December.

The total number of broiler chickens raised during 1947 was estimated at 295,300,000. Chicken meat production was put at 3,445,000,000 lb. compared with 3,568,000,000 lb. in 1946. Per capita civilian consumption was 23.7 lb., compared with 25.3 lb. in 1946. Total egg production for 1947 was estimated at 5,016,000,000 doz.

World poultry production declined in 1945, particularly in Europe, to the lowest level in five years. The rebuilding of flocks was retarded by shortage of grain feeds. Eggs were also scarce for hatching because of their use for human food. Production gained slowly in 1947 and the United States, Argentina, Ireland and Cuba were the only countries in which production was less than that of 1946. Canada and Australia, important sources of eggs for Great Britain, continued to produce more in 1947.

Turkeys.—On Jan. 1, 1947, the estimated number of turkeys on farms was 6,632,000, 22% less than the record 8,493,000 head of 1946 and 4% less than the ten-year (1936–45) average of 6,915,000. The total number raised was estimated at 34,667,000 compared with 41,109,000 in 1946 and the record production of 44,221,000 in 1944. This reduction in the industry resulted from the sharp decline in prices in late 1946 from about 40 cents per pound in October to 30 cents in Jan. 1947. Large stocks placed in cold storage in late 1946 were not profitable to the storage firms, and in 1947 movement into storage was reduced. Supply for the holidays in 1947 was almost as large as in 1946 because of the reduced into-storage movement. Average civilian consumption of turkey meat was estimated at 4.1 lb. in 1947 compared with about 3 lb. in prewar. Military requirements were reduced to about 15,000,000 lb. in 1947 compared with 100,000,000 lb. in 1944. Prices to producers in 1947 continued at about 30 cents per pound until October, when they advanced to 34 cents; by December they had risen to 39 cents. Improvements in turkey raising continued through expansion of commercial farms, better breeding, feeding and disease control. (*See* also EGGS.) (J. C. Ms.)

Precious Stones: *see* GEM STONES.

Presbyterian Church.

The Reformed Churches holding the Presbyterian system, within the United States of America, were 12 in number in 1947 and included 18,370 ministers, 18,582 churches and 4,061,231 communicant members, with approximately 8,000,000 adherents.

The year was marked by gains in all departments of work, and for the Presbyterian Church in the United States of America, it was one of the best in its long history. During the year, 111,952 new communicant members were added to this church, setting an all-time record; there were 50,000 more names on the rolls of the Sunday schools; there were 67,623 infant baptisms, representing an increase of more than 20,000 over the year before. Similarly, the total contributions of the church were $78,567,368, exceeding those of the previous year by $18,884,987 and breaking all records.

Negotiations between the Presbyterian Church in the United States of America and the Presbyterian Church in the United States (Southern) continued and a revised plan of reunion was referred by the two general assemblies to their respective presbyteries for study and comment. After the Joint Drafting committee had studied the comments received, the plan of reunion might be revised in further particulars, and then transmitted to the two supreme judicatories for further action. During the year there was no meeting of the committees studying the proposed articles for a basis of union between the Presbyterian Church in the United States of America and the Protestant Episcopal Church in the United States of America.

The Presbyterian Church in the United States (Southern) had a net gain in membership of 15,853, the largest gain in the history of the church. A notable first year's work was done by its newly created special committee on work among Negroes.

The synods of the Evangelical and Reformed Church, and the congregations and associations of the Congregational-Christian Church, were, at the close of the year, voting on a basis of union. If the votes in both denominations were favourable—and it was expected that they would be—the union was expected to be consummated in the fall of 1948.

Church World Service, the organization of the World Council of Churches for overseas relief and reconstruction, was well supported by the membership of Presbyterian and Reformed Churches, and continued to relieve distressed peoples and devastated areas of the world. The restoration fund of the Presbyterian Church in the United States of America reached the large sum of approximately $25,000,000.

Europe.—Under the auspices of the reconstruction department of the World Council of Churches, a conference on evangelism opened in Geneva, Switzerland, in Feb. 1947. Participants from 15 different countries came together to discuss their common task of world evangelism. This theme was uppermost in all the Reformed Churches, which were endeavouring to recreate the work destroyed by World War II. The annual synod of the Reformed Church of France met at Mazamet with 80 delegates from 16 districts. The first meeting of the church assembly of the Evangelical Church in Germany met at Treysa, with 111 delegates, including 45 leading persons in church life from the eastern (soviet) zone. In the Hungarian Reformed Church a great spiritual review of adult church members was in preparation. The synod called upon all adult members to make a personal confession of faith in their churches in face of the congregation. The church in Yugoslavia asked the Hungarian Reformed Church synod to consider the introduction of a church constitution which would contain all the Hungarian Reformed Church communities in the world. (*See* also CHURCH MEMBERSHIP.) (W. B. Pu.)

Presidents, Sovereigns and Rulers.

The following list includes the names of those holding chief positions in their countries as of Jan. 1, 1948.

Country	Name and Office	Accession
Afghanistan	Mohammad Zahir Shah	1933
Albania	Dr. Omer Nishani, President of the Praesidium of the People's Assembly	1946
	Col. Gen. Enver Hoxha, Prime Minister	1944
Arabia, Saudi	Abdul-Aziz ibn Abdurrahman al-Faisal Al-Sa'ud, King	1927
Argentina	Gen. Juan Domingo Perón, President	1946
Australia	William John McKell, Governor General	1947
	Joseph B. Chifley, Prime Minister	1945
Austria	Karl Renner, President	1945
	Leopold Figl, Chancellor	1945
Belgium	Leopold III, King (in exile)	1934
	Prince Charles, Regent	1944
	Paul-Henri Spaak, Prime Minister	1947
Bolivia	Enrique Hertzog, President	1947
Brazil	Gen. Eurico Gaspar Dutra, President	1946
Bulgaria	Mintcho Neychev, President of the Grand National Assembly	1947
	Georgi Dimitrov, Premier	1946
Burma	Sao Shwe Thaik, President of the Constituent Assembly	1948
	Thakin Nu, Prime Minister	1946
Canada	Field Marshal Viscount Alexander of Tunis, Governor General	1946
	W. L. Mackenzie King, Prime Minister	1935
Ceylon	Sir Henry Monck-Mason Moore, Governor and Commander in Chief	1944
Chile	Gabriel González Videla, President	1946
China	Generalissimo Chiang Kai-shek, President of the National Government	1943
	Gen. Chang Chun, President of the Executive Yuan	1947
Colombia	Mariano Ospina Pérez, President	1946
Costa Rica	Teodoro Picado Michalski, President	1944
Cuba	Dr. Ramón Grau San Martín, President	1944

Country	Name and Office	Accession
Czechoslovakia	Dr. Eduard Beneš, President	1940
	Klement Gottwald, Premier	1946
Denmark	Frederick IX, King	1947
	Hans Hedtoft, Prime Minister	1947
Dominican Rep.	Gen. Rafael Leónidas Trujillo y Molina, President	1942
Ecuador	Carlos Julio Arosemena, President	1947
Egypt	Farouk I, King	1936
	Mahmoud Fahmy el-Nokrashy Pasha, Premier	1945
Eire	Sean T. O'Kelly, President	1945
	Eamon de Valera, Premier	1932
Ethiopia	Haile Selassie I, Emperor	1930
Finland	Juho K. Paasikivi, President	1946
	Mauno Pekkala, Prime Minister	1946
France	Vincent Auriol, President of the Fourth Republic	1947
	Robert Schuman, President of the Council of Ministers	1947
Germany	Allied Control Commission:	
	Gen. Lucius D. Clay (U.S.)	1947
	Gen. Sir Brian Hubert Robertson (Gr. Brit.)	1946
	Marshal Vasili D. Sokolovski (U.S.S.R.)	1946
	Gen. Joseph Pierre Koenig (Fr.)	1945
Great Britain	George VI, King	1936
	Clement R. Attlee, Prime Minister	1945
Greece	Paul I, King	1947
	Themistocles Sophoulis, Premier	1947
Guatemala	Juan José Arévalo, President	1945
Haiti	Dumarsais Estimé, President	1946
Honduras	Gen. Tiburcio Carías Andino, President	1933
Hungary	Zoltan Tildy, President	1946
	Lajos Dinnyes, Prime Minister	1947
Iceland	Sveinn Björnsson, President	1944
	Stefan Johann Stefansson, Prime Minister	1947
India, Dom. of	Earl Mountbatten of Burma, Governor General	1947
	Jawaharlal Nehru, Prime Minister	1947
Iran	Mohammed Riza Pahlavi, Shahanshah	1941
	Ibrahim Hakimi, Premier	1947
Iraq	Feisal II, King	1939
	Abdul-Ilah, Prince Regent	1941
Italy	Enrico de Nicola, President	1948
	Alcide de Gasperi, Prime Minister	1946
Japan	Hirohito, Emperor	1926
	Katayama Tetsu, Premier	1947
	Gen. Douglas MacArthur, Supreme Commander for the Allied Powers	1945
Kuwait	Sheikh Sir Ahmed ibn Jabir al Subah	1921
Lebanon	Sheikh Bishara al-Khuri, President	1943
	Riyad bey al-Suh, Premier	1946
Liberia	William V. S. Tubman, President	1944
Liechtenstein	Franz Joseph II, Sovereign Prince	1938
	Alexander Frick, Chief of Government	1945
Luxembourg	Charlotte, Grand Duchess	1919
	Pierre Dupong, Premier	1937
Mexico	Miguel Alemán, President	1946
Monaco	Louis II, Prince	1922
Morocco	Sidi Mohammed ben Youssef, Sultan	1927
	Gen. Alphonse-Pierre Juin, French Resident General	1947
Nepal	Tribhubana Bir Bikram Sah, King	1911
	Sir Padma Shumshere Jung Bahadur Rana, Prime Minister	1946
Netherlands	Wilhelmina, Queen	1898
	Juliana, Princess Regent	1947
	Louis J. M. Beel, Prime Minister	1946
Newfoundland	Sir Gordon Macdonald, Governor	1946
New Zealand	Lt. Gen. Sir Bernard Freyberg, Governor General	1946
	Peter Fraser, Prime Minister	1940
Nicaragua	Dr. Victor Manuel Román y Reyes, President	1947
Norway	Haakon VII, King	1905
	Einar Gerhardsen, Prime Minister	1945
Oman (Muscat)	Sir Sayyid Said bin Taimur, Sultan	1932
Pakistan, Dom. o	Mohammed Ali Jinnah, Governor General	1947
	Nawabzada Liaquat Ali Khan, Prime Minister	1947
Palestine	Gen. Sir Alan Gordon Cunningham, High Commissioner and Commander in Chief	1945
Panamá	Enrique A. Jiménez, Provisional President	1945
Paraguay	Gen. Higinio Morínigo, President	1940
Peru	José Luis Bustamente y Rivero, President	1945
Philippines, Rep. of the	Manuel A. Roxas, President	1946
Poland	Boleslaw Bierut, President of the National Council of the Homeland of the Polish Provisional Government	1945
	Józef Cyrankiewicz, Prime Minister	1947
Portugal	Gen. Antonio Oscar de Fragoso Carmona, President	1928
	Dr. Antonio de Oliveira Salazar (Prime Minister), President, Council of Ministers	1932
Rumania	Constantin Parhon, President of Praesidium of National Assembly	1948
	Petru Groza, Premier	1945
Salvador, El	Gen. Salvador Castañeda Castro, President	1945
Siam	Phumiphon Aduldet, King	1946
	Khuang Aphaiwong, Provisional Premier	1947
South Africa	Maj. Gideon Brand van Zyl, Governor General	1946
	Field Marshal Jan C. Smuts, Premier	1939
Spain	Gen. Francisco Franco, Chief of State (President of the Council of Ministers)	1938
Sudan	Sir Robert George Howe, Governor General	1947
Sweden	Gustavus V, King	1907
	Tage Fritiof Erlander, Prime Minister	1946
Switzerland	Enrico Celio, President, Swiss Confederation	1947
Syria	Shukri el-Quwatli, President	1943
	Jamil Mardam Bey, Premier	1946
Trans-Jordan	Abdullah ibn Hussein, King	1946
	Tawfiq Pasha Abu-Huda, Premier	1947
Tunisia	Sidi Mohammed al Amin, Bey	1943
	Jean Mons, French Resident General	1947
Turkey	Gen. Ismet Inönü, President	1938
	Hasan Saka, Provisional Premier	1947
Union of Soviet Socialist Republics	Nikolai Mikhailovich Shvernik, President of the Praesidium of the Supreme Soviet	1946
	Generalissimo Joseph V. Stalin, Chairman of the Council of Ministers	1946
United States	Harry S. Truman, President	1945
Uruguay	Luis Batlle Berres, President	1947
Vatican City	Pius XII, Pope	1939
Venezuela	Rómulo Betancourt, Provisional President	1945
Yemen	Imam Yahya ben Muhammed ben Hamid ed Din, King	1904
Yugoslavia	Ivan Ribar, President of the Praesidium	1945
	Josip Brozovich or Broz (Tito), Premier	1944
Zanzibar	(Sir) Shaikh Khalifa bin Harub, Sultan	1911
	Sir Vincent Glendary, British Resident	1946

Price Administration, Office of.

The Office of Price Administration was officially ended May 31, 1947, after about five years of statutory authority to stabilize prices of goods and services as well as residential rentals. At the height of its wartime activity, OPA had set ceiling prices on more than 80% of goods and services in the nation's private economy and controlled residential rentals in areas where more than three-fourths of the U.S. population lived. In addition, the office administered 13 rationing programs under delegation of authority from the president.

Scheduled to end June 30, 1947, with the expiration of the Price Control Extension act of 1946, the earlier liquidation date was made possible by a presidential order which provided for remaining functions to be taken over by other government agencies.

Control over prices of most goods and services had been lifted by Nov. 1946. However, sugar rationing, price control over sugar, certain sugar products and rice and control over residential rentals were continued.

Price control and rationing of sugar were made the responsibility of the secretary of agriculture as of April 1, 1947, under the Sugar Control Extension act signed by the president March 31, 1947. The secretary discontinued sugar rationing, except to industrial users, as of one minute after midnight of June 11, 1947, on the grounds of sufficient supply.

Under the president's executive order, remaining OPA obligations were disposed of as follows: effective May 4, 1947, rent control was transferred to the housing expediter and determination of subsidy claims, except as otherwise specified, to the Reconstruction Finance corporation.

Effective June 1, 1947, the program for premium payments on copper, lead and zinc ores and the auditing of the government industrial alcohol purchase program was transferred to the secretary of commerce, as was the responsibility for the final liquidation of the Office of Temporary Controls, including the Office of Price Administration. The order authorized the shifting of related records, property and personnel along with each function.

Officers to whom functions were transferred under the order were specifically given authority to institute, maintain or defend civil proceedings relating to these matters in any court, including the emergency court of appeals. The attorney general was directed to co-ordinate, conduct, initiate, maintain or defend litigation before the emergency court of appeals for or on behalf of the secretary of agriculture, the secretary of commerce and the Reconstruction Finance corporation, and litigation pending against violators of regulations or orders pertaining to prices of commodities no longer under control. He was also charged with all litigation arising out of directive 41 of the Office of Economic Stabilization relating to the withholding of subsidies because of noncompliance with, or violation of, control orders.

Thus, all pending litigation was taken over by the department of justice.

On Jan. 7, 1947, the issue was raised in congress as to whether or not a general amnesty for violators of the Emergency Price Control act should be issued. Some of the reasons a general amnesty was not granted were the effect it would have on general law enforcement and particularly the enforcement of government regulations which are temporary in nature, and the inequity that would result from collecting fines and penalties from violators whose cases were tried before price decontrol and not proceeding with the cases that had not reached trial prior to termination of price controls.

However, a series of directives issued by OPA, known as enforcement exceptions, made possible the dismissal of all cases

where the amount of the overcharge was $200 or less, or where the only violation involved was of a procedural nature (for example, failure to file a report, to petition for an increase or to seek authorization) and where the facts affirmatively showed that had the seller followed the proper procedure, he would have been allowed to charge the prices at which he actually sold.

Enforcement activities of OPA resulted in a total of more than 280,000 enforcement sanctions instituted against violators of price, rent and rationing regulations, and in the collection of more than $73,000,000 for the U.S. government. Approximately 6,000 cases were transferred to the department of justice on June 1, 1947, involving pending government monetary claims under section 205 (e) of the act, amounting to more than $50,000,000. OPA was successful in more than 95% of the court cases completed by it. (*See* also PRICES; RATIONING.)

(W. E. RY.)

Prices. During 1947 the subject of prices received more attention than any other topic dealing with the domestic economy of the United States. At the same time, there were more misconceptions and differences of opinion as to why prices were high and rising and what might be done about halting the rise than was warranted by even a rudimentary knowledge of the economics of prices.

Table I.—*Per Cent Change in Wholesale Prices, by Major Commodity Groups, United States, Selected Periods, 1939–47*

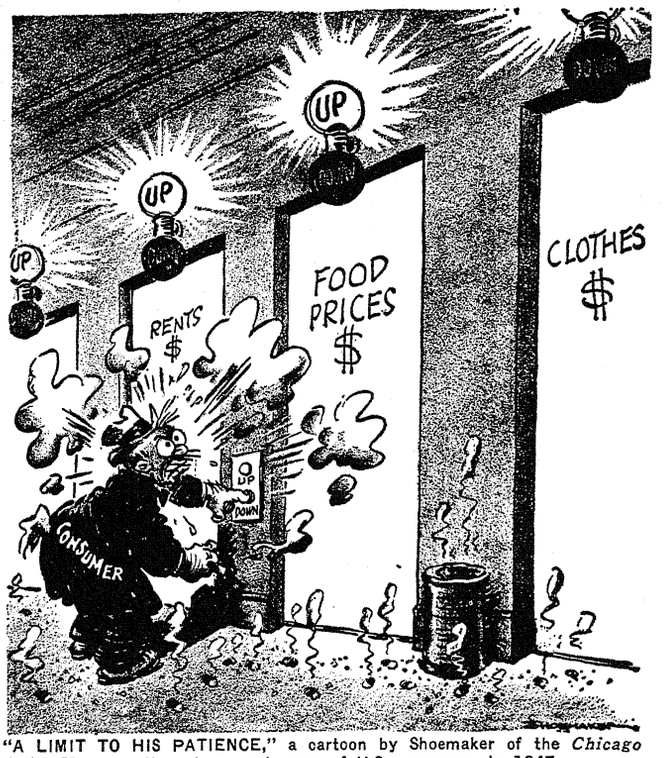
Commodity	World War II (Aug. 1945 from Aug. 1939)	Post World War II (Dec. 1947 from Aug. 1945)	World War II to end of Dec. 1947	Year 1947
Farm products	+108	+53	+217	+15
Foods	+ 58	+69	+167	+12
Hides and leather products	+ 27	+73	+120	+15
Textile products	+ 47	+46	+114	+ 8
Fuel and lighting materials	+ 17	+41	+ 64	+24
Metal and metal products	+ 12	+45	+ 62	+12
Building materials	+ 31	+59	+109	+19
Chemicals and allied products	+ 28	+45	+ 87	+10
Housefurnishing goods	+ 22	+29	+ 57	+12
Miscellaneous	+ 29	+27	+ 64	+10
All commodities other than farm products and food	+ 25	+44	+ 79	+15
All commodities	+ 41	+52	+115	+14

Source: Computed from wholesale prices published by the bureau of labour statistics, United States department of labour.

Contrary to popular belief, increases in wholesale prices during 1947 proceeded at a slower pace than during the postwar period as a whole or during the post-price-control period as a whole. As shown in Table I, the average prices of all commodities rose 14% during the year, an average of 1.17% per month. Except for fuel and lighting materials (which increased at the rate of 2% per month) and building materials (which increased at the rate of 1.58% per month) the increases were substantially the same for all classes of commodities. The reasons for the concern about the wholesale price increases in 1947 were three: (1) the percentage changes were based on prices that were already quite high at the beginning of the year; (2) the rate of increase was substantially above that occurring during the World War II period, being more than twice as high (1.17% per month compared with 0.57% per month during the period from Aug. 1939 to Aug. 1945); and (3) the consistent increases provided no indication of a possible plateau being reached shortly, or of a possible downturn in prices.

During the entire period from Aug. 1939 to the end of 1947, average wholesale prices of all commodities increased 115%. Approximately 36% of this increase took place during 72 months of the war (from Aug. 1939 to Aug. 1945) and about 64% occurred in the 28 months after the war ended (from Aug. 1945 to the end of 1947). Consequently, the rate of price increase in the postwar period was nearly five times as high (2.28% per month) as it was during the war period (0.57% per month).

For the entire period under consideration, by far the largest



"A LIMIT TO HIS PATIENCE," a cartoon by Shoemaker of the *Chicago Daily News* on the primary grievance of U.S. consumers in 1947

increase in wholesale prices was in the field of farm products, which in Dec. 1947 were 217% higher than in Aug. 1939. One explanation of this meteoric rise was that such prices were relatively low in 1939.

Table II.—*Per Cent Change in Wholesale Prices, by Major Commodity Groups, Selected Periods, 1942–47, and Level of Prices at End of 1947 Compared to High Post World War I in 1920*

Commodity	March 1942 from Aug. 1939*	June 1946 from March 1942†	Dec. 1947 from June 1946‡	Dec. 1947 from high post World War I in 1920§
Farm products	+69	+36	+38	+14
Foods	+43	+17	+59	+21
Hides and leather products	+26	+ 5	+67	+ ‖
Textile products	+42	+13	+33	−25
Fuel and lighting materials	+ 7	+13	+36	−43
Metal and metal products	+11	+ 8	+35	− 4
Building materials	+23	+18	+44	+11
Chemicals and allied products	+30	+ ‖	+44	−20
Housefurnishing goods	+20	+ 8	+22	−10
Miscellaneous	+22	+10	+22	−32
All commodities other than farm products and foods	+19	+11	+36	−18
All commodities	+30	+16	+43	− 4

*From the beginning of World War II to the beginning of general price controls.
†From the beginning of general price controls to the end of general price controls.
‡From the end of general price controls to the end of 1947.
§See Table III for the high month for the various commodities.
‖ Less than .5%.
Source: Computed from wholesale prices published by the bureau of labour statistics, United States department of labour.

Another way of viewing what had happened in wholesale prices is through an analysis of the price changes by periods related not only to the war itself but also to price control measures. As shown in Table II, during the 30 months from Aug. 1939 to the effective date of the general maximum price controls, the rise in the average wholesale prices of all commodities accounted for 26% of the total increase from Aug. 1939 to the end of 1947, averaging 1% per month. Increases in the prices of farm products, however, averaged 2.3% per month, and foods averaged 1.43% per month, the same as in textile products. Some of the classes of commodities registered relatively small increases as they were already affected by selective price controls beginning with March 1941. During the 52 months of general price control, wholesale prices of all commodities increased 16%, averaging 0.31% per month, with farm products prices increasing on an average of 0.69% per month, or more

Table III.—*World War I: Per Cent Change in Wholesale Prices, by Major Commodity Groups, United States, Selected Periods, 1914–22*

Commodity	World War I Nov. 1918 from July 1914	High post World War I 1920 from Nov. 1918	High post World War I 1920† from July 1914	Low post World War I 1921–22‡ from high post World War I 1920
Farm products	+111	+13	+138	−53
Foods	+104	+16	+137	−44
Hides and leather products	+ 89	+55	+192	−51
Textile products	+158	+36	+252	−54
Fuel and lighting materials	+105	+84	+277	−61
Metal and metal products	+ 81	+10	+ 99	−36
Building materials	+ 92	+65	+218	−46
Chemicals and allied products	+128	−2*	+123	−43
Housefurnishing goods	+ 75	+51	+164	−32
Miscellaneous	+ 62	+25	+102	−50
All commodities other than farm products and food	+ 98	+34	+165	−44
All commodities	+103	+23	+148	−45

*Chemicals reached a high in April 1918, dropped and recovered but never again reached the high level of April 1918.

†The high month in 1920 was May for farm products, June for foods, February for hides and leather products, April for textile products, August for fuel and lighting, August for metal and metal products, April for building material, May for chemicals, July for housefurnishings, July for miscellaneous, August for all commodities other than farm and foods, May for all commodities.

‡The low month in 1921 was June for farm products, August for textiles, August for all commodities other than farm and foods, September for fuel; and in 1922 was January for foods, May for hides, August for metals, March for building materials, July for chemicals, July for housefurnishings, August for miscellaneous, January for all commodities.

Source: Computed from wholesale prices published by the bureau of labour statistics, United States department of labour.

than twice as fast. The increases in prices recorded for the period of general price control do not include black market operations or possible quality deterioration and to that extent understate the actual price increases. Finally, 56% of the total price increases took place in the 18 months from the termination of general price control in June 1946 to the end of 1947, averaging 3.11% per month, which was three times as much of an increase as occurred before general price control was adopted and ten times as much as the average monthly increase during the control period.

Wholesale prices of all commodities were high in 1947 and were consistently rising. Whether they were so high as to cause alarm and grave national concern could be seen in part from a comparison with price increases that took place in the World War I period and the level reached at the high point in 1920. Data for such a comparison are presented in Table III, also in the last column of Table II. During the 51 months of the war from July 1914 to Nov. 1918 the prices of all commodities increased 103%, an average of 2.02% per month, while during the postwar period of approximately 20 months from Nov. 1918 to the high points reached in 1920 the prices increased only 23%, an average of 1.15% per month. The total increase for the entire period of 71 months was 148%, an average of 2.08% per month, compared with a total increase in such prices from the beginning of World War II in Aug. 1939 to the end of 1947 of 115%, an average of 1.15% per month.

Part of the explanation for the larger total increase in prices during World War I may lie in the fact that the increases started from a lower level in 1914 when the yearly average index of wholesale prices of all commodities was 68.1, compared with an index of 77.1 for 1939, the latter being 13.2% higher. Another explanation might be that the U.S. had not reached the peak of prices by Dec. 1947, if history was to repeat itself, and that the peak reached at that time might be even higher, in part because of the increased demand for U.S. products from abroad to be supplied under one plan or another.

In fact, the prices of all commodities in Dec. 1947 were 4% below the peak of 1920. To this there were three notable exceptions. Average wholesale prices of foods were 21% above the peak of 1920, prices of farm products were 14% above such peak, and the prices of building materials were 11% above the 1920 peak. Thus it was not so much a question of over-all wholesale prices as it was one of wholesale prices in given areas with which the public was vitally concerned, namely foods and building materials. It is interesting to note that the average prices of all commodities other than farm products and foods were 18% below the peak of such prices in 1920 and that in certain areas like fuel and lighting materials, textile products and chemicals they were even lower than that. This might mean that in some of these areas (as happened in Dec. 1947 in the substantial increase in the price of gasoline and other petroleum products) further price increases would materialize or that in some areas such as textiles and chemicals there was ample capacity to supply existing demand.

When the break in prices came after World War I, the average prices of all commodities declined 45% from the peak, and in general there was a tendency for the decline to be more severe in those areas in which the rise was the steepest. In no class of products was the entire gain in prices wiped out, and none returned to the prewar price level. For all commodities, the average prices at the low point of the recession in 1922 were still about 36% above those at the beginning of the war in July 1914, and for all commodities other than farm products and foods, they were 48% higher.

Table IV.—*Per Cent Change in Cost of Living (Consumers' Retail Prices), by Major Commodity Groups, United States, Selected Periods, 1939–47*

Commodity	World War II Aug. 1945 from Aug. 1939	Post World War II Oct. 1947 from Aug. 1945	Oct. 1947 from Aug. 1939	Oct. 1947 from Dec. 1946
Food	+51	+43	+116	+8
Clothing	+46	+29	+ 88	+7
Rent	+ 4	+ 6	+ 10	+6
Fuel, electricity and ice	+14	+12	+ 28	+8
Housefurnishings	+45	+29	+ 87	+6
Miscellaneous	+24	+14	+ 41	+4
All Items	+31	+27	+ 66	+7

Source: Computed from data published by the bureau of labour statistics, United States department of labour.

On the retail level, as reflected by the cost of living indexes published by the bureau of labour statistics, prices in 1947 increased only about one-half as much as they did on the wholesale level. The increase for all items during the year averaged 7%, and in food it was but one point higher. For the entire war and postwar period covered by the data in Table IV, the cost of living increased 66%, 47% of the increase having taken place prior to the end of the war and 53% in the postwar interval. This meant that the Oct. 1947 dollar, in terms of consumer purchasing power, was worth only 60 cents compared with the Aug. 1939 dollar. It follows, therefore, that, by and large, a person who failed to earn in the later period at least 66% more than he earned in 1939 was actually worse off than he was prior to the war.

Table V.—*Per Cent Change in Cost of Living (Consumers' Retail Prices), by Major Commodity Groups, United States, Selected Periods, 1942–47, and Level at End of 1947 Compared to High Post World War I in 1920*

Commodity	March 1942 from Aug. 1939*	June 1946 from March 1942†	Oct. 1947 from June 1946‡	Oct. 1947 From high post World War I June 1920
Food	+27	+23	+38	+ 9
Clothing	+23	+27	+20	−10
Rent	+ 4	−§	+ 6	− 4
Fuel, electricity and ice	+ 7	+ 6	+13	+19
Housefurnishings	+20	+29	+20	+11
Miscellaneous	+10	+16	+11	+41
All items	+16	+17	+23	+10

*From the beginning of World War II to the beginning of general price controls.
†From the beginning of general price controls to the end of price controls.
‡From the end of price controls to Oct. 1947.
§Less than .5%.
Source: Computed from data published by the bureau of labour statistics, United States department of labour.

The rise in the cost of living was by no means the same in all items. Food costs rose 116% during the entire period of some 98 months covered by the data in Table IV. About 23% of this rise took place, as shown in Table V, before general price controls became effective, another 25% during the period of such



"HE'S FORGOTTEN THE REST OF THE ACT," a faithful, if comic analogy to the U.S. price levels of 1947, by Alexander in the *Philadelphia Evening Bulletin*

control (not counting black and gray market operations), and 52% in the 16 months following termination of general price controls. The price of clothing went up 88% during the entire period, of which about 26% took place before general price controls became effective, 33% during the period of such control, and the remaining 41% after termination of controls. The magnitude and the pattern of the price increases occurring in housefurnishings were practically the same as in clothing. Rents, however, remained relatively constant. The total increase was but 10%, of which four points were marked up prior to the General Maximum Price Regulation (G.M.P.R.); practically no increases took place during such general price controls; and only six points were marked up from June 1946 to Oct. 1947 because rents remained under control.

Compared with the rise in the cost of living in the World War I period, as shown in Table VI, when it was doubled by 1920 over July 1914, the rise in the cost of living in World War II, amounting to 66%, was relatively mild. During the previous period, when the high point was reached in 1920, food prices had risen 126%; clothing, 176%; and rent, 51%. As price controls were few, about 60% of the rise took place during the war and 40% afterward, while in World War II only 47% of the rise took place during the war and 53% afterward.

Table VI.—World War I—Per Cent Change in Cost of Living (Consumers' Retail Prices), by Major Commodity Groups, United States, Selected Periods, 1914–22

Commodity	World War I Nov. 1918 from July 1914	High post World War I June 1920 from Nov. 1918	High post World War I, June 1920 from July 1914	Low post World War I, March 1922 from high post World War I, June 1920
Food	+79	+26	+126	−36
Clothing	+93	+43	+176	−39
Rent	+20	+26	+ 51	+19†
Fuel, electricity and ice	+27	+17	+ 49	+ 5†
Housefurnishings	*	*	*	−31
Miscellaneous	+54	+19	+ 82	+ 1
All Items	+60	+26	+101	−20

*Not available.
†Held up during the 1921–22 decline.
Source: Computed from data published by the National Industrial Conference board for the period 1914–20 and bureau of labour statistics, United States department of labour, for the period 1920–22.

Toward the end of 1947 the cost of living level was 10% above that reached at the peak in 1920. Fuel and power, housefurnishings and food were all above the peak of 1920 by 19%, 11% and 9%, respectively. On the other hand, clothing was 10% below the peak of 1920, and rent was 4% below the 1920 high. When the break came and the bottom was reached in March 1922, the cost of living as a whole declined 20% from the 1920 peak and proportionally larger declines took place in the price of foods (36%), clothing (39%) and housefurnishings (31%).

Rents, however, were 19% higher than in 1920 and remained high for some years afterward.

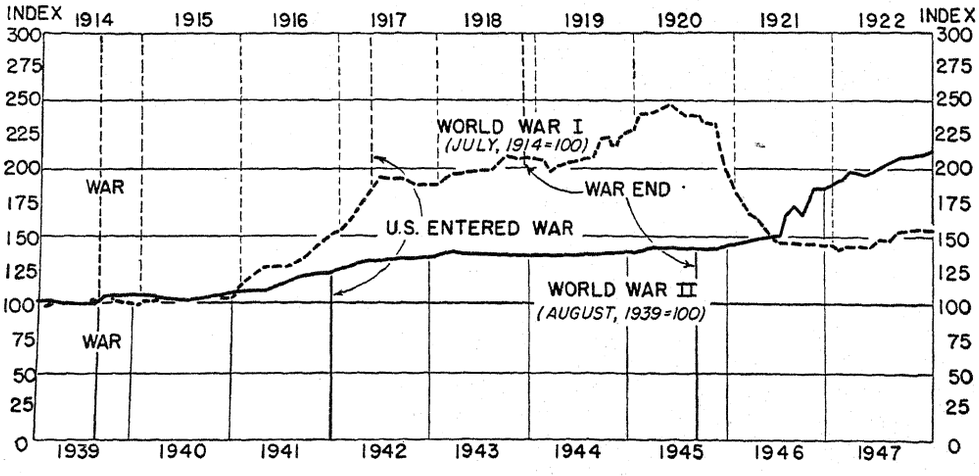
Of great significance is the comparison in the price changes on the retail and wholesale levels. Except in housefurnishings, wholesale prices increased much more than did retail prices. While the same situation obtained during the World War I period, the discrepancy (except in clothing at retail compared with textile products at wholesale) was much smaller. On the whole, wholesale prices during the first period rose 47% more than retail prices, but during World War II to the end of 1947 wholesale prices had risen about 74% more than retail prices. This might mean that further increases in the cost of living were to be expected.

To cope with the rising cost of living, President Truman recommended to the special session of congress, which convened on Nov. 17, 1947, a ten-point anti-inflation program including provisions for direct rationing and price controls.

This program was largely disregarded, and in its place congress enacted and sent to the White House on Dec. 19 a substitute program, the chief feature of which was permission for industry to allocate scarce materials by voluntary agreement under anti-trust law exemption with approval of the attorney general. Thus, as the year 1947 drew to a close, with an innocuous national program at hand, the problem of inflation and of high prices that continued to rise remained substantially the same as it had been throughout the year. (*See* also INCOME AND PRODUCT, U.S.; PRICE ADMINISTRATION, OFFICE OF.)

(T. N. B.)

WHOLESALE PRICES in the United States, 1914–22 and 1939–47 (Source: U.S. department of labour, bureau of labour statistics)



Great Britain.—*Wholesale Prices.*—The rise in imported food prices, continuous throughout World War II, was accelerated late in 1946 and in 1947,

reflecting the shortage of world agricultural supplies in relation to world demand. The general level of prices of imported foodstuffs at the end of 1947 was about two and one-half times the 1938 level. Much of the rise was absorbed through large and increasing subsidies as the commodities passed on toward the consumption stage. The standard index numbers of wholesale food prices meant little, being mixtures of rising import prices and of stable domestic prices. On the other hand, markets for basic materials were dominated by world or import prices, which on the average were about twice the 1938 level by the end of 1945 and nearly three times in the latter part of 1947. All index numbers of materials' prices at wholesale showed this rise.

There was no adequate measure of rising prices of manufactured goods. The index of the board of trade was unrepresentative since it omitted many products derived from materials (such as timber) which had risen most in price. The prices of manufactures for export rose sharply from the middle of 1946 onward, probably faster than wholesale prices of manufactures in general. Even so, the terms of trade tended to become unfavourable, with the increase in price of manufactured exports less than that of imported foods and, particularly, of imported materials. Considerations of the "hardness" or "softness" of foreign currencies became increasingly important. Britain was forced often to buy in relatively dear (but "soft") markets and to sell under more competitive conditions.

Conclusions based on wholesale price index numbers, however, must be accepted with caution. The price structure in 1947 was neither normal nor stable. The direction of domestic and overseas trade was radically different from that before the war. The composition of such index numbers as that of the board of trade was inappropriate to conditions of 1946–47, both as to items covered and as to the weights used in combining them.

Retail Prices.—The old cost of living index was discontinued by the ministry of labour in the middle of 1947. The index was rather narrowly based on a limited list of food and other prices and individual price changes were combined on the basis of working-class purchases before World War I. These facts made it possible to keep the computed value of the index stable, by the device of manipulating subsidies on a relatively small number of items. This was, in effect, the official policy. The course of the index and its components was an illustration of price manipulation rather than an indication of the genuine rise in prices paid by working-class families. Increases in rates, in the prices of clothing and fuel and in the tobacco duty in the spring of 1947 were deliberately offset, in the index figure, by increased subsidies and artificially reduced prices of sugar, eggs and other items.

Table VII.—*Wholesale and Retail Price Index Numbers, United Kingdom*

(Average 1938=100)

	1945	1946	1947			
	Dec.	Dec.	March	June	Sept.	Nov.
Wholesale prices* (board of trade)	167	177	181	187	192	200
Food	162	161	163	170	169	175
Basic materials	203	223	227	235	259	273
Intermediate products	175	195	204	212	219	229
Manufactures	144	161	165	167	169	175
Wholesale prices† (*Statist*)	179	220	233	240	251	264
Food	164	166	168	176	184	190
Materials	188	254	274	279	294	311
Import and export prices* (board of trade)						
Food, imports	195	216	226	236	238	239
Materials, imports	214	235	246	271	284	295
Manufactures, exports	195	210	220	227	237	241
Cost of living*‡ (ministry of labour)	130	131	131	130/100	101	103
Food	120	120	120	115/100	100	103
Rent and rates	104	105	105	109/100	100	100
Clothing	166	167	164	166/100	101	102
Fuel and light	153	155	156	157/100	100	107
Estimated index of retail prices	150	155	155	160	161	166

*Reproduced from the *Monthly Digest of Statistics* with the permission of the controller of H.M. stationery office.
†Reprinted by kind permission of the *Statist*, London (figures converted from *Statist* basis), and of the London and Cambridge Economic Service *Bulletin*, London, Aug. 1947.
‡After June 1947, new interim index of retail prices based on June 17, 1947=100.

The new interim index of retail prices introduced in mid-1947 was a double improvement on the cost-of-living index which it replaced. The new index included a wider selection of items and a number of additional groups not in the old index. Fresh vegetables and fruit were now represented under food, for example, and furniture, entertainment and drink were additions. Further, the new index was based on working-class purchases, not in 1914, but in 1937–38. Being more broadly based, the new index would be less affected than the old by changes in subsidies. On the other hand, it would be more sensitive to changes in indirect taxes; *e.g.*, on drink and tobacco.

The immediate utility of the new index was limited by the fact that it tied prices back only to June 1947 and made no comparison with prewar prices. However, if estimates of individual price changes from 1938 were combined with the weights of the new index, an estimate could be made of the general change in retail prices paid by working-class families after 1938 (*see* London and Cambridge Economic Service, *Bulletin*, Aug. 11, 1947). The increase over 1938 could be put at 50% by the end of 1945 and 60% by mid-1947. These estimates still took account of subsidies; they showed changes in actual prices paid, some of which were kept low by subsidies.

Increased duties on beer, wines and spirits and higher rates of purchase tax on a wide range of items were introduced in the budget of Nov. 1947. A new policy on subsidies was also announced, whereby total expenditure on them was to be kept stable, so that further increases in prices of imported food would show up in retail prices. The index of retail prices therefore rose at the end of the year, and further rises were to be expected.

Europe.—In countries less affected than most by the war—Scandinavia, Eire and Switzerland—the course of wholesale and retail prices was not very different from that in Britain. In the middle of 1946, wholesale prices had been nearly stationary for some time at a level about 70%–100% above that of 1938. A slow upward movement then started, a reflection to a greater or less extent of the rise in prices of imported commodities. The cost of living also rose rather slowly, but even at the end of 1947 it was generally little more than 60% above 1938.

In contrast, in such liberated countries as the Netherlands and Czechoslovakia, prices increased very sharply, both at wholesale and retail, in the months after V-E day, reaching levels between two and three times that of 1938. The rise then tapered off, and 1947 was a year of relatively stable prices.

In other countries, inflationary forces were not kept completely under control and the usual records of prices in domestic currencies meant very little. In France, for example, wholesale prices in francs were recorded in 1947 at a level more than 10 times the 1938 figure; the corresponding multiple was 12½ times for retail food prices in Paris. Here, it was more relevant to inquire to what extent consumers had access to and used controlled, free or black markets (*see* also AGRICULTURE; BLACK MARKETS; BUSINESS REVIEW; CONSUMER CREDIT; STOCKS AND BONDS; WAGES AND HOURS; and articles on individual commodities.) (R. G. D. A.)

Primary Education: *see* EDUCATION.

Prince Edward Island. Smallest province of Canada, crescent-shaped Prince Edward Island lies in the Gulf of St. Lawrence 9 mi. from the mainland. Area: 2,184 sq.mi.; it is 130 mi. long, with an average width of 21 mi. Pop. (1941): 95,047; (1947 est.) 94,000. The largest centre is the provincial capital, Charlottetown, with a population in 1941 of 14,821.

History.—Liberal Premier Walter J. Jones went to the country in December and won a 4th straight Liberal victory (1943

election: 20 Liberals, 10 Progressive-Conservatives; 1947 election: 24 Liberals, 6 Progressive Conservatives). The Liberals got 51% of the vote, Progressive-Conservatives 45%, Co-operative Commonwealth federation 4%.

The new federal $5,500,000 ferry, "M. S. Abegweit," to carry passengers and freight between the island and the New Brunswick mainland, went into service in August. It was the most modern icebreaker of its kind, and the heaviest ship ever built in a Canadian shipyard (7,500 tons). The Canadian National railways announced reduced ferry rates for trucks when loaded with farm and fish products. In an election campaign address, Premier Jones promised abolition of road taxes.

The government announced a plan for an $8,000,000 province-wide electrification program under a provincial commission. In 1944 of 16,968,000 kw.hr. generated, only 4,320,000 kw.hr. were from publicly owned plants. Wood-lot conservation was begun by an educational campaign among wood-lot owners to reduce the annual $2,000,000 loss from disease, parasites and indiscriminate cutting.

Education.—In the 1944–45 school year, 19,648 pupils were enrolled in all educational institutions. The average daily attendance in provincially controlled schools was 12,984. In 1944–45 there were 665 teachers in provincially controlled schools, toward which the government granted financial support of $318,460.

Agriculture and Fishing.—In 1946 there were 474,900 ac. in field crops (the peak was 505,500 ac. in 1940), with crop values at $15,344,000 (1945: $18,975,000). The 1946 potato production amounted to 5,723,000 tons (1945: 4,601,000 tons). The 1947 lobster catch fell off because of heavy rains, cold weather and rough seas. The "tunnel" (controlled hot air) system of drying cod and hake replaced sun drying.

Production.—The gross value of 1945 production was $36,431,776. The net value was $20,604,911, which was .34% of Canada's total. Per capita production was $223.97. (C. Cy.)

Princeton University. An independent institution, devoted to the liberal arts and sciences, situated in Princeton, N.J. During 1947 Princeton concluded a year-long celebration of the 200th anniversary of its founding. Events included a series of academic conferences in various fields of learning, bringing together, in total, 1,000 scholars and men of affairs from all parts of the world; and two major convocations, the second of which, in June, climaxed the bicentennial celebration and was attended by Pres. Harry S. Truman and other national leaders and delegates from 400 educational institutions and learned societies in the United States and other countries.

The year, otherwise, was notable for the successful conversion, despite overcrowded conditions, to peacetime operation, including re-establishment of many of the characteristics of Princeton's prewar residential life.

In the fall Princeton inaugurated its new plan of study in the liberal arts and sciences. The program, which the class of 1951 was to be the first to pursue, provides wider opportunity for general education in underclass years and increased possibilities for independent study and original work in upperclass years.

Princeton introduced a program in near east studies, permitting undergraduates, for the first time, to choose the languages, culture and social institutions of that area as a field of concentration. It also began a long-range systematic self-study of its own product in an effort to substitute ascertained fact for opinion regarding its educational methods and their results.

By the end of the year, the new Dillon gymnasium was completed sufficiently to afford partial use and work on the Firestone Memorial library was reaching the final stage. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (H. W. Do.)

Principe: *see* PORTUGUESE COLONIAL EMPIRE.

Printing. Announcement was made during 1947 of a process for making photoengraved and offset-lithographic printing plates without photographic film or chemical developers. A metal plate with a special photoconductive coating, sensitized by spraying with electrons, is placed in the camera in place of film or glass plate. The plate is exposed in the camera in the same general manner as is employed in exposing photographic film or glass plates; photographic speeds are comparable. It is then placed in a tray containing a micronized powder, and after dusting with this powder, the image becomes visible (this step is analogous to developing the film or glass plate). The metal plate is then heated until the powder fuses to form a solid resist image on the surface. At this point, it is ready for etching, or if the metal was originally grained, the plate can be used immediately as a lithographic plate. The principle is as follows: when a metal plate coated with a photoconductive layer is charged with static electricity, as by spraying with electrons, the surface of the coating becomes sensitive to light, so that if an image is projected onto the surface, electrostatic charges will leak away where the light strikes and remain in the shadow parts of the projected image. This image becomes visible after developing the plate by dusting with a special type of micronized powder. This electrophoto process produces a positive to positive reproduction.

An electronic automatic halftone engraving machine combining Howey-G. Washington patents, was put into practical everyday production. The machine makes 65-line halftone engravings on plastic material. A positive photographic print wrapped around a revolving cylinder is scanned by a photoelectric cell. On an accompanying revolving cylinder is wrapped a sheet of celluloid or other plastic. An engraving device containing a pyramid point stylus (heated to 1,200° F.) penetrates the plastic surface "as commanded" by the photoelectric cell which in turn is actuated by the revolving photographic print. In 65-line screen the halftone interstices are 0.007 in.–0.008 in. deep, and shadow areas are approximately 0.004 in. deep. The stylus engraves 380 holes per second, and a useful area of an 8-in. by 10-in. halftone may be completed in 20 min. The resultant halftone may be mounted and printed from direct or may be moulded from for stereotyping.

Development and successful operation of a pilot machine in actual production for setting type photographically was announced. The machine is designed along lines of the standard line-composing machine and produces composed matter in film or positive paper form in any measure up to 42 picas width, from 5 pt. up to and including 36 pt. face. The letter element is contained in a negative film form set within the body of a standard-shaped matrix. After the line has been assembled by the operator, it is justified automatically to the required length, and characters are photographed singly on film or paper. Matrices are distributed in the same manner as in standard slug-casting machines.

A research laboratory announced development of printing ink which dries almost immediately. A new synthetic resin is ground with pigment and dispersed in a solvent. The grinding of the pigment into the resin produces a spongy mass which holds the solvent just as a sponge holds water. When the ink is used in printing, the printing pressure squeezes the solvent out of the resin. Since the resin itself requires no oxidation, it is dry as soon as what little solvent remains evaporates. This takes place so rapidly that drying is almost immediate. Ink, however, does not dry on press rollers or in fountains because the resin behaves like a sponge and does not lose the solvent until it is squeezed under printing impression on the press.

Three companies announced development of other equipment and inks with properties for fast-drying of freshly printed webs to prevent offset and to increase printing speeds in newspaper colour printing. In one of these, the drying of moisture-setting

inks is based on the principle of precipitation. The ink consists of a pigment dispersed in a vehicle made of synthetic resin dissolved in a high boiling solvent. When the film of ink is subjected to low-pressure steam impinged against the paper web the binder is thrown out of solution, thus "drying" the ink film. Another company announced development of heat-set ink and necessary high-temperature ovens through which newsprint paper web passes immediately after being printed on the press to set the ink immediately on newspaper colour comic and magazine sections. A third method of fast-drying newspaper colour printing consisted of suitable ovens and drying ducts utilizing a direct flame heater and heated air mounted in the press in such a manner that as each colour is printed the web passes immediately through an oven. Heated air is withdrawn through driers and is recirculated under motor-fan power. The temperature in the driers is 400°–600°. Paper is passed between chilling rolls, the temperature of which is from 80° to 100° F.

(M. St.)

Printing Office, U.S. Government.

The government printing office was created by congressional joint resolution 25, June 23, 1860. It executes orders for printing and binding placed by congress and the departments, independent establishments and agencies of the federal government; furnishes, on order, blank paper, inks and similar supplies to all governmental activities; distributes government publications as required by law, and maintains necessary catalogues and a library of these publications; prints, for sale to the public, such documents as are not of a confidential nature.

The total area occupied by the government printing office proper in 1947 was 1,396,973 sq.ft. or 32.1 ac. During the fiscal year 1947 it was necessary to place orders with outside contractors for printing in the amount of $12,906,982.98, as the government printing office was unable to handle the volume of printing ordered. The value of the office buildings in 1947 was $11,948,735.50; machinery and equipment $6,013,201.75; making the total value of the plant $17,961,937.25. During the fiscal year 1947, there were 7,955 employees on the rolls with a pay roll of approximately $20,302,066.67. The office made charges for 340,808,858 copies of publications of all classes. This total included 6,313,605 copies of the *Congressional Record*, 4,867,982 copies of the *Federal Register*, 3,631,400 copies of specifications of patents, trademarks, designs, etc., and 350,645 copies of the patent office *Official Gazette* and annual indexes. The number of postal cards printed amounted to 2,865,285,000 and money orders, 291,091,150. The stores section and warehouses handled 3,393 carloads of paper weighing 173,814,255 lb. The division of public documents mailed out 149,788,080 publications and forms; its receipts from the sale of government publications during the year amounted to $3,038,377. The total charges made to congress and all other government agencies during the fiscal year were $53,009,753.69. (A. E. Gi.)

Priorities and Allocations.

The year 1947 marked the elimination of all but a vestige of U.S. wartime priority and allocation controls.

As of March 31, 1947, congress revoked the general priority and allocation powers except for a limited number of materials specified in the First Decontrol act of 1947. At that time priorities assistance for the Veterans Emergency Housing program was transferred to the Office of the Housing Expediter. Power to route materials and equipment, however, terminated on June 30, 1947, on passage of the Rent Control act of 1947.

Under the Second Decontrol act of 1947, controls other than those relating to housing were transferred to the department of commerce, as successor to the Civilian Production administration. This act also empowered the department of commerce to issue priorities to obtain materials for export when required to expand or maintain foreign production of materials critically needed in the U.S.; and when the secretary of state certified that the action was essential in carrying out foreign policy. In both instances a finding of no undue adverse effect on the domestic economy was required.

By the end of 1947 controls over all but five commodities had been removed. Those still under control were rubber, tin, antimony, quinidine and cinchona bark and rubber.

Controls over rubber were used during a good part of 1947 to compel use of U.S.-made rubber in quantities deemed necessary for maintaining a synthetic industry in the United States, and to restrict the use of latex which was in short supply. The act was scheduled to expire March 31, 1948.

Complete control remained over tin metal. Import quotas were set by the Combined Tin committee, of which the United States was a member. Certain nonessential uses were prohibited, and all pig tin remained under allocation.

Authority for the control of antimony was also complete, although only the power of allocation was utilized. There were no end-use restrictions and imports were not controlled.

Quinidine, a vital drug in the treatment of certain forms of heart disease, was under complete allocation and its use was restricted to treatment of cardiac disorders. However, only quinidine originating in government stocks was so controlled. Controls over cinchona bark were used to permit the government to enter into toll agreements with processors of quinidine.

With the exception of rubber, controls on all the above materials were scheduled to expire on Feb. 29, 1948, unless extended by congress. A new form of control, the "Voluntary Agreement," appeared late in 1947 when congress authorized the president to make agreements for private allocation and inventory controls of scarce commodities. Any properly authorized participant was exempt from the provisions of the antitrust laws. The primary purpose of the act was to curb inflation. (*See* also Business Review; Price Administration, Office of.)

(H. B. My.)

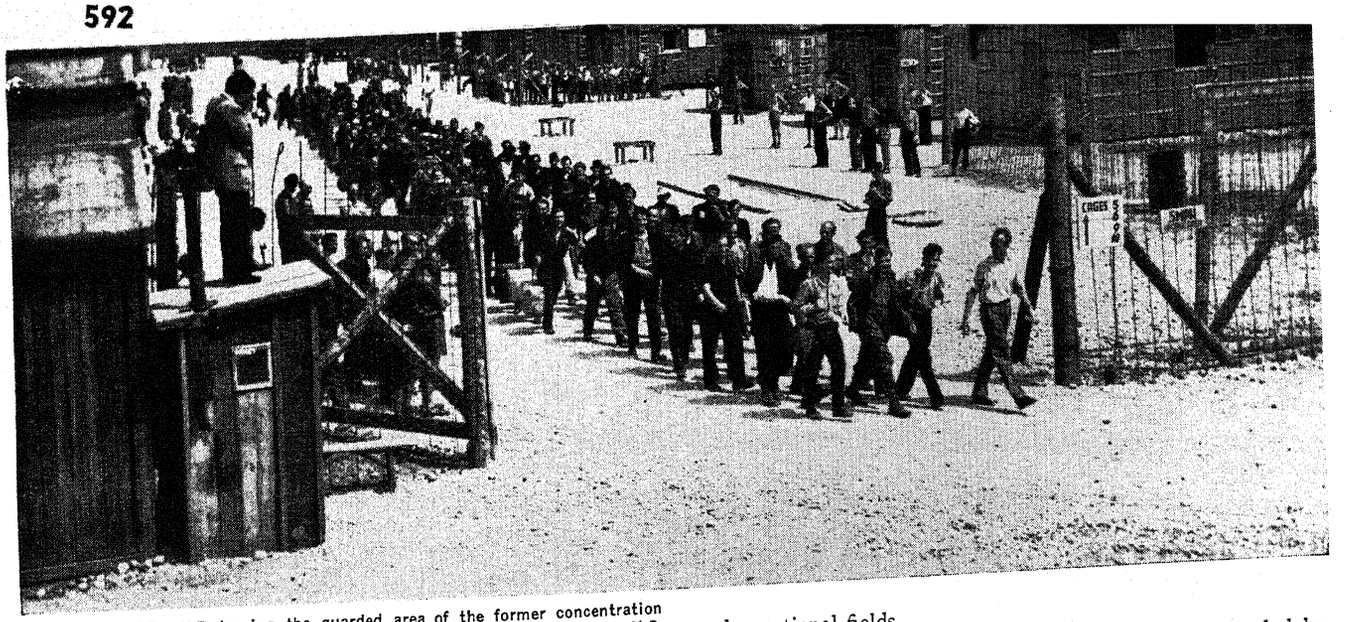
Prisoners of War.

Although significant steps were taken during 1947 in the repatriation of prisoners of war, approximately 2,500,000 were still detained at the end of the year, approximately two-thirds by the Soviet Union.

Complete liberation of war prisoners was accomplished during 1947 by the United States, Belgium and Luxembourg—43,000 by the United States, 57,000 by Belgium and 4,000 by Luxembourg. Plans were announced for gradual repatriation of German prisoners by Great Britain and France; approximately 200,000 were released by each of those nations during 1947. No reports were available concerning repatriations by the Soviet Union. Yugoslavia released all of its 11,000 Italian prisoners during the year.

At the Conference of Foreign Ministers in Moscow, the Soviet Union reported 890,000 German prisoners held outside the soviet zone of occupation in Germany. The report made no mention of prisoners of other than German nationality, but it was estimated that the Soviet Union held more than 800,000 Japanese.

In an effort to reduce the number of prisoners but at the same time retain the benefits of their labour, the French government offered German prisoners in France the option of remaining in the country as free workers. No reports were available on the number accepting the offer, but approximately 400,000 were retained as prisoners of war at the end of 1947.



PRISONERS OF WAR leaving the guarded area of the former concentration camp at Dachau, Germany, in 1947. This group was the last held by the U.S. army's European command

Estimates and official figures of the number of prisoners still in captivity at the end of 1947 are tabulated below:

Country	*Number and Nationality*
U.S.S.R.	890,000 Germans
	828,000 Japanese
France	400,000 Germans
Great Britain	255,000 Germans
Yugoslavia	80,000 Germans
	10,000 Austrians
Poland	50,000 Germans
Czechoslovakia	7,500 Germans
Total	2,520,500

The International Committee of the Red Cross called upon detaining governments to repatriate war prisoners, citing humanitarian considerations and the provisions of the Geneva Prisoners of War convention of 1929. The committee also continued its efforts to revise the Prisoners of War convention. At a meeting called at Geneva, Switzerland, in March representatives of the principal Allied Powers devised tentative revisions for review at the International Red Cross conference scheduled to be held in Stockholm, Sweden, in Aug. 1948. (*See* also FEDERAL BUREAU OF INVESTIGATION; INTERNATIONAL LAW; RED CROSS; REFUGEES.) (P. E. R.)

Prisons. During 1947 the U.S. army's most modern disciplinary institution was opened at Camp Cooke, Lompoc, Calif. Patterned after the U.S. penitentiary at Terre Haute, Ind., its housing facilities include dormitories, honour rooms and inside and outside cells. It is unwalled, but is surrounded by guard towers and wire fences.

In California, work was commenced on a new jute mill at San Quentin, agricultural units were constructed at the institution for men at Chino, and pending the erection of three new institutions, portable metal buildings were used to relieve overcrowding at some of the prisons in the state. Florida announced that two new institutions were to be built, one for women, the other for male offenders under 25 years of age. Other states, including Massachusetts and Pennsylvania, also authorized construction programs, and in New Jersey it was announced that the antiquated state prison at Trenton would eventually be abandoned.

In many prisons educational facilities were expanded and provisions made for more expert instruction in both academic and vocational fields.

State operated convict camps for road work were ended by Georgia, but still remaining were about 89 county-operated camps which were subject to inspection by the state. Michigan, following the pattern set by other states and the federal system, inaugurated a course of instruction for new guards. And Missouri placed employees in correctional institutions on a civil service basis.

The American Prison association's *Manual of Suggested Standards for a State Correctional System* was distributed throughout the U.S. and many foreign countries. This manual, compiled by a special committee of the association, was a direct outgrowth of many requests by governors, penal officials and others for information concerning the rehabilitation of offenders and related problems. Among the subjects covered are: personnel, classification, medical services, employment, education, religious activities, recreation, discipline, probation and parole. Also filling a vital need was another publication prepared by the American Prison association: *A Handbook on Classification in Correctional Institutions.*

On May 31 a wartime order which permitted the federal government to buy goods produced in prisons was rescinded. (The law banning the use of convict labour on government contracts was suspended on July 9, 1942, in order to facilitate the manufacture of war materiel.) During World War II, when inmates produced millions of dollars worth of products for the armed forces, their morale improved. In 1947, many men behind the bars were idle—a condition hardly conducive to their rehabilitation. (S. A. L.)

Great Britain.—Legislation came before the house of commons in 1947 "to abolish penal servitude, hard labour, prison divisions and the sentence of whipping." The original bill of 1938 had been postponed because of World War II, but the intended reforms had been partly carried out; hard labour, *e.g.*, was finally ended as a condition of sentence when the rule that a prisoner should sleep the first fortnight of his sentence without a mattress was abolished. Prisons became badly overcrowded, because so many had passed out of use, while the number of persons serving prison sentences had grown to 18,200, the highest figure for 40 years. In August a second "minimum security camp" was opened on a farm near Ashford, Kent, where 50 good conduct prisoners from Maidstone jail worked on the land in almost complete freedom. A few escapes were made in 1947 from the first camp of this kind, at Tortworth, Gloucestershire.

The "open" system of detention was also extended in the Borstal organization for dealing with young delinquents. An Elizabethan mansion at East Sutton, Kent, was taken for an

experiment in rehabilitating 20 young women, who were given the freedom of 85 ac. of lawns and gardens and allowed to take part in village social activities. Because of lack of suitable accommodation and a long waiting list of young men sent to Borstal by the courts, a number of them were placed in a section of Chelmsford prison, but the Borstal institution at Dartmoor prison, an unpopular wartime measure, closed on April 16. There were further tentative efforts to adopt the use of psychiatry to Borstal institutions, but the number of delinquents actually treated for abnormality was small.

Men and women undergoing preventive detention in British prisons numbered 46, and steps were taken to ameliorate the conditions of the confinement of these habitual criminals. (*See* also CRIME.) (P. BN.)

Private Schools: *see* EDUCATION.

Prizes of 1947: *see* LITERARY PRIZES; NOBEL PRIZES; PULITZER PRIZES. *See* also ART EXHIBITIONS; CANADIAN LITERATURE; MINERALOGY; MOTION PICTURES; SOCIETIES AND ASSOCIATIONS; THEATRE; etc.

Production, Industrial: *see* BUSINESS REVIEW.

Profits, Company: *see* BUSINESS REVIEW; TAXATION.

Progressive Education: *see* EDUCATION.

Proportional Representation: *see* MUNICIPAL GOVERNMENT.

Protestant Episcopal Church.

The year 1947, following upon the first full year of peace, witnessed intensified activity by the Episcopal Church in meeting its world-wide, as well as its domestic, responsibilities. More than $7,300,000, contributed to its reconstruction and advance fund, was appropriated for rebuilding the church in China, the Philippine Islands and Japan; and for advance work in Latin America, Liberia and among the Negroes in the United States. In addition, more than $1,000,000 was raised for world relief.

In response to a petition from the Philippine Independent Church, popularly known as the Aglipayan Church, with about 2,000,000 members, the house of bishops authorized and instructed the presiding bishop, Dr. Henry Knox Sherrill, to consecrate 20 native bishops for that church—a significant step in church unity.

INDUCTION CEREMONY at the Washington, D.C., cathedral as the Rt. Rev. Henry Knox Sherrill (centre, facing camera) was installed as presiding bishop of the U.S. Protestant Episcopal Church on Jan. 14, 1947



The statistics reported in 1947 showed the church to have attained an all-time high in several particulars: church members (all baptized persons) numbered 2,349,631; communicants 1,611,965. Baptisms increased 13.4% over 1946; confirmations 12.2% over 1946. Total contributions for the work of the church in the U.S. and abroad were $59,135,048—an increase of $6,123,655 or 11.5% over 1946.

Theological seminaries were again filled, and most of the new entrants were former veterans. The clergy numbered 6,443; parishes and missions 7,740. The upward trend in church school teachers and pupils, which began in 1944, was continuing: 51,158 teachers, an increase of 5.6% over 1946; 427,985 pupils, an increase of 5.8% over 1946. (*See* also CHURCH MEMBERSHIP.) (W. H. SE.)

Protons: *see* ATOMIC ENERGY; PHYSICS.

Prunes: *see* FRUIT.

Psychiatry.

Psychiatry in 1947 looked forward to an expanding program in civilian life, with its field of interest embracing social problems. Long-time planning was suggested to inaugurate research, revamp medical education and change much of the current treatment of the mentally ill. A closer working relationship with the general field of medicine was visualized, since psychiatry was still handicapped by the necessity of maintaining specially organized hospitals which tended to keep out of contact with the general medical institutions.

During World War II at least 2,000,000 people, as the result of mental treatment of personality disorders in soldiers, had direct contact or relationship with psychiatry. One of the most important scientific results of the war was the spread of psychiatry into other fields. In general hospitals the neuropsychiatric service became of equal importance with the medical and surgical services. The war also brought out the importance of clinical psychologists and psychiatric social workers to the psychiatrist. In many instances, the psychologist and psychiatric social worker had never before had experience on a clinical team. The final result was the development of a congenial and efficient relationship in all three fields of psychiatric care.

Education and Psychosomatic Medicine.—The growing interest in psychosomatic medicine (*q.v.*) led to an evaluation of the teaching of psychology, both normal and abnormal, to medical students and doctors. It was proposed that psychiatry should have as much time allotted to it in the curriculum of a medical school as the departments of anatomy and physiology, although many problems had to be met before such a change could be made. The curriculum, already heavily overloaded, might require a fifth or even a sixth year to give the students an adequate course of psychiatry on these basic principles.

Therapeutic Narcosis.—Sodium amytal narcosis, extensively developed during World War II, was the subject of continued research in civilian practice. Sleep-producing drugs had been known from ancient times, although their value for specific purposes other than sleep had not been fully recognized until the 20th century. Bromide sleep was developed in 1900 by Neil Macleod in the treatment of acute mania. Great impetus was given to this form of treatment by Wiliam J. Bleckwenn in 1930, when the use of sodium amytal was suggested. During World War II, R. R. Grinker and J. P. Spiegel, using sodium amytal, introduced the term narcosynthesis. The development of this method was natural in view of the dramatic loosening of inhibitions and the unveiling of painful repression frequently observed in certain stages of etherization, alcoholic intoxication and delirium. Emphasis was placed in 1947 on the development

of an artificial state of delirium by the use of sodium amytal administered intravenously. During this stage of toxic drug delirium the patients talked freely and often acted out some of their painful repressions. Most of the benefit followed the delirious abreaction, and less emphasis was placed upon narcoanalysis and narcosynthesis. Psychiatrists thought that the dissolution of the faulty personality behaviour and constructive recasting of the psychiatric problem probably occurred through improved physiological rest and a remobilization of thought processes during an irresponsible impersonal state of psychomotor activity which was temporarily out of volitional control, and was therefore always reintegrated at a more acceptable level.

Lobotomy.—Twelve years had elapsed since Egas Moniz carried out his history-making operation on the frontal association pathways of the human brain for the relief of certain intractable mental symptoms. He confined his efforts to operation on patients that were deemed irretrievable by conventional standards and developed the operation which was later called lobotomy. By 1947, thousands of lobotomies had been performed. Psychiatrists, however, were still unable to decide on the best method of operation or the most favourable type of patient. The criteria of selectivity were still only meagre and excessively weighted on the negative side. Operative techniques had not received sufficient critical evaluation in respect to operative topography, and the optimal value of the operation had not been reached in the absence of specific criteria of selection. The patients originally chosen by Moniz, of long-standing and hopeless outlook and refractory to every other method of treatment, were not now considered a most satisfactory type. The success of any procedure in psychiatry should be based on its application comparatively early in the course of the illness, and lobotomy was considered no exception. It was found that patients who were ill less than two years had a significantly more favourable outcome than did the older chronic cases. Mass lobotomy as a final refuge of a baffled psychiatrist was no longer recommended as a logical procedure. Positive criteria of selectivity and a more definite study of results on the basis of precisely what tracks had been severed in the brain, so that psychosurgery might become a valuable adjunct to psychiatric treatment, were the subject of research.

Writer's Cramp.—The nature of writer's cramp, often called scrivener's palsy or graphospasm, was studied in psychiatric patients. The importance of this subject lay in the fact that writer's cramp was included in England among the occupational disabilities under the Workmen's Compensation act. In the U.S. and France, where employers were not bound to pay compensation to workers suffering from this disability, its incidence was found to be negligible. Psychiatrists found after studying more than 1,800 patients that the condition occurred quite frequently in persons whose work did not involve much writing and came to the conclusion that instead of being an occupational disease, it was a symptom of a psychoneurosis. The cramp appeared in some patients even before they started to write, when they knew that their duties would involve a long period of such activity. It was found also that the condition was somewhat commoner in nonprofessional writers than in writers. The term writing disturbance rather than writer's cramp was preferred.

About 1 in 11 patients suffering from neuropsychiatric conditions showed some in-co-ordination of the muscles of the hand resulting in writing disturbances. These could be classified as tremulousness, spasticity or ataxia. All three forms occurred in psychoneurotic patients. Those showing the tremulous or wavy form of writing disturbance often suffered from an acute and severe anxiety neurosis based on severe stress, such as military action, unexpected or sudden awareness of marital infidelity, separation from the home and other causes of a similar nature. It was not uncommon to find a spattering of ink or perforation of paper as the nib of the pen caught in the paper.

The patients were treated successfully by continuous narcosis or by heavy sedation for a week or two. In some cases a modified insulin treatment was used. The spastic form (genuine writer's cramp) was characterized by tendency of the writing to become progressively smaller, but with the letters distinctly legible. All of the patients in whom the spastic form occurred were suffering from predominantly hysterical reaction, and they belonged to the shy, diffident type as opposed to the anxious, highstrung type of patient with tremulous disturbances. Most of the cramps were of long duration and treatment was not easy. Heavy sedation with or without insulin treatment sometimes was helpful.

The third group of patients in the psychiatric types showed ataxia or a jerky form of writing. There was irregularity in size and shape of letters as well as inequality of spacing between the lines. Persons in whom this form was seen were also suffering from predominantly hysterical reaction. They derived benefit from active exercise of the flexor muscles, since the condition was apparently caused by excessive contraction of the extensor muscles, the fingers being lifted too high. Organized physical training and games were helpful, but massage and exercises were not carried out in the physical therapy department, because such a procedure tended to fix the patient's attention on his disability. The physiogenic writing disturbances were those associated with structural disease such as chorea, disseminated sclerosis, paralysis agitans, parkinsonism, progressive muscular atrophy and various types of encephalitis.

Marshall Islanders.—A study of the way of life of the Marshall Islanders disclosed the absence of functional psychoses among them. Over a period of five years, when the Japanese had a careful system of medical recording, no affective psychoses were found, among the 10,000 natives. During the U.S. occupation, the islanders were neither aggressive nor competitive. They enjoyed the sensual side of life and despite average intelligence had little interest in intellectual pursuits. They took their simple pleasures one at a time and would eat their last handfuls of food without apprehension. This way of life gave rise to no conflicts, and the native found no need to run away from reality. Nudity had almost vanished and the natives had been given a sense of shame by the white man, but in the realm of instinctive behaviour the white man had been less successful. The natives did not recognize private property and land. Inheritance was matrilineal; under this system there was no illegitimacy and chastity was considered unimportant. The child was always welcome and never rejected and he approached adolescence in perfect freedom. Sexual matters were discussed freely and openly. This way of life led to an absence of functional psychoses, and observers were impressed by the lack of conflict and the need of escape from reality as causative factors in this state. (*See* also PHYSIOLOGY; PSYCHOLOGY; PSYCHOSOMATIC MEDICINE; PUBLIC HEALTH SERVICES.)

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Psychology.

Perhaps the greatest single contribution of the reorganized American Psychological association during 1947 was its development of official standards for professional competence in psychology. Authorized by action of

the A.P.A. in Sept. 1946, the American Board of Examiners in Professional Psychology under the chairmanship of Carlyle Jacobsen was fully constituted and began to process about 1,200 applications from psychologists seeking certification in clinical, industrial or personnel psychology. Certification by the American board in still other specialties was under consideration. The A.P.A. division of clinical and abnormal psychology took independent steps toward setting standards for certification in clinical psychology, as did certain states and state psychological organizations. Uniformity and integration of certification procedures were needed.

Another accomplishment of the reconstituted A.P.A. was its publishing activity. *The American Psychologist* had become the new official "professional journal" of the organization. About 10 other psychological journals and monographs continued to be published by the A.P.A., of which a total of 25,000 vol. went to members and other subscribers in 1946; in 1947, 37,000 vol. were distributed.

Reference should also be made to the way in which the new A.P.A., through its central office in Washington, D.C., aided both the public and the profession as an official bureau of information and as a professional placement service. Because of the growing leadership of the A.P.A. in the first of these functions, congress, governmental agencies, industries and private citizens turned increasingly to the Washington office for advice concerning a host of matters in the field of psychology. Started during World War II as the Office of Psychological Personnel, the placement service of the A.P.A. was instrumental in providing assistance to many universities, governmental and military organizations, industries and private agencies of various kinds in connection with their personnel needs. Typical of the new positions of authority for psychologists was the chairmanship of the Committee of Human Resources, established by the Research and Development board in its program of co-ordinating research for the U.S. army, navy and air forces.

Many psychologists had emerged from their war work with an acute desire to learn what their colleagues had been thinking and doing for the past four years. Regular meetings of both regional and national societies had been curtailed for the duration of the emergency, with the result that the first postwar meetings were heavily and enthusiastically attended. In addition, symposia of various kinds were organized and conducted under a variety of auspices. Those sponsored by the department of psychology at Indiana university, Bloomington, Ind., and by the department of psychology at the University of Pittsburgh were typical. The latter resulted in a book, *Current Trends in Psychology,* which gave an excellent over-all picture of the directions in which various fields of psychology were moving. Symptomatic of the extent to which psychology had passed into new hands was the fact that all of the contributors to the University of Pittsburgh symposium were much less than 50 years of age.

Considerable professional interest and research in 1947 was centred on clinical psychology and its problems. The need for improved techniques of evaluating and validating the results of psychotherapy was stressed, as was the need for a theory of personality and a rational of therapy founded solidly upon the psychology of learning.

Precise measurement and statistical interpretation of the results of psychotherapy might, ultimately, do much to take the guesswork out of clinical psychology. In 1947, however, few inspirations seemed forthcoming. It was conjectured, tentatively, that at least one source of advance would come from the new tendency to speak of statistical error "of the first order" and "of

ONE-WAY OBSERVATION DOME in the Child Development clinic headed by Dr. Arnold Gesell (centre) at Yale university. Cameraman outside the dome (left) is shown recording a child's behaviour, in 1947, for later study



the second order"; *i.e.*, of the error, or danger, not only of accepting as valid a hypothesis which is factually wrong, but also of rejecting as invalid a hypothesis which is factually right. Psychologists might, in any event, expect to hear more about this distinction in the future.

A number of learning theorists were concentrating upon the two important areas of "secondary reinforcement" and language.

For a long time psychologists interested in problem-solving, or trial-and-error, learning used primary drives, such as thirst, hunger, heat, cold, etc., to the exclusion of other types of problems. And those psychologists interested in associative learning, or conditioning, mistakenly conceived of conditioned responses as including, not only emotional, or physiological, reactions, but any type of overt behaviour which occurred following the presentation of a signal or so-called conditioned stimulus. It now appeared that conditioned responses, strictly speaking, are exclusively emotions—appetites, fears, etc.—and that the overt behaviour instigated by these secondary drives follows the familiar principles of problem-solving.

Thus, it emerged that there are three levels of learning: trial-and-error learning whereby the solutions to primary drives, or problems, are acquired; emotional conditioning, whereby the secondary, or acquired, drives come into existence and trial-and-error learning whereby the organism acquires solutions to these acquired, or emotional, problems. But fundamentally there appeared to be only two basic learning processes: trial-and-error learning (involving both primary and secondary drives) and conditioning.

In 1947 a remarkably large number of studies concerned the selective acquisition of behaviour on the basis of the lessening or elimination of emotional tensions which it affords. This work on the reinforcement, or learning, of specific overt responses through the resulting reduction of secondary drives (hence, the expression "secondary reinforcement") did much to bring scientific learning theory into contact with clinical psychology. It is in the latter area that one is predominantly concerned with the habits which human beings have acquired because they resolve emotional problems, however unrealistically.

No adequate understanding of the functioning and acquisition of language is possible, in terms of learning theory, until secondary reinforcement has been carefully investigated. The number of books and technical articles which had begun to appear on the topic of language suggested that psychologists had mastered at least the rudimentary principles of the problem.

As psychologists' interest in learning advanced and broadened and as psychotherapy became a growing part of their concern, attention was focused with renewed emphasis upon what may be rather loosely referred to as man's moral problems. As long as a psychologist restricted himself to laboratory studies of the sensory processes or of reflexes, he might, with some justice, insist that he was not interested in values, ethics, "shoulds" and "should-nots." But as soon as he begins to listen clinically to psychoneurotics, he is confronted by an imposing array of moral issues which he cannot, without an admission of grave professional incompetence, possibly sidestep. The upshot of this situation was that psychologists began to examine such concepts as responsibility, choice, guilt, blame, freedom and will in a way they had not done since psychology began to split off from philosophy more than half a century before—to be more precise, in a way they had never done, for they were now returning to old problems with many new insights and scientific facts which neither they nor the philosophers formerly possessed.

A notable investigation of 1947 was the work of Alfred S. Kinsey on human male sexual behaviour. Although representing a culmination of the labours of many specialists extending over a number of years, it was in 1947 that this research had its first powerful impact upon the public. Kinsey's *Sexual Behavior in the Human Male*, based upon data obtained from more than 12,000 personal interviews, was published, with the comment by the *New York Times* that "after decades of hush-hush, this book is sure to cause an explosion." (*The New York Times*, Jan. 4, 1948.) (*See* also PHYSIOLOGY; PSYCHOSOMATIC MEDICINE.)

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(O. H. MR.)

Psychosomatic Medicine.

Psychosomatic (*psyche:* spirit and *soma:* body) was a new term in 1947, but it described an approach to medicine as old as the art of healing itself. It is not a specialty but rather a method of diagnosis and treatment which applies to all aspects of medicine and surgery. It does not mean to study the *soma* less; it only means to study the *psyche* more. Its subject matter—which aims to discover more precisely the nature of emotional-bodily relationships—is founded on the important advances in physical medicine as well as on the discoveries of psychoanalysis. The latter science bears the same relationship to mental functioning that the microscope does to the physical structure of the body.

Psychosomatic concepts received a great deal of attention as a result of the medical experiences of World War II. The large number of psychoneurotic individuals discovered in the selective service process and the disabilities caused by emotional factors in military training and combat impressed every physician. Indeed, it might well be said that World War I established psychiatry on a firm scientific basis and World War II saw its more complete integration into general medicine.

William C. Menninger, director of the neuropsychiatry consultants division in the surgeon general's office during World War II, reported in 1947 on the high incidence of emotional factors among the heart and gastrointestinal cases in military hospitals. Approaching the problem from another angle—the incidence of physical complaints in psychoneurotic disorders—he quoted Dr. N. Q. Brill, who found 29% psychogenic gastrointestinal reactions; 14% cardiovascular reactions; and 9% rheumatic reactions among 585 unselected cases of psychoneurosis seen in army general hospitals. Civilian medicine also found that the gastrointestinal tract shows the highest incidence of bodily reactions to emotional tension. Why this is so becomes apparent when we consider that the infant's first contact with the world is through the mouth, so that the processes of feeding and feeling must relate themselves to one another. Therefore, upon the love and security or anxiety and insecurity which become associated with the nursing process will depend many of the psychosomatic relationships of adult life, called forth by events which awaken old associations.

Menninger paid special attention to four groups of disorders, representing different bodily systems, which reflect the emotional maladjustment of the individual—cardiovascular; gastrointestinal; individuals with various aches and pains, frequently referred to as rheumatic; and the allergies.

Another problem frequently encountered in military medicine was low-back pain. It is also a common cause for disability in civil practice. B. B. Stimson, working with a group of specialists interested in this problem, showed that in addition to a variety of physical factors that may be responsible, emotional problems are also concerned in this form of disability. A considerable number of patients present no evidence of organic findings in the general physical examination and in addition the X-rays are essentially negative. These are the patients who present a very

great problem but with the help of the physician, the psychiatrist and the physical medicine expert, most people can be helped. A large number of the patients with psychoneurosis who had low-back complaints were ex-servicemen.

E. Weiss studied 40 patients with so-called psychogenic rheumatism encountered in a larger study of 200 patients with chronic fatigue. He observed that this group of patients complain of aches and pains in the muscles and joints, in addition to chronic fatigue, and often have slight elevation of temperature. If too much attention is focused on this slight fever, which is insignificant, and the patient undergoes a great deal of medical investigation, invalidism is exaggerated. Psychosomatic study showed that these patients had significant emotional conflicts and that marital maladjustment was a frequent underlying problem. Chronic resentment, of which the patient was usually totally unaware, produced a state of tension which reflected itself in the musculo-skeletal system, causing so-called muscular rheumatism.

Impressed by psychologic factors in allergic disorders, J. H. Mitchell and his associates studied 600 consecutive cases of the common allergic disorders seen in private practice and commented that those who failed to give skin reactions in being tested allergically are also the ones who present multiple complaints (in addition to the allergic symptoms), whereas the patients with positive skin reactions to allergic substances ordinarily do not have such a variety of complaints and respond more readily to treatment. Upon analysis the negative skin reaction and multiple complaint group show definite evidence of psychologic maladjustment. (*See* also PUBLIC HEALTH SERVICES.)

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Public Assistance: *see* CHILD WELFARE; RELIEF; SOCIAL SECURITY.

Public Buildings Administration: *see* FEDERAL WORKS AGENCY.

Public Health Engineering.

Water Supply.—Developments in public health engineering during 1947 were characterized by a number of undertakings of unprecedented size. The water filtration plant in Chicago completed one year of operation. The plant, with a capacity of 320,000,000 gal. per day, remained the largest plant in the world; it served 1,350,000 people.

Philadelphia authorized the construction of an ozonation plant for the purification of 36,000,000 gal. a day. In terms of daily ozone generating capacity (1,250 lb.) this plant would be the largest in the world.

In Egypt about 23,000 cases and 11,000 deaths from the cholera epidemic of 1947 were dramatic reminders of the results of failure to provide for masses of population the elements of a safe water supply and of a sound disposal of human excreta. It was one of the heaviest onslaughts of a disease caused by defective sanitation that the modern world had seen.

The United States public health service released a compilation of disease outbreaks caused by impure water in the eight years from 1938 to 1946, inclusive. More than 114,000 cases and at least 84 deaths were attributed to water-borne causes. Surface pollution of shallow wells retained its primacy as the cause of the greatest number of these outbreaks. On the basis of the total number of cases, however, surface pollution of wells was eclipsed by cross connections and other defects in the distribution system, failures in water purification processes and the use of untreated polluted water.

The application of fluorine to public water supplies was extended during 1947. The addition of this chemical for the prevention of dental caries, particularly in children, was practised in Brantford, Ont.; Evanston, Ill.; Grand Rapids, Mich.; Midland, Mich.; Newburgh, N.Y.; Sheboygan, Wis.; Marshall, Tex., and Ottawa, Kan. All of these operations were in the nature of controlled experimentation. The findings on procedures and their effects upon the exposed populations would not be completely assayed by observers for at least five years.

At Miami, Fla., one of the largest lime-recovery plants was being developed for the salvaging of lime used in the softening of its water supply.

Interest in the corrosion of pipe and other facilities used in the water works industry was renewed because of an investment of more than $5,000,000,000 in this industry. More than $500,000,000 were being collected annually for this service. Since more than 24,000,000 tons of cast iron pipe, valves, hydrants and fittings had been installed by 1940 in the United States alone, this mass of cast iron was being given detailed review. It was estimated that more than $40,000,000 per year might be charged against corrosion of water mains in the United States.

On Nov. 7, the Metropolitan Water board's new reservoir at Staines, Middlesex, England, was inaugurated. This would contain 4,466,000,000 gal., its length being 2,037 yd. and its maximum width 962 yd., the total area being approximately equal to that of Hyde park. Begun in 1937, work had been interrupted by World War II.

New British water supply schemes included that of the Metropolitan Water board for construction of works and purification plant at Ashford common, Middlesex, at a cost of £4,290,000. Cumberland county council planned new water supplies from Calderhead to serve Maryport, Penrith, Wigton and Cockermouth (£1,700,000). Negotiations were instituted by the Orkney county council for the purchase of water installations built by the admiralty, as part of its £1,000,000 scheme to provide water in the islands.

Sewage.—The outbreak of poliomyelitis in England focused attention again on the significance of human sewage in relation to this disease. Since this was one of the most intense outbreaks of the disease in England in 25 years, it afforded an opportunity to test a number of virus considerations. The virus was demonstrable and persisted in the stools of half the patients for two to four weeks after the onset.

In the United States, the severe epidemic of poliomyelitis in Wilmington, Del., apparently was not materially curtailed by widespread DDT dusting for the control of flies. The relationship of the epidemic to sewerage and sewage disposal remained indefinite and inconclusive. (*See* INFANTILE PARALYSIS.)

In this period of high demand for fertilizer materials, interest in both garbage and sewage sludge as sources of fertilizer was intensified. Experimental work proceeded with unusual speed in England, in the United States, in Africa and in China. The significance of trace elements in such materials was still to be evaluated on detailed country-wide sampling.

In Scotland, Glasgow corporation put forward a sewerage scheme costing £1,736,000. Other important British projects included: the Birmingham Tame and Rea District Drainage board undertaking to improve the river Tame before it reached Birmingham. It was proposed to concentrate sewage disposal from the "Black" country to a new works at West Bromwich at a cost of £4,000,000. Among others, Nottingham corporation had a sewage disposal scheme at Stoke farm, the estimated cost being £1,170,000.

Modern sewerage installations were gradually making their

way into remote areas of the world. The installation in Chungking, China, of a sewerage system was accomplished on the argument that the savings in coffins would pay for this sanitation improvement in 19 years. The lack of sewers was estimated to be responsible for about one-fifth of the deaths in that city, where an annual death rate of 30 per thousand prevailed.

Food.—Milk and dairy products continued to receive detailed study. The effects on the nutritive values of such dairy products by engineering techniques were evaluated. No generalization on the all-round stability of the nutrients was possible. Riboflavin, for example, is remarkably stable, except when it is acted on by light and this effect is accelerated by heat. Ordinary processing and handling of the products, however, have virtually no effects on certain of the other nutrients.

The control of shellfish and shellfish waters was reviewed in the search for more efficient indicators of pollution and biological purification.

Air.—Radioactive substances created challenges in industrial hygiene and atmospheric pollution. The nuclear fission pile had become a radiating source for large amounts of potentially dangerous radiant energy. The preparation, transportation and use of many isotopes, formed as by-products of the pile, gave rise to a new set of control problems in the engineering field. Neither the nature of these effects nor the details of their control were satisfactory.

Studies of the use of glycols in air disinfection demonstrated that this method had far more complexities than was originally supposed. Size of droplets and the humidity of the air in which these were dispersed had important effects.

Unusual problems of atmospheric pollution were exemplified by the finding in Baltimore, Md., of lead poisoning in attendants working in shooting galleries. The spattering of bullets increased the lead content of the air sufficiently to cause lead poisoning in those exposed during working hours. Customers operating for only short intervals of time were not affected.

Insects and Rodents.—Field operations continued on the use of Antu and 1080 for rodent destruction. The experience was already sufficient to demonstrate that chemical destruction alone would not solve the problem. Structural building out of rodents and more careful protection of food in storage remained essential prerequisites to lower rodent populations.

A rare skin disease reported in Baltimore was diagnosed as "grain itch." Of 27 broommakers in a 60-year-old factory, 12 had the disease, caused by a mite infesting the straw from which the brooms were manufactured. (*See* also EPIDEMICS; PUBLIC HEALTH SERVICES.) (AB. W.; X.)

Public Health Services.

Cancer.—Great assistance was given to the U.S. cancer control program by increased funds made available by the federal government through the Public Health Service act of July 1944. The act authorized the surgeon general of the U.S. public health service, through the National Cancer institute and in co-operation with the National Advisory Cancer council, to conduct and assist research and investigations relating to the cause, prevention and methods of diagnosis and treatment of cancer, to provide training and instruction in technical matters relating to diagnosis and treatment of the disease, award fellowships in the institute, co-operate with state health agencies and procure, use and lend radium. As the result of this act, cancer research and cancer control were greatly stimulated.

More cancer detection centres and tumour clinics were established in 1947, and undergraduate and postgraduate professional education was strengthened. Provisions were made for increased facilities in hospital diagnosis and treatment of patients. (*See* also CANCER.)

Tuberculosis.—Several notable advances were made in the knowledge and techniques necessary for effective control of tuberculosis. Increased case findings by means of the newly developed photofluorograph machine, wherein chests of as many as 1,000 persons a day could be examined through one machine, gave a tremendous impetus to mass radiography.

Mass X-ray examination of large population groups repeated periodically had proved to be a sound public health method of discovering tuberculosis. Under this method, new and hidden cases of tuberculosis were discovered constantly, and the necessary public health control measures were applied.

Drugs in the prevention and treatment of tuberculosis, BCG (Bacillus-Calmette Guérin) vaccine and streptomycin, were studied further during 1947. M. I. Levine stated that in spite of the fact that results with the use of BCG vaccine had been scientifically inconclusive, the consistency of favourable reports seemed to indicate that the vaccine has a certain degree of efficacy and that its use is safe. The continuance of BCG vaccine research, however, was essential before it could be fully accepted as a public health measure.

Streptomycin, an antibiotic isolated from certain species of soil, had become the drug of promise in laboratory and animal trials. Although no extensive control experiments had been performed, preliminary results with streptomycin gave hope of suppressive action even in tuberculosis meningitis and miliary tuberculosis. (*See* also TUBERCULOSIS.)

Mental Hygiene.—The concept of mental illness as a public health problem, while not new, had been rather slow in gaining general acceptance, since people had been inclined to think of mental disorders as phenomena peculiar to isolated individuals. However, the prevalence of mental illness and its costliness qualified it as a public health problem, necessitating public responsibility for its prevention and reduction.

Under the National Mental Health act, the U.S. public health service was authorized to make grants-in-aid for research directly to universities, hospitals, laboratories and other public and private institutions and to qualified individuals. The act also authorized establishment of a National Institute of Mental Health in the Washington area, where co-ordinated studies would be conducted in the many sciences which bear upon the problem of mental health.

In 1947, congress appropriated $3,000,000 to be allocated through the states for the appraisal and study of the states' mental health needs and as resources for the establishment and expansion of community clinics and for training programs for physicians, nurses, social workers and educators. (*See* also PSYCHIATRY; PSYCHOSOMATIC MEDICINE.)

Infectious Diarrhoea of the Newborn.—The control of infectious diarrhoea among the newborn, as established in the Chicago health department, was accepted as a standard public health measure and used as a pattern by hospitals and health organizations throughout the world. Cases among infants continued to be controlled by the more efficient and wider application of the following public health measures: prevention of overcrowding in nurseries; adequate nursing personnel; proper technique in the care and feeding of babies; individual clothing, linen and utensils for each infant; immediate isolation of infants suspected of having any infectious disease; separate nursing personnel and facilities for such isolated infants.

Care of Premature Infants.—New techniques and standards in the care of premature infants had done much to reduce the death rate. Among these techniques were the following: reporting of all premature infants within an hour after birth; provision of especially trained personnel; assignment of specially trained graduate, registered nurses to the cases in every hospital nursery; equipment of every nursery for temporary care; estab-

lishment of breast milk stations; establishment of stations to administer scientific care; provision of ambulances with specially trained nurses and equipped with incubators and oxygen, available 24 hours per day for the immediate transportation of premature babies born either at home or in hospitals.

Venereal Disease.—Case-finding techniques were intensified to reach the undiscovered thousands who had become infected but were not receiving treatment—an estimated 155,000 persons with infectious syphilis and 825,000 with gonorrhoea. (*See* also VENEREAL DISEASES.)

Other Health Programs.—There were reports during 1947 that the use of influenza A and B vaccine had been of some prophylactic value in studies among controlled population groups.

Reports also indicated a slight increase in the incidence of diphtheria, and increased fatality rates in the over-30 age groups. Whether this was due to loss of immunity or to introduction of the more virulent strain of diphtheria bacillus, or whether new subtypes of the diphtheria bacilli were not covered by the available antitoxin, was difficult to determine. However, renewed and vigourous efforts to inoculate children against diphtheria had become of extreme importance.

Epidemiological studies were made during 1947 to discover the manner of spread of poliomyelitis. A study by F. B. Gordon, F. M. Schabel, Jr., A. E. Casey, W. I. Fishbein, H. N. Bundesen and Margaret Abendroth showed that poliomyelitis is spread in contact infection, by means of the poliomyelitis virus present in the throat and mouth. (*See* also EPIDEMICS; FEDERAL SECURITY AGENCY.)

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Great Britain.—The latest vital statistics published for England and Wales in 1947 concerned the previous year. The number of births was 820,000 (680,000 in 1945), and the number of deaths, 492,090 (488,108 in 1945). The infant mortality rate was 43.0 per 1,000 related live births, a rate well below that of any preceding year. The fall in the maternal mortality rate continued and reached the low level of 1.43 per 1,000 total births (1.80 in 1945). Deaths from all forms of tuberculosis were 22,847 (23,955 in 1945); the decline in mortality from this disease continued. The number of notified cases of diphtheria was 11,896 and of deaths 472 (18,596 cases with 722 deaths in 1945); the death rate under 15 years of age was 4.0 per 100,000 (6.7 in 1945 and 28 in 1941): these favourable results were attributed to mass immunization of children. Scotland, with an estimated population of nearly 5,000,000 (Dec. 1945), also showed signs of improving health. Rates for still births, maternal mortality and infant mortality in 1946 were the lowest ever recorded, and deaths from tuberculosis were fewer than those of 1945.

The chief epidemic of 1947 was that of acute poliomyelitis. It was widespread throughout Great Britain, and the prevalence reached the highest figure ever recorded there. Bulbar and respiratory paralysis and meningeal reactions preceding paralysis were more common than usual. The ministry of health issued a special memorandum on the subject, arranged for special pathological investigations and sponsored a short film on early diagnosis to be shown to doctors; London teaching hospitals set up special treatment units for patients in the acute stage.

There was little public health legislation in Great Britain during the year; the Penicillin act and regulations of the ministry of health concerning streptomycin were framed for the proper control and use of these therapeutic agents. Substantial progress was made toward providing the nation for the first time with a comprehensive health service. After the passing of the National Health Service act in Nov. 1946, the ministry of health began to set up the necessary advisory and administrative machinery and make plans for the services required. The service was to begin on July 5, 1948.

Europe.—Diphtheria was prevalent on the continent of Europe, but the freedom from severe epidemics generally was remarkable. A discussion at the Royal Society of Medicine in May 1947 gave accurate information concerning the successful methods taken to control epidemic disease, especially typhus, and to provide a medical service in the British zone in Germany. In Greece aircraft were used to spray Athens with DDT as a precaution against the spread of the autumn cholera epidemic from Egypt.

Egypt.—An outbreak of cholera in the provinces in autumn became a serious epidemic. The Egyptian government requested the U.S. and British governments for supplies of anticholera serum; the country was declared an infested area, and neighbouring countries took strong measures to prevent spread of the disease. By the end of October the daily death rate was about 400, but by November, in the seventh week of the epidemic, it was waning. (A. S. MY.; X.)

Public Housing Administration: *see* HOUSING.
Public Housing Authority, Federal: *see* HOUSING.
Public Libraries: *see* AMERICAN LIBRARY ASSOCIATION; LIBRARIES.

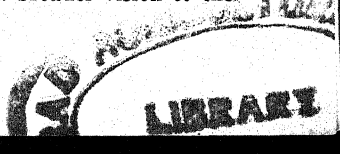
Public Opinion Surveys.

The year 1947 was one in which public opinion survey work broadened to the point at which more than half of the earth's population was brought within the range of some well-established survey organization, and in which surveying was given depth and variety through the efforts of a far larger number of social scientists than had ever before attended to it seriously.

National Polls.—In Japan public opinion surveying received acknowledgment as a tool of government. A section on public opinion research was attached to the cabinet and approximately 60 surveying organizations were reported to be active. These groups ranged from one-man enterprises making their first survey to large organizations that had completed more than 25 national samples in a little more than a year of existence. All kinds of political, economic and social questions were covered, providing an unusual picture of a people in transition and under great stresses.

Many of the other national polls were also being used to reveal the structure of habitual social thinking as well as to define opinions on current news events. In Switzerland, where the wide variations in language from valley to valley present a special polling problem that had been laboriously met, opinion surveyors clearly established the political status of women. About 90% of the people thought women should vote for town officials, about 60% thought they should vote for cantonal officials, but only 20% wanted women to vote for federal officials. Twice as many Swiss wanted women to vote as wanted women to hold political office.

Most of the newer national polling agencies throughout the world engaged in market research as well as in opinion surveying and also made special economic and statistical reports from government and private data. While these activities are often forced by the need to offer a sufficient range of service to support a full-time staff, they tend to give a broader vision to the agencies so operating.



Professional Groups.—The year was marked by high activity in professional organization. In January representatives of European polling agencies met for three days in Paris and formed an International Commission on Public Opinion. In May, chiefs of the ten national institutes affiliated with the American Institute of Public Opinion (Gallup polls) met for a week at Loxwood Hall, Sussex, England, formed their own international association, and agreed to conduct a number of simultaneous polls on the same international topics. In September at a general international conference on public opinion held at Williamstown, Mass., a World Congress on Public Opinion Research was set up under a provisional constitution. At the same time an American Association for Public Opinion Research was formed to develop standards and to extend the methods and scope of the field.

Sponsorship.—The National Opinion Research Center moved from Denver, Colo., to Chicago, Ill., leaving behind it an affiliated centre devoted principally to regional study. The National Center became affiliated with the University of Chicago.

The reliance of public opinion research on journalistic and business corporation sponsorship remained a characteristic of the field. Henry Ford II announced the completion of an employee attitude study conducted by Elmo Roper and reaching results often unflattering to the management. Policy changes were made accordingly. There was, however, a notable increase in the sponsorship offered by governments and universities. Prominent among governmental sponsors were officials in Japan, Czechoslovakia, Hungary, Switzerland and the U.S. military government in Germany. Work at established university centres of public opinion research, such as Harvard, Princeton, Michigan, Chicago and Minnesota was expanded, and co-operative programs were launched in collaboration with the Social Science Research council.

Williams college, Williamstown, Mass., offered an interesting example of the building of public opinion study into the general education program of a small college. There a faculty member versed in the subject was appointed to bring his knowledge and library resources to bear on appropriate problems offered in the teaching of political science, history, economics, anthropology and other divisions of the social sciences. He was not held responsible for a separate public opinion teaching and research program, but rather was called upon to integrate the new methods into the older disciplines.

Publications.—Opinion survey organizations became so numerous and so widely scattered around the world that during the course of the year several lists and directories of them were issued or in process of compilation. One list was compiled by the American Marketing association. Another was contained in the mimeographed invitation and attendance lists of the Williamstown conference.

The Institute for Studies in Public Opinion and Attitudes of Mexico City announced a directory containing data on 400 specialists in the field, including accounts of surveys recently completed.

Opinion News, published by the National Opinion Research Center, was put on a regular twice monthly schedule and expanded to include current news of the opinion research field and to publish findings of the major surveying agencies. *International Journal of Opinion and Attitude Research* began quarterly publication at Mexico City under the auspices of the Institute for Studies in Public Opinion and Attitudes. It carried articles on surveying problems by authorities drawn from many parts of the world, but written in English. References to survey work and extended discussions of it became during the year an accepted commonplace in magazine articles and books on public affairs. (R. WD.)

Public Roads Administration: *see* FEDERAL WORKS AGENCY; ROADS AND HIGHWAYS.

Public Utilities. During the early months of 1947 public utilities continued to be subject to pressure from commissions and consumers for rate reductions. As increases in wages and materials cut down the margins of net income available for rate reductions, however, the trend of commission activity was toward approval of rate increases, particularly in the telephone and local transport industries.

These readjustments in rates renewed interest in the basis used by state and federal commissions to determine increases or decreases in rates. It should be recalled that the judicial formula dating from the *Smyth* v. *Ames* case of 1898, requiring commissions to make findings of a fair return upon a fair value, was substantially relaxed by the U.S. supreme court in 1942 in the Natural Gas Pipeline Co. case. The complete rejection of the fair value rule in the Hope case of 1944 and in the Panhandle case of 1945 was accompanied by a sanctioning of the use of the net investment rate base by the Federal Power commission. As the law stood during 1947, it was no longer a concern of the courts whether rates were based upon investment or reproduction cost. Administrative agencies had acquired a new freedom to use their discretion, so long as they acted upon "substantial evidence" and the "end result" of their rate-making was not confiscatory.

Legislation.—The year was not especially productive of legislation concerning public utilities except in their labour relations. The Gwynne act imposed a federal statute of limitations of two years on back claims for damages against employers arising out of violations of the Fair Labor Standards act, and also outlawed all claims to portal-to-portal pay except under circumstances where such payments were customary or where employers could not show good faith. The Grant act merely extended excise levies on telephone, telegraph and electric-lighting service and on passenger fares, leaving the question of their ultimate disposal to a future congress.

The most controversial legislation, passed over a presidential veto, was the Taft-Hartley act. This act together with state legislation of similar import came in large part as a legislative response to prolonged strikes of the employees of public utilities, notably the telephone strikes and the prolonged walkout of electrical workers at Pittsburgh, Pa.

Although there were variations from state to state, the laws generally were designed to prevent strikes against public utilities. Their rigour varied from a mild statute to prevent violence and sabotage by pickets as in Texas to full-fledged compulsory arbitration as in Missouri. Ten states (Florida, Indiana, Michigan, Missouri, Nebraska, New Jersey, Pennsylvania, Texas, Virginia and Wisconsin) restricted strikes against public utilities. The severest restraints, after a preliminary trial and failure of mediation, provided for seizure and operation of properties by the governor, with prohibition of strikes during state control under penalty of loss of seniority and other employment rights by strikers, and fines assessed against labour unions and their officials. Disputes were to be settled by arbitration findings made by a special board. Lockouts by management were similarly prohibited.

At least 12 states (Arkansas, Arizona, Delaware, Florida, Georgia, Iowa, Nebraska, North Carolina, South Dakota, Tennessee, Texas and Virginia) took the further step of prohibiting both the closed shop and union shop. The Taft-Hartley law, while outlawing closed shops, authorized union shops if voted by a majority of employees. It categorically forbade boycotts, jurisdictional strikes and strikes against the government. Besides forbidding a number of labour practices and other union

objectives relating to the employment relation generally, the Taft-Hartley act was particularly important to public utility industries in its prohibition of strikes affecting national health and safety. Strikes on railroads did not come under Taft-Hartley provisions, but practically all other public utility strikes might be thus controlled if the president deemed that national interests were imperilled.

Federal Projects.—The changed political complexion of congress had an effect upon appropriations for the further development of federal-power projects. In the interests of economy, the requests of the bureau of reclamation, the Bonneville Power administration, the Southwestern Power administration, the Power division and the Oil and Gas division in the department of the interior were cut from $170,729,000 to $98,574,438. A marked objective of the congressional economy was transmission lines. The Tennessee Valley authority was cut from $47,000,000 requested to $18,700,000 appropriated. Rural Electrification administration funds for lending operations were cut from $250,000,000 to $225,000,000. The army engineers were given $231,800,825 for flood-control projects which included power. TVA was required to repay about $350,000,000 of its power investment within 40 yr.

General Operations.—Despite evidences of a slowing up in federal promotion of the publicly owned segment of the electric-power industry, electricity production and sale was carried to the highest performance records in its history. Generating capacity was in excess of 51,600,000 kw. with the relative proportions of water-power and fuel-using plants remaining about the same. Energy output increased to more than 255,000,000,000 kw.hr. with sales and number of customers showing corresponding increases.

A significant increase was shown in the expansion of the U.S. telephone plant. Slowed up by the war emergency the growth in telephones in service was from 21,600,000 in Dec. 1944 to 27,580,000 by Oct. 1947 for the Bell system alone. This represented about 80% of the total for the whole country. Unfilled orders for telephones, however, continued large in number (1,900,000 in Sept. 1947) because of the unavailability of switchboard capacity and outside plant in certain localities. Elsewhere, in local transit service and in the expansion of natural-gas service, although some of the arrearages caused by World War II were being made up, much work remained to be done at the close of 1947. Natural-gas transmission lines to the Pacific coast and into the middle western markets were the most immediate needs. (*See* also TENNESSEE VALLEY AUTHORITY.)

(M. G. G.)

Canada.—For a time during 1947 there was a threatened rationing of consumer gas in southern Ontario. At the end of July the Prince Edward Island government placed all petroleum used for heating and fuel in the public utility category because acute shortages were anticipated.

In New Brunswick the provincial government passed special legislation to control striking coal mines which supplied fuel for power generation. The N.B. Electric Power commission expropriated the generating and distributing facilities of the N.B. Power Co., including water-power rights on company-controlled rivers. In Quebec, controversy continued over the expropriation of three private companies by the Quebec Hydro commission. A financial settlement was still uncompleted by the end of the year.

Construction of additional commission power plants went forward in several parts of the province. In Ontario 7 large hydroelectric commission developments were under construction, and 900,000 h.p. of new electric energy was in prospect. The plant at Decew Falls in southern Ontario came into operation, producing 70,000 h.p.

On June 1, 1947, the Saskatchewan government set up a new crown corporation, the Saskatchewan Government Telephones. The former department of telephones retained only its regulatory functions.

The Canadian National railways remained the biggest public utility in Canada. During 1947 its gross revenue was $436,883,000, largest in its history, but increased operating costs left the railways with less net revenue than in 1946. (C. CY.)

Great Britain.—Shortage of coal and the severe winter of 1946–47 affected gas and electricity supplies. Beginning Feb. 10, electricity supplies to industrial consumers in most parts of Great Britain were cut off, and domestic supplies were cut from 9-12 A.M. and from 2-4 P.M.; consumption of electricity was made an offense under Defense regulation 55. Most of these restrictions ended by the first week in March. During the same period coal stocks for the gas industry had fallen to less than two weeks' supply in hand and gas pressure to consumers was sometimes reduced, although supplies were not cut off. On April 24 the minister of fuel and power announced that as from May 5 no heating would be allowed in industrial and commercial premises until the end of October, and no gas or electric heating in homes until the end of September.

Active steps were taken to increase the supply of electricity, and to provide for the construction of 18 new power stations by the winter of 1950. Important projects included the new Bankside power station, London, and the £3,150,000 Glen Shira scheme in Argyllshire, Scot.

Domestic water supplies in many parts of Great Britain were affected by dry weather continuing into the autumn. Towns relying on catchment areas were the most acutely threatened, and engineers stated that at least 20 in. of rain were needed before normal supplies would be available in several parts of the north, reserves at Manchester being particularly low. The possibility of water rationing was seriously considered by the authorities.

Europe.—Other countries with new electricity schemes included the River Erne project in Eire, estimated to increase the output of the Electricity Supply board by 50%; Portugal and Switzerland, where important developments of hydroelectric power were made. There, however, as in Norway, shortages were caused by the exceptionally dry summer. In the U.S.S.R., a network of power stations was expected to supply Moscow with twice as much electricity as in 1940. This would be augmented by hydroelectric stations being constructed on the Moscow-Volga canal and elsewhere. At the end of five years the output of the Urals' power station would be five times that of all electrical stations in prerevolutionary Russia. (*See* also DAMS; ELECTRICAL INDUSTRIES; LAW; RAILROADS; RURAL ELECTRIFICATION; TELEGRAPHY; TELEPHONE.) (J. LN.)

Publishing (Book): *see* BOOK PUBLISHING.

Puerto Rico. A U.S. insular dependency in the West Indies; area 3,435 sq.mi.; pop., 1947 est. 2,113,058 (1940 census: 1,869,255). According to 1947 population estimates, whites comprised 77.1% of the total population, Negroes 22.9%; rural population was 64.1% of the total, urban population, 35.9%. Chief cities (with 1947 urban population estimates): San Juan, the capital (222,839); Ponce (72,402); Mayagüez (59,527); Arecibo (35,187); Caguas (27,352); Río Piedras (25,092). Languages: Spanish and English; religion: predominantly Roman Catholic.

History.—The most important development in the history of Puerto Rico during 1947 was brought about by public law 362 of the 80th congress of the U.S. (H.R. 3309), signed by President Truman on Aug. 5, 1947. This law amended the Organic act of Puerto Rico to provide: (1) that the governor of Puerto

Rico shall be elected by qualified voters of Puerto Rico every four years, beginning in Nov. 1948; (2) that the governor shall appoint the heads of the executive departments, with the advice and consent of the senate of Puerto Rico; (3) that there shall be a co-ordinator of federal agencies in Puerto Rico, appointed by the president, by and with the advice and consent of the senate of the U.S. Formerly, the governor, the commissioner of education, the attorney-general, the auditor and the justices of the supreme court had been appointed by the president. Under the above amendments only the auditor and the justices of the supreme court were to be appointed by the president.

Education.—A total of 406,588 pupils were enrolled during the 1947 school year in the public and private schools. Private schools had a total enrolment of 19,201 pupils. In the public schools the enrolment, a total of 387,387 pupils, was distributed as follows: 283,570 in public elementary day schools, 83,361 in public secondary day schools, 1,780 in vocational part-time and full-time schools, 14,498 in evening schools, and 4,178 in special groups for veterans. In the public schools the number of teachers, principals, assistant principals and assistant superintendents was 9,217. Private schools employed a total of 813 teachers. A total of $22,832,277 was spent for educational purposes at the elementary and secondary level. Of this total, $13,499,072 was spent from government funds and $1,136,743 by private schools from private sources.

Communications.—During the fiscal year 1946–47 a total of 42,367 motor vehicles were registered of which 23,847 were automobiles, excluding government-owned automobiles, 9,395 were heavy trucks, 6,233 were light trucks and 2,892 were other vehicles. The insular department of the interior kept under maintenance 3,227 km. of roads.

During the fiscal year 1946–47 a total of 2,587 vessels with a total gross tonnage of 7,212,277 tons arrived at the several ports of the island.

At the close of the fiscal year 1946–47 there were 27,067 telephones in service and 13 radio broadcasting stations operating in the island.

Trade.—The total value of imports into Puerto Rico during the calendar year 1946 was $287,617,592. Of this total, $263,404,605 (91.6%) was imported from the U.S. The total value of exports for the same period was $168,182,150, of which $163,941,239 (97.5%) was exported to the U.S.

Banking and Finance.—Bank deposits on June 30, 1947, were $283,865,412; debits were $245,142,395 and bank loans $100,479,449.

Insular government revenues for the fiscal year 1946–47 totalled $184,126,849 of which $88,019,554 was received in the general fund and $96,107,295 in all other funds. The total disbursements for the fiscal year 1946–47 amounted to $194,194,900. Of this total, disbursements from the general fund amounted to $97,271,834 and from all other funds $96,923,066.

Agriculture.—During the 1947 crop year an estimate of 298,158 ac. of sugar cane were harvested for a total production of 9,286,282 tons of cane.

The insular tobacco production quota for 1946–47 was set at 250,000 cwt. It was estimated that 30,432 ac. of tobacco would be harvested during the 1947 harvest season. The coffee crop for 1947 was estimated at 295,815 cwt.

Manufacturing.—Total sugar production for the 1947 crop year amounted to 1,087,151 short tons of raw sugar 96 degree basis. Sugar refining operations in the island yielded a total of 228,909 short tons of refined sugar, 96 degree basis.

Total production during fiscal year 1946–47 of some other manufactured products was as follows:

Product	Unit	Production
Rum	Wine gallon	3,648,020
Paperboard	Ton	5,364
Cement	Barrel of 376 lb.	2,201,005
Cigars	Thousands	94,476

(J. L-Ee.)

Pugilism: *see* Boxing.

Pulitzer Prizes. The Pulitzer prizes in journalism and letters, established in Columbia university by the will of Joseph Pulitzer, were given their 31st annual award in 1947. The prizes in letters, five in number, amounting to $500 each, were awarded as follows: fiction award to Robert Penn Warren, professor at the University of Minnesota, for *All The King's Men* (Harcourt); history award to James Phinney Baxter, 3rd, president of Williams college, for *Scientists Against Time* (Atlantic Monthly Press); biography award, posthumous, to *The Autobiography of William Allen White* (Macmillan); poetry award to Robert Lowell for *Lord Weary's Castle* (Harcourt). No drama award was made.

Prizes in journalism, $500 each, eight in number, were distributed as follows: American newspaper prize for meritorious public service to the *Baltimore Sun* for a series of articles by Howard M. Norton on the administration of unemployment compensation; for local reporting to Frederick Woltman of the *New York World-Telegram* on Communist infiltration in the U.S.; for telegraphic reporting (national) to Edward T. Folliard of the *Washington Post* for articles on "Columbians, Inc."; for telegraphic reporting (international) to Eddy Gilmore, chief of the Moscow bureau of the Associated Press; for distinguished editorial writing to William E. Grimes, editor of the *Wall Street Journal;* for a distinguished example of a cartoonist's work to Vaughn Shoemaker for "Still Racing His Shadow" in the *Chicago Daily News;* for news photography to Arnold Hardy for his dramatic picture of the Winecoff hotel fire in Atlanta, Ga., distributed by the Associated Press; special citation in 1947, the Pulitzer centennial year, to Columbia university and the graduate school of journalism for their efforts to maintain and advance the high standards governing the Pulitzer prize awards, and to the *St. Louis Post-Dispatch* for its unswerving adherence to the public and professional ideals of its founder.

The Pulitzer prize in music was given to Charles Ives for *Symphony No. 3.* (B. Gm.)

Pulp Industry: *see* Paper and Pulp Industry.
Pulpstones: *see* Abrasives.
Pumice: *see* Abrasives.

Purdue University. A coeducational state institution at Lafayette, Ind., established in 1869 and so named from John Purdue, principal donor of money and land with which to start the university. It embraces schools of civil engineering and engineering mechanics, electrical engineering, chemical and metallurgical engineering, aeronautical engineering, mechanical engineering, agriculture, including a degree in forestry, agricultural engineering, home economics, science and pharmacy. Degrees also are given in trade and industrial education, engineering law and naval science and tactics.

Some significant developments at Purdue during 1947 included: the start of construction of a new synchrotron, to supplement the work done by the cyclotron; the development of a new hay drying and also a new corn drying machine, of potential widespread use in a "soft" corn year such as was experienced in 1947; the discovery of the considerable importance of the use of salt in the rations for hogs, greatly reducing cost of production; the rapid expansion of the work in technical extension, providing training in industrial centres of the state and also offering freshman work to more than 1,200 students in off-campus centres; the discovery of important phenomena by which such materials as germanium, silicon and tellurium, etc., classed as semiconductors, can be made to transmit electricity by either positive or negative carriers, obeying the so-called classical laws as well as the ultramodern concepts of quantum mechanics (this discovery promised to be highly important in radio and radar development); the discovery that corn yields could be increased as much as 10 bu. per ac. by the use of 2,4-D in spraying fields to control weeds and avoid the injury done by cultivation to the roots when the crop is well advanced. (For statistics of endowment, faculty, library volumes, etc., *see* Universities and Colleges.)

Pyrite. World production of pyrite increased from about 6,000,000 short tons in 1945 to 7,700,000 tons in 1946, as compared with a prewar high of 11,000,000 tons.

United States.—Pyrite output increased from 809,308 short tons in 1945 to 910,977 tons in 1946, while at the same time the sulphur content rose from 41.0% to 41.5%. Imports declined from 208,888 tons to 204,840 tons. (*See* also Sulphur.)

(G. A. Ro.)

Q Fever: *see* Pneumonia.
Quakers: *see* Friends, Religious Society of.

Quebec. The province of Quebec, Canada, occupies the lower basin of the St. Lawrence, north of New York and New England, to Hudson bay and strait. Area, 594,534 sq.mi.; pop. (1945 off. est.), 3,580,000. The cities (1941 census) are: Montreal (903,007), the largest city in Canada; Quebec (150,757), the provincial capital; Trois Rivières (42,007); Sherbrooke (35,956); Hull (32,947). War growth was estimated to have given Verdun a population of 75,000 and Sorel almost 50,000. The French language predominates, 80.9% of the people being of French origin. The government is affiliated with the Catholic faith, as are 86.9% of the people. Quebec is the only Canadian province having its own legislative council (senate). The lieutenant governor in 1947 was Sir Eugene Fiset; the premier, Maurice Duplessis.

History.—The provincial government continued to be in the hands of the Union Nationale, conservative and favourable to provincial autonomy, hence non-Liberal in dominion issues and dissatisfied with the English privy council's decision in January 1947 that Canada can abolish appeals to the council. It easily won the only provincial by-election in 1947 in Huntingdon. The Bloc Populaire, founded in 1942 to oppose conscription, fell apart in the summer of 1947, and one of its two deputies joined the government party. Adrien Arcand's National Unity party was reorganized in November, with fascist and separatist tendencies but with little strength. In dominion governmental affairs the province remained staunchly Liberal, the Liberal party winning by-elections in January at Sorel (Gerard Cournoyer) and late in March at Montreal-Cartier (Morris Hartt), albeit not without some effort. Support was given against the communists and separatists, in the Cartier election; and the church-advised labour unions and youth groups were active against the reputedly communist-inspired dock labourers' and seamen's strikes in August. Premier Duplessis announced officially in the assembly that his government had uncovered a communist plot, involving 12,000 men, to seize key points and dominate the province. The assembly asked the dominion to ban the Labour-Progressive party in Canada. A Jehovah's Witness was convicted in court on charges of seditious libel against the government.

Education.—Laval university, Quebec, undertook the construction of new premises on a new campus on the outskirts of the city, with a $4,000,000 grant from the province. The number of schools in the province in 1946 was 10,078, with 32,580 teachers and 724,397 pupils.

Commerce, Communications.—Montreal, Canada's largest seaport, in 1946 handled nearly 1,000,000,000 tons of cargo, in 1,600 ocean-going ships and 4,400 river and lake ships. In 1945 the imports of the province were $470,362,664 and the exports $1,073,036,228. In 1945 the province had 39,649 mi. of highways, of which 22,864 were surfaced. In 1944 the province had 5,186 mi. of railroads, and 397,245 telephones.

Agriculture.—The leading farm crop of Quebec is hay, with an annual production of $85,488,000 (1944). The total field crops in 1944 were valued at $153,765,000, the yield of oats being valued at $24,241,000, with potatoes $21,367,000. Dairy production in the same year included butter $28,217,000, and cheese, $12,739,000. Buckwheat (sarrasin), maple syrup and tobacco (wrapper type) are characteristic Quebec farm products. The value of all agricultural output in 1944 was $371,275,000. In 1945 livestock was valued at $204,407,000.

Forests, Newsprint, Fisheries, Furs.—The production of newsprint, Quebec's leading industry, was estimated in 1947 to have increased to about 3,200,000 tons (*i.e.*, by about 900,000 tons, as compared with the previous high point attained in 1946). The 1947 price average rose to $88.50 per ton, as compared with $72.25 in 1946; and at the end of the year the price was $90, with an increase to $96 announced by many companies for Jan. 1, 1948. The production of other paper products in the province was estimated to have risen to approximately 500,000 tons in 1947. The production of lumber in 1944 was 653,989,310 cu.ft., valued at $114,918,046. Fishery products, cod, herring, mackerel and lobster, had a 1945 value of $5,361,872; while furs in 1945 were worth $5,059,995.

Manufacturing and Other Industries.—An outstanding development of 1947 was the acquisition of the wartime aeroplane plant at Montreal by the Electric Boat Co. of New York and Groton. This large plant was continuing in operation to turn out planes for the Trans-Canada Air Lines and for the royal Canadian air force. The textile mills of the province were notably active in 1947, and at one time the recruiting of female labour in France was resorted to by a St. Georges factory. The gross value of all Quebec manufactures in 1944 was $2,929,685,183; the number of employees, 424,115; and the wages, $668,156,053; and these figures were later substantially exceeded. An important new aspect of the tourist industry was the winter tourist trade from the eastern United States for snow sports in the Laurentian mountains north of Montreal, centring at Mt. Tremblant, which was understood to have brought several millions of dollars of revenue in 1947. The summer touring by automobiles in 1947 was more than 30% greater than in the previous record year of 1946.

Minerals, Hydroelectric Plants.—In the autumn of 1947 the province announced that tremendous iron ore deposits had been discovered in the Ungava region west of Labrador, where it had in 1946 leased 300,000 sq.mi. to the Hollinger Northshore Exploration Co. The ore body was reported to rival that of the Mesabi range in Minnesota, but its remoteness necessitated a project involving a $75,000,000 railway. In November, also, the Quebec Manganese Mines, Ltd., struck high-grade manganese ore on Grindstone Island in the Magdalen group and claimed reserves of from 40,000 to 140,000 tons. It planned extraction of 160 tons per day. Copper prices, controlled, rose to $16.62 per 100 lb. (carload lots) on Jan. 21, and to $21.50 on June 10. The price of the heavy aluminum production at Arvida is not controlled but was maintained at $14 per 100 lb. ingots throughout 1947. The important gold and asbestos productions were well-maintained during the year. Hydroelectric plants had an installed capacity of some 6,000,000 h.p., and a large share of them were operated by the Quebec Hydro-Electric commission of the provincial government. (W. Fr.)

Quicksilver: *see* Mercury.

Quo Tai-chi (1888–), Chinese government official and diplomatist, was born in Kwang-tsi, Hupeh province. He won a scholarship offered by the Chinese imperial government to study in the United States and attended the University of Pennsylvania, Philadelphia, Pa., (1908–11), graduating with a B.S. degree. Returning to China in 1912, he joined Sun Yat-sen's movement, becoming secretary to Dr. Sun. In May 1932, he went to London as Chinese minister to Great Britain. He represented his country at the Disarmament conference and the World Economic and Monetary conference in 1933 and at the assembly of the League of Nations (1932–33). In 1934, he became Chinese representative on the League council and the following year, his status in London was raised to that of ambassador. He left London in 1941 to return to Chungking as foreign minister in Chiang Kai-shek's government. In Feb. 1946, Quo was named China's permanent delegate on the U.N. Security council. During the Iranian dispute, he voted with the majority on the Security council who rejected the soviet request to remove the controversy from the agenda. His appointment to the Atomic Energy commission was disclosed May 3.

In 1947, Quo was appointed to the Security council's Commission for Conventional Armaments and to the general assembly's General committee.

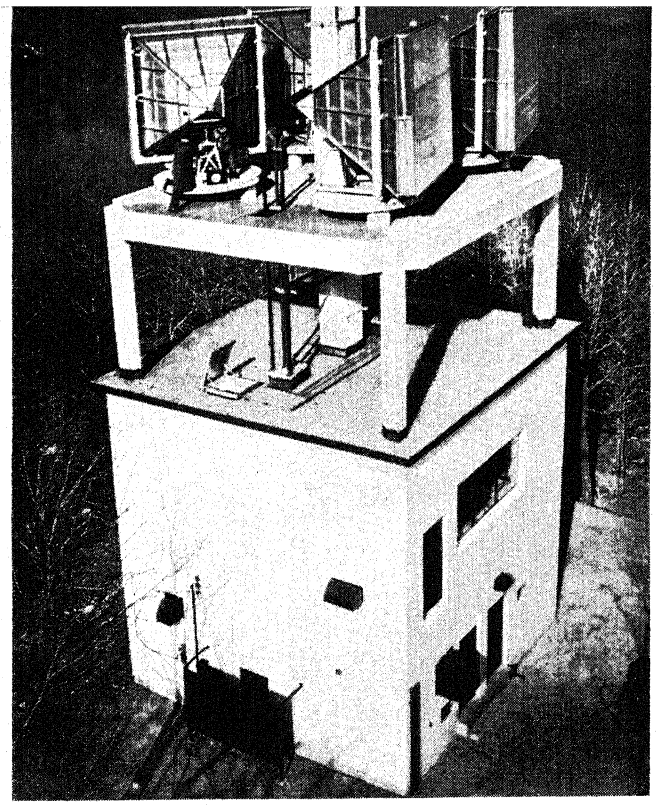
Racing and Races: *see* Air Races and Records; Automobile Racing; Dog Racing; Horse Racing; Motor-Boat Racing; Track and Field Sports; Yachting.

Radar: *see* Electronics; Munitions of War.

Radio. **Growth and Developments.**—It was estimated unofficially that about 5,500 long-, medium- and short-wave broadcasting stations (including relays or boosters) were operating more or less regularly, or were under construction throughout the world, in 1947. This estimate compared with about 4,865 the previous year. Frequency modulation (FM) and television stations were not included in these figures.

U.S. Stations.—The boom in station construction in the U.S. continued with only a slight slowing of pace. The number of amplitude modulation (AM) stations on the air or under construction grew from about 1,500 in Dec. 1946 to almost 2,000 a year later. These totals compared with fewer than 1,000 stations when the war ended in 1945. Despite the 100% gain, however, it did not appear that the end of the expansion was in sight. When the year ended, about 650 applications were awaiting action by the Federal Communications commission (FCC), which meanwhile predicted that there would be at least 2,250 AM stations by the end of 1948.

Listening.—At least 132,000,000 radio receiving sets were in



RADIO RELAY STATION, forming a link in the first broad-band system connecting New York city and Boston, Mass., which was completed in 1947 for the transmission of television and of many simultaneous telephone conversations

use throughout the world in 1947, compared with about 125,000,000 sets the year before. Approximately 66,000,000 of these, or one-half, were in the U.S., which had 60,000,000 in 1946. A summary prepared by Caldwell-Clements, Inc. and *Tele-Tech* magazine showed 37,000,000 U.S. homes with radios in 1947 compared with 35,000,000 in 1946. The number of automobile radios included in the 66,000,000 total was estimated at 9,000,000: a gain of 3,000,000 over 1946 figures.

The 1947 distribution of radio receivers among continents was shown by Caldwell-Clements, Inc. as follows:

North America	70,500,000
Europe	46,000,000
Asia	6,500,000
South America	5,500,000
Australia	2,500,000
Africa	1,000,000
Total	132,000,000

Frequency Modulation.—The year brought FM the greatest advances it had yet experienced in listenership and general acceptance as a broadcasting medium. By the end of 1947 more than 350 FM stations were on the air and approximately 700 others were under construction or had been authorized, compared with 100 stations on the air and 600 in the process of construction at the start of the year. After granting about 350 new-station applications during 1947 (compared with a record 500 granted in 1946), the FCC still faced about 125 applications and others continued to come in.

Largely because of delays in securing transmitting equipment, fewer than 100 stations were operating with their fully authorized powers. About 250 others were on the air with regular program schedules, operating on an "interim basis" with reduced power under special FCC authorization designed to build up FM listenership. There were 500,000 to 750,000 FM receivers in use in late 1946; the number grew to about 2,000,000 during the ensuing 12 months.

As more and more FM stations went on the air, it became apparent that the existing channel-allocation plan would result in destructive interference between stations operating in the same general areas. To eliminate this problem, the FCC in July ordered into effect a new allocations scheme based on a minimum separation of four channels (8 mc.) between stations in the same area, instead of the previous 4-mc. separation plan. As a result, the dial assignments of hundreds of stations were changed and many stations already on the air had to move to new frequencies, but the change-over was accomplished with a minimum of disturbance.

Facsimile.—A number of technical advances were made in the field of facsimile transmission in 1947, although it remained an "experimental" (noncommercial) operation.

The FCC announced in July 1947 that "cooperative activity by manufacturers, broadcasters, newspaper publishers and others indicates that transmission of printed matter and pictures may soon become a regular broadcast service." The Radio Technical Planning board (R.T.P.B.) had submitted proposed technical standards a few weeks earlier. Because differences of opinion existed as to whether both 8.2-in. and 4.1-in. scanning lines should be provided at the same line rate of 105 lines per inch, however, the FCC decided that further tests and comparisons should precede adoption of standards.

Other facsimile activity, the commission pointed out, included: a news service for aeroplane passengers, in which radioed press dispatches were printed aboard an air liner in four columns at the rate of 500 words a minute; use of facsimile by a New York bank for rapid transmission of reproductions of checks and other records between its downtown and uptown offices and army air force plans for installation of a facsimile system to transmit weather maps over the U.S. for the information of pilots.

Stratovision.—The first phase of careful testing of this new system of air-borne relays demonstrated that the plan is feasible, according to the Westinghouse Electric and Manufacturing corporation, which developed it. At the year's end Westinghouse was planning one of the most extensive research projects in electronics history to serve as the second phase of the experiments. Hundreds of thousands of television and FM set owners were slated to serve as volunteer monitors in the exhaustive tests which were being arranged. Stratovision's backers predicted that some 14 transmitter-equipped planes, flying fixed courses, might well be able to relay eight or nine different program services—AM, FM and television—to almost four-fifths of the U.S. population.

Commercial Broadcasting.—Radio stations in approximately 40 countries sold time for advertising in 1947, about the same as in other late years.

U.S. Radio Bill.—With the growth of FM and television, radio became a $2,000,000,000 business in 1947. Caldwell-Clements, Inc. and their *Tele-Tech* magazine estimated the radio bill of the U.S. in 1947 at $2,115,000,000; as compared with $1,732,000,000 in 1946. The 1947 total was broken down as follows:

Sales of time by broadcasters, 1947	$350,000,000
Talent costs	60,000,000
Electricity, batteries, etc., to operate 66,000,000 receivers	220,000,000
17,000,000 aural receivers, at retail value	800,000,000
170,000 television receivers, at retail value	120,000,000
66,000,000 replacement tubes	90,000,000
Radio parts, supplies, etc.	100,000,000
Phonograph records, 325,000,000	300,000,000
Radio set repairs, servicing	75,000,000
Total	$2,115,000,000

Revenues and Expenses.—An FCC report released in Nov. 1947 covering the broadcasting industry's 1946 financial affairs showed that total broadcast revenues (receipts after payment of commissions to agencies, representatives, brokers, etc.) had continued to climb, reaching $322,552,771 as compared with the previous record of $299,338,133 reached in 1945. But this 7.76% gain was more than offset by a 14.06% rise in expenses, which went from $215,753,845 in 1945 to $246,086,525 in 1946. The result was that total broadcast income (revenues less expenses, before payment of federal income taxes) dropped from $83,584,288 to $76,466,246, an 8.52% loss. It was the second consecutive slump in broadcast income, which had climbed consistently during the years of World War II. In dollar volume the decline was comparable with that noted in 1945.

The 1946 report was based on data provided by 8 networks and 1,025 stations, as against 10 networks and 901 stations reporting in 1945. The figures relate to AM operations only, not to FM and television.

The 8 networks and their 29 owned-and-operated stations in 1946 reported broadcast revenues totalling $101,968,989 (a 0.96% gain over the $100,998,519 reported by 10 networks and 28 owned-and-operated stations in 1945); broadcast expenses aggregating $82,624,866 (6.04% above the 1945 figure of $77,919,904) and broadcast income of $19,344,123 before federal income taxes (16.18% less than the $23,078,615 income of 1945).

Receipts from the Sale of Time.—Always the backbone of broadcasting's economy, time sales reached a record $334,078,914 in 1946, a gain of 7.6% over the 1945 total of $310,484,046. Both figures include commissions paid to agencies, etc., which broadcasters regard as an expense of sale, and which in 1946 totalled $45,469,650 (compared with $43,923,466 in 1945).

The 1946 time-sale total was composed of $134,781,108 for time on national and regional networks, $82,917,505 for nonnetwork time sold to national and regional (spot) advertisers and $116,380,301 for nonnetwork time sold to local advertisers.

The increase in industry revenues was almost exclusively in the field of nonnetwork time sales, which gained 13% while receipts from network time sales rose less than 1%. Of the two types of nonnetwork time sales, those to local advertisers gained 17% and those to "spot" advertisers went up 8%.

Industry Balance Sheet.—Table I, compiled from FCC records, summarizes 1946 revenues, expenses and income of 8 networks and 1,025 AM stations.

Table I.—*Revenues and Expenses of the U.S. Radio Industry, 1946*

Time Sales:		
Network	$134,781,108	
Nonnetwork	199,297,806	
Total		$334,078,914
Deduct: Commissions to agencies, etc.		45,469,650
Net time sales		$288,609,264
Incidental Revenues:		
Sale of talent; fees	$ 16,763,049	
Other	17,180,458	
Total		$ 33,943,507
Total broadcast revenues		$322,552,771
Total broadcast expenses		246,086,525
Broadcast income (before federal income taxes)		$ 76,466,246

Average Station's Finances.—Income of the average station dropped from $77,633 in 1945 to $73,404 in 1946, or by 5.5%, according to FCC figures based on reports from 831 identical stations (*i.e.*, stations operating in both 1945 and 1946 and without change in status with respect to class, operating time and network affiliation or nonaffiliation). A comparison of average revenues, expenses and incomes for these 831 AM stations was provided by the FCC in Table II.

Table II.—*Average Station's Finances, 1946 and 1945*

	1946	1945	% Increase (decrease in parenthesis)
Total broadcast revenues	$268,583	$249,114	7.82
Total broadcast expenses	195,179	171,481	13.82
Broadcast income (before federal income taxes)	73,404	77,633	(5.45)

A breakdown of this table, to show the averages for national network affiliates and for nonaffiliates, was provided as follows:

Table III.—*Per-Station Averages, According to Affiliation or Nonaffiliation with National Networks, 1946 and 1945*

	704 Affiliates			127 Nonaffiliates		
Year	Revenue	Expenses	Income*	Revenue	Expenses	Income*
1946	$279,002	$197,971	$81,031	$210,829	$179,704	$31,125
1945	260,963	174,825	86,138	183,430	152,947	30,483

*Revenue less expenses, before federal income taxes.

Broadcast Expenses.—Segregation of specific expenses of broadcast stations in 1946 had not been completed by the FCC at the end of 1947, although early tabulations showed total expenditures of $246,086,525 for 8 networks and 1,025 AM stations, compared with $215,753,845 spent by 10 networks and 901 stations the year before. It appeared likely that the major expense items would rank in their usual order, which, among reporting stations having as much as $25,000 in time sales (and not counting network expenses), was approximately as follows in 1945: Programming, 36%; general and administrative, 33%; technical department, 16% and sales department, 15%.

Losses.—Although 1945 was the last year for which detailed information was available with respect to stations suffering financial losses, an indication of recent years' trends was given in the FCC's *An Economic Study of Standard Broadcasting* (see *Economic Analysis,* below). The number of losing stations was expected to be substantially greater in 1946 and 1947 than in the few previous years, because of the large number of new outlets just getting into operation. An FCC survey conducted in April 1947, limited to AM stations authorized after Sept. 1945, showed 154 stations were unprofitable at the time of the survey, while 156 were profitable. Table IV, taken from the commission's economic study, summarizes the extent of unprofitability among all AM stations in seven prior years.

Table IV.—*AM Stations Showing Losses, 1939–45*

Year	Stations reporting Loss*	Total number of commercial AM stations	Ratio of losers to total stations	Total losses (in thousands of dollars)
1939	227	696	32.6%	$2,220.5
1940	187	756	24.7	1,551.8
1941	177	808	21.9	1,209.8
1942	194	842	23.0	1,339.4
1943	94	841	11.2	502.7
1944	41	875	4.7	154.3
1945	50	901	5.5	643.0

*Reporting broadcast expenses in excess of broadcast revenues.

Tangible Broadcast Property.—The FCC failed to compile and release its customary report on the original and depreciated costs of stations and associated broadcasting equipment. The latest available report, for 1945, gave the following totals for 891 AM stations, 4 nation-wide networks and their 10 key stations and 6 regional networks: cost to licensee, $88,101,940; depreciation under present licensee, $46,506,921; depreciated cost, $41,595,019. The increase in the number of stations after 1945 was expected to boost these figures substantially.

Economic Analysis.—An Economic Study of Standard Broadcasting, issued by the FCC on Oct. 31, 1947, "assumed" there would be 2,250 AM stations in the U.S. in 1948 and predicted that 1,063—almost 50%—would be in economic "problem areas" from the standpoint of competition with other stations and other media. The standard used in defining "problem areas" was the maximum number of stations operating on V-J day in any city of comparable size. Thus, since no community with 25,000 to 50,000 population had more than two stations on V-J day, it was assumed that any city in that population group was or would become a "problem area" whenever it had three or more stations. A total of 287 communities—167 of

them having less than 25,000 population—were characterized as problem areas under this definition.

The local part-time stations—usually 250-watt outlets operating only in daytime—were found to be "the most commonly profitable new stations," with full-time locals next. The least commonly profitable class, among the postwar stations, was the full-time regional (500 to 5,000 watts).

Among all the new stations surveyed by the commission, expenses averaged $5,693 per month while revenues averaged $50 less. For profitable stations, average revenues were $6,167 and expenses $4,995, while unprofitable stations averaged $4,961 in revenues and $6,610 in expenses.

The 112-page economic survey, first of its kind, also analyzed radio's revenue potential at length, considering in detail the possible effects of general business activity and competition both from other media and from other stations.

Programming.—*Network Commercial Programs.*—The 15 most popular network programs as of Nov. 30, 1947, are shown below as reported by C. E. Hooper, Inc., creator of the Hooperatings-Radio Audience Measurement, along with their rank in corresponding reports for 1945 and 1940:

Nov. 30, 1947	*Hooperating*	*Nov. 30, 1945 position*	*Nov. 30, 1940 position*
1. Bob Hope	25.9	1	4
2. Jack Benny*	25.3	6	1
3. Fibber McGee & Molly	25.0	2	3
4. Charlie McCarthy	24.4	5	2
5. Amos 'n' Andy	22.6	16	31
6. Fred Allen	22.2	8	not on
7. Red Skelton†	21.8	not on	not on
8. Radio Theatre	21.8	3	5
9. Mr. District Attorney	21.0	7	19
10. Truth or Consequences	20.3	21	24
11. Walter Winchell*	20.3	4	6
12. My Friend Irma	18.2	not on	not on
13. Music Hall	18.1	12	30
14. Bandwagon	17.7	35	12
15. Arthur Godfrey's Talent Scouts	17.4	not on	not on

*Includes first and second broadcasts.
†Computed Hooperating.

The top ten daytime leaders reported by Hooper as of Nov. 15, 1947, with their respective positions in 1945 and 1940, were:

Nov. 15, 1947	*Hooperating*	*Nov. 15, 1945 position*	*Nov. 15, 1940 position*
1. Our Gal Sunday	6.9	13	6
2. Aunt Jenny	6.7	20	32
3. Young Widder Brown	6.5	5	22
4. Romance of Helen Trent	6.5	10	19
5. Stella Dallas	6.4	12	4
6. Ma Perkins (CBS)	6.2	14	not on
7. Backstage Wife	6.0	7	13
8. Pepper Young's Family	6.0	3	3
9. Right to Happiness	6.0	11	9
10. Portia Faces Life	5.9	4	60

Programming Trends.—One of the principal developments in the field of national network programming was the ascendancy of the so-called "disc jockey" program in which prominent entertainers, such as Martin Block, Paul Whiteman and Ted Husing, took over the role of master of ceremonies on musical records shows. There also was a definite trend toward transcribed programs, following Bing Crosby's introduction of the transcribed series (as distinguished from "live" broadcasts) in 1946. The fate of the wholly transcribed musical broadcast, of course, would depend upon whether or not the musicians' union would ultimately relent in its decision to play no more for records and transcriptions (see *Labour Unions* below).

Like the preceding year, 1947 was filled with program shifts, discontinued shows and new programs, so far as national network programming was concerned. Program types, on the other hand, remained relatively stable. Among evening shows, dramatic programs continued to lead all other classifications and gained 3.1% in network sponsored time. Variety programs, in second place, dropped 7%. News and commentaries, popular music, quiz shows and concert music all showed gains. Among daytime sponsored shows on the networks, the serial drama remained well ahead of all other types in point of air time, although it dropped 6% below its 1946 level.

Special Events.—Radio took its listeners into virtually all quarters of the world in its presentation of both spot news and features, and, as in preceding years, was used extensively by political leaders to reach constituents and subjects. Probably its most lavish coverage was given to the wedding of Princess Elizabeth of Great Britain and the duke of Edinburgh, in London in November. In the political field, stations and networks used wire recorders more extensively than ever before to cover congressional hearings.

FM.—FM programming made advances, although still hampered by the American Federation of Musicians' (A.F.M.) ban on the duplication of AM live musical programs on FM stations. With more and more stations on the air, many of them unaffiliated with AM stations—and thus unable to duplicate AM nonmusical or recorded-music programs—a more diversified program fare was available.

For the most part, independent FM stations offered much the same type of programming as the AM stations, but emphasized musical programs in order to display better the high-fidelity traits of FM. At the year's end, it appeared likely that the A.F.M. ban on AM-FM duplication might soon be lifted, so that FM stations associated with AM network affiliates would be permitted to offer AM network programs to FM set owners.

Network Programs by Types.—Table V, prepared by C. E. Hooper, Inc., shows the general composition of commercial evening programs broadcast on the major AM networks during October, November, December of 1946 and 1947.

Manufacturing.—*Receiver Production.*—Industry authorities estimated that the 1947 production of radio receiving sets approached 18,500,000 units, a gain of about 23% over the previous record of 15,000,000 turned out in 1946. The estimates were based on a report issued by the Radio Manufacturers' association (R.M.A.), representing more than 90% of the industry, which showed that 1947 receiver output by R.M.A. members totalled 17,695,677 units.

Of the year's output, 1,175,104 units were combination AM-FM receivers, compared with 181,485 in 1946, while 178,571 were television sets as against 6,476 the previous year. Production of automobile and portable receivers doubled the 1946 totals, with 3,029,637 auto sets against 1,153,458 in 1946, and 2,153,095 portables against 1,022,689. Of the home receivers built, 72% were table models, 13% consoles and 15% portables.

Receiver Tube Production.—The output of radio receiver tubes dropped slightly in 1947. R.M.A. reported its members turned out 199,533,827 tubes, compared with approximately 205,000,000 tubes produced in 1946.

Networks: AM, FM.—Unlike 1946, which saw two networks cease operations, 1947 brought an increase in this field. There were no casualties. The number of major AM networks remained at four—National Broadcasting Co., Columbia Broadcasting system, Mutual Broadcasting system and American Broadcast-

Table V.—*General Composition of Network Commercial Evening Programs*
October through December, 1947 and 1946

Type of program	1947 % of time on air	1946 % of time on air
Dramatic	40.9	37.8
Variety	17.1	24.1
News and commentators	14.1	11.4
Popular music	11.5	10.8
Quiz	9.3	6.4
Concert music	3.7	3.2
Miscellaneous	3.4	6.3

ing Co.—but for the first time FM broadcasting achieved network status.

Continental FM network was organized among FM stations along the North Atlantic seaboard by Everett L. Dillard, owner of WASH (FM) in Washington, D.C., and of KOZY (FM) in Kansas City, and president of the FM association. Continental commenced operation in March and had 32 affiliates by the end of the year. Elsewhere, regional FM networks were getting under way on smaller scales. Instead of using the conventional wire-line relays, many FM network affiliates were linked by direct broadcast and rebroadcast from one station to another.

FM association officials claimed that the growth of FM networks generally was being impeded by a lack of high-fidelity wire-line relay facilities, and filed a protest with the FCC in December charging the American Telephone and Telegraph Company with discriminating against FM in this respect. In response to the petition's request for a hearing, the commission ordered a conference with FM association and A. T. & T. officials to be held in January in hopes of reaching a solution.

Trade Associations.—The National Association of Broadcasters (N.A.B.), dominant trade organization of the broadcasting industry, undertook a number of major projects under the leadership of Pres. Justin Miller.

One of its principal and most provocative campaigns was for adoption of a code of self-regulation for broadcasters. Setting up standards for stations to follow in handling various types of programs, and imposing limits on the extent of commercial messages, the proposed code was the subject of heated debate at N.A.B.'s annual convention, held in September in Atlantic City, N.J. Later it was substantially rewritten to incorporate changes suggested by the membership. Feb. 1, 1948, had been set tentatively as the effective date of the standards, but the N.A.B. board postponed the date indefinitely to permit revision.

The Broadcast Measurement bureau, formed by broadcasters, advertising agencies and advertisers to serve as radio's own audience surveyor, continued to function under the presidency of Hugh M. Feltis, and in midyear a 15-point plan for its permanent continuous operation was approved with support of the National Association of Broadcasters, the Association of National Advertisers and the American Association of Advertising Agencies.

Broadcast Music, Inc. (B.M.I.), operating as an independent unit alongside N.A.B., received its first paid president with the election of Carl Haverlin, who had been the Mutual Broadcasting system vice-president in charge of station relations. In the past, the B.M.I. presidency had been one of the duties of the president of N.A.B. Later in the year, B.M.I. acquired the capital stock of the Associated Music Publishers (A.M.P.), involving the publishing and performing rights to the entire A.M.P. catalogue as well as the catalogues of 15 foreign music publishing firms.

The National Association of Radio Station Representatives (N.A.R.S.R.) was organized in September and straightway filed a complaint with the U.S. attorney-general and the FCC charging that the Columbia Broadcasting system (CBS) had illegally encroached on their business by taking over nonnetwork time sales of several CBS affiliates formerly represented by N.A.R.S.R. members. Neither the justice department nor the FCC had acted at the year's end.



FRED ALLEN (right) "visiting" Jack Benny's show at the Roxy theatre in N.Y. during May 1947. Both entertainers were among the ten leading favourites in radio according to 1947 ratings by C. E. Hooper, Inc.

Employment.—Seven networks and 924 AM stations employed 34,831 persons in the first week of Feb. 1947 and paid them $2,408,246, an average of $69.14 per person, according to the FCC's annual report on employment and compensation in the broadcasting industry.

Substantial revision in the form of the questionnaires used by the commission precluded comparisons with the last previous employment report, which showed a total annual pay roll of $116,267,274 in 1945. But it was generally conceded that the 1947 pay roll would be considerably greater, probably reaching at least $125,000,000 to $130,000,000, even though the February employment figures were about 3,000 below the number of employees reported for Dec. 1945, the peak month of that year.

Aside from executive, supervisory and nonstaff personnel, the FCC reported, the 24,513 broadcast employees in Feb. 1947 were scheduled to receive an average of about $61 a week, as against average compensation (in some cases including overtime payments) of about $58 with the comparable 26,151 employees reported in 1945.

Labour Unions.—James C. Petrillo and the A.F.M., which he headed, remained organized labour's dominant influence on the broadcasting industry.

At midnight on Dec. 31, 1947, A.F.M. invoked its ban on further performances for recordings and transcriptions. The 195,000 U.S. musician-members of the union were forbidden, by Petrillo's order, to play for any recording or transcription, including recorded or transcribed radio shows (except those used for repeat broadcasts to overcome time differences in various zones).

Forewarned, the 770 recording and transcription companies affected by the ban had spent the last two months of 1947 furiously cutting new master records. They estimated the backlog thus accumulated would provide enough new music to last from one to two years.

The ban, attributed to A.F.M.'s loss of royalties on records as a result of the new Taft-Hartley labour law, did not affect nonmusical recordings. Petrillo insisted A.F.M. was quitting recording and transcription work for good, but industry observ-

ers felt he eventually would relent. Meanwhile an Industry Music committee, representing all segments of the trade, was mapping an extensive strategy program for future dealings with the union.

Elsewhere on the labour front, A.F.M. early in 1947 negotiated one-year contracts calling for 20% wage increases for musicians employed in New York key stations of the four major networks. But at the year's end negotiations toward renewals of the network contracts had been wholly unproductive. The contracts were to expire Feb. 1, 1948.

The American Federation of Radio Artists and the four networks signed a two-year contract in January providing for 20 to 30% salary increases for actors, singers, announcers and sound-effects men. The Radio Writers guild in late October ratified a six and one-half year contract with the major networks covering author's rights, air credits, establishment of a joint adjustment board, minimum fees, etc.

The U.S. supreme court ruled in June that the Lea act's prohibition against featherbedding was constitutional. The decision came in a case in which Petrillo was charged with violation of the act, passed in 1946 to make certain A.F.M. practices unlawful. The supreme court sent the case back to Judge Walter La Buy of the U.S. district court in Chicago, who had declared the law unconstitutional, for trial, which was expected to start in Jan. 1948.

Legislation.—Sen. Wallace H. White Jr. (Rep., Me.), author of most of the radio legislation enacted during the last 20 years, introduced a bill offering extensive amendments of the Communications Act of 1934. The bill would greatly expand FCC's authority over broadcasting stations, and was met with almost solid industry opposition when hearings were conducted in June before the radio subcommittee of the Senate Interstate and Foreign Commerce committee.

Sen. White subsequently rewrote the measure and appeared to have won industry support for most of its provisions, except one giving the FCC authority to take a station's programs into consideration when acting upon its application for renewal of licence. Broadcasters claimed such a provision violated constitutional guarantees of free speech. Sen. White, chairman of the committee considering the bill, hoped to have it reported to the senate floor for action early in the session which convened in Jan. 1948.

World Conferences.—After sessions which extended from mid-May until the end of September, representatives of 78 nations on Oct. 2, 1947, signed two major, basic agreements in the field of international communications. One was the Treaty of the International Telecommunications convention; the other was an agreement covering technical and operating aspects of international radio communications, called the International Radio Regulations.

The conferences, held at Atlantic City, N.J., created an International Frequency Registration board (I.F.R.B.), to be set up at Geneva, Switz., which would keep a list of frequency assignments throughout the world in accordance with the standards adopted at the international sessions. The groundwork for I.F.R.B. was to be laid by a Provisional Frequency board (P.F.B.) which was scheduled to convene at Geneva in Jan. 1948. This preliminary work, with I.F.R.B. members assisting, was expected to require 18 to 24 months. Capt. Paul D. Miles, then head of FCC's Frequency Service-Allocations division, was designated chairman of the U.S. delegation to I.F.R.B. Ray C. Wakefield, former member of the FCC, was appointed head of the delegation to P.F.B.

On a regional scale, but highly important to broadcasting in the northern hemisphere, preliminary work toward revision of the North American Regional Broadcasting Agreement (N.A.R.B.A.) was undertaken at a conference of engineering representatives of the signatory nations, held at Havana, Cuba, in November. Action at Havana was restricted to nonpolicy engineering phases of the treaty. Such basic policy subjects as particular nations' bids for priority rights to certain frequencies were left for the treaty conference itself, to be held at Montreal, Can., in Nov. 1948. Heated debates were forecast, however, as a result of demands of several countries, notably those of Mexico, which would require a reallocation of virtually all of the broadcast band.

The U.S., with its own clear-channel and maximum-power questions still hanging fire in FCC's two-year-old clear-channel hearing, was unable to offer recommendations with respect to channel and power uses. But the clear-channel case was slated for decision in early 1948 and the U.S. planned then to submit appropriate N.A.R.B.A. proposals to the other nations in late winter or early spring. N.A.R.B.A. signatories, in addition to the U.S., were Canada, Cuba, Mexico, the Bahamas, the Dominican Republic and Newfoundland.

U.S. Foreign Broadcasts.—The state department's much bruited "Voice of America" program of international short-wave broadcasting faced seemingly brighter prospects as 1947 ended, with congressional authorities predicting passage early in 1948 of legislation specifically authorizing continuation of the broadcasts. Earlier, congress had reduced funds for the program from $31,400,000 to $12,400,000, but it was thought that substantially more would be sought upon the expected passage of pending legislation—the so-called Mundt bill—continuing the "Voice."

To show how its international short-wave activities had declined in the year, the state department pointed out that its output to the world had totalled 1,701 hr. 30 min. in Dec. 1946; 1,796 hr. 45 min. in March 1947 and 969 hr. 30 min. in Dec. 1947. The total weekly output of the U.S. to given areas, compared with broadcasts beamed by other governments to the same areas, is shown in Table VI, compiled by the state department.

Table VI.—*International Broadcasting to Different Regions (Dec. 1947)** (U.S. Totals Compared With Others)

	To Europe	To Latin America	To Far East	To N. Africa, Near & Mid-East	To U.S.
By U.S.	120¾ hr.	63 hr.	45½ hr.	None	.....
By Great Britain	280 hr.	80½ hr.	50¾ hr.	75¼ hr.	131¼ hr.
By U.S.S.R.	207 hr.	17½ hr.	59 hr.	59½ hr.	17½ hr.
By satellites of U.S.S.R.	175 hr.	None	None	7 hr.	14 hr.
By France	51⅚ hr.	10½ hr.	Unavailable	28 hr.	17½ hr.

*Figures comprise only totals of short-wave broadcasts that are beamed from these countries to their respective target areas. They do not account for such programs as are beamed from one country to other countries over long and medium wave transmitters. This is particularly true in the case of Europe and in broadcasts from the U.S.S.R. to regions bordering the Soviet Union.

(R. W. Cr.; S. Tf.)

Radio Scientific Developments.—*Military Radio Equipment.*—Government support of radio research and development during 1947 continued at a substantial rate. Funds were allocated for radar, guided missile control, air navigation television, communications and many other projects.

The need for a comprehensive system of air navigation and traffic control was emphasized by several air tragedies which occurred during the year. The development of systems such as Navar, Lanac and Teleran was expedited to meet this need. Teleran was developed to the point where flight tests were started.

The Teleran system employs a ground search radar which surveys the air space in the vicinity of the airport and displays the information thus obtained on a cathode-ray tube. A television camera converts the radar presentation into a television image on which is superimposed a map of the area. This combination picture is broadcast by a television transmitter. A television receiver in the aeroplane reproduces the picture and the

pilot sees his plane as a spot of light moving across the map. Other planes in the area appear as different spots of light, each moving according to its actual course.

The Teleran system includes a method of separating the radar echoes according to altitude and transmitting a separate picture for each altitude level. This is accomplished by providing each aircraft with a transponder which consists of a receiver and transmitter connected together so that the transmitter emits one or more pulses when the receiver picks up a pulse from the ground radar. If the transponder emits two pulses separated by a time interval which depends on the aeroplane's altitude a discriminator circuit at the ground station can be made to sort out the responses according to altitude.

Shoran, the most precise method of air navigation so far available, was further improved in accuracy. Figures published by the U.S. army air force indicated consistent accuracies of about 30 ft. at 300 mi. The air force employs Shoran for long-distance triangulation surveying, aerial photography and other purposes.

A further advance in air navigation was indicated by the completely automatic 2,400 mi. trans-Atlantic flight of a U.S. air force C-54 from Stephensville, Newfoundland, to Brise Norton, 40 mi. west of London, Eng. The automatic flight was accomplished by self-controlled, preset mechanisms. The plane carried an emergency crew of nine, but no human hand touched the controls on the entire flight.

"Printed" Electronic Circuits.—The development of a miniature radio transmitter and receiver by the national bureau of standards aroused considerable interest. The extremely small size of the units resulted from the use of so-called "printed" circuits. In this technique the circuit wiring and inductors are painted or stencilled with silver paint on a base material such as a ceramic plate. The resistors in the form of a carbon and resin mixture are sprayed on the plate through masks. Small capacitors are applied directly to the wiring on the plate. The assembly is completed by soldering the sub-miniature tubes to the proper circuit terminals.

Facsimile.—A colour facsimile system called Colorfax was developed. An experimental equipment reproduced colour prints at the rate of one-half inch per minute. The colour pictures are obtained by means of cyan, magenta, yellow and black pencil leads applied to any ordinary type of paper. Each line of the original picture is scanned four times to produce signals which are suitable to actuate the pencil leads used in the colour printer. Any or all of the pencil leads may be caused to operate in sequence to reproduce by overprinting the desired colour combinations for each line in the picture. The speed of reception for a colour picture is one-quarter that of an equivalent black and white image.

Another facsimile development called Ultrafax was announced by David Sarnoff, president of the Radio Corporation of America. Ultrafax is a facsimile system employing television techniques and through the use of a wide band communication channel is capable of handling approximately 1,000,000 words a minute. (*See* also ADVERTISING; FEDERAL COMMUNICATIONS COMMISSION.) (G. L. Bs.)

Great Britain.—The year 1947 began with the British Broadcasting corporation (BBC) in the grip of a fuel crisis, and it ended on a note of jubilation. In the intervening months the BBC played its part in events of high national importance and made certain innovations in policy and programs.

In the middle of February the acute shortage of fuel brought down the axe on broadcasting. Until well into March an abbreviated service was broadcast. Television, the "third program" and broadcasts to schools stopped altogether. For long periods during the day, home and light programs were merged on one wave length, and there were substantial cuts in overseas services. The BBC closed its year in a different atmosphere, with the celebration of its silver jubilee, which was marked by a visit to Broadcasting house by the king and queen and Princess Margaret, and the world-wide broadcasts in honour of the wedding of Princess Elizabeth and the duke of Edinburgh.

Early in the year an important decision on political broadcasts was reached with the government. It was agreed to broadcast a limited number of party political talks of a controversial character, allocated to the various parties in accordance with their polls at the last election. Provision was made for 12 such broadcasts in 1947—Labour 6, Conservative 5, Liberal 1. Subjects and speakers were chosen by the parties and each side was free to use one of its quota for the purpose of replying to a previous broadcast. The BBC reserved its right, after consultation with the party leaders, to invite to the microphone in connection with these broadcasts a member of either the house of lords or the commons, of outstanding national eminence, who might have become detached from any party. The first two talks, on the economic situation, were given by the prime minister, Clement Attlee, and Anthony Eden (for the Conservative party).

Another major development affected broadcasts to schools, when the Central Council for School Broadcasting dissolved itself to make way for a new body, the School Broadcasting Council for the United Kingdom. Similarly, the Scottish council made a new start as the School Broadcasting Council for Scotland, and there was established the School Broadcasting Council for Wales. The formation of these councils was in accordance with the view of the corporation that so influential an organization should have representative bodies to guide it.

During the year the BBC was called upon to describe to listeners events of world-wide importance. The royal tour to South Africa was covered in all its aspects by a team of observers and engineers who accompanied the royal family throughout their journey. Another party of observers and engineers visited India during the period of the handing over of power to the dominions of India and Pakistan. The 80th birthday of Queen Mary inspired a number of commemorative programs, and a peak was reached in the broadcasts of the royal wedding in November, which were heard under excellent conditions throughout the world.

Important productions by the drama department during the year included the whole of Shakespeare's chronicles and a George Bernard Shaw festival. Among individual productions may be mentioned *The Frogs* of Aristophanes, in Gilbert Murray's translation, and Henrik Ibsen's *A Doll's House.* The Music department sponsored the 53rd season of the Henry Wood promenade concerts at the Albert hall, and also presented a series of concerts under distinguished guest conductors in honour of the centenary of Johannes Brahms and Franz Schubert. It was a record year in the broadcasting of opera, both from the studio and from theatres. A number of broadcasts were also made from the Edinburgh Festival of Music and Drama. One of the most important contributions by a single artist was made by Dame Myra Hess, who played all Mozart's piano concertos in a series in the third program.

Apart from the important developments in the broadcasting of political talks noted above, a new series of talks on atomic energy aroused world-wide interest. Not only were they repeated in the corporation's overseas services, but were also distributed on records by the BBC Transcription service. There were also a number of talks and discussions on Britain's economic position which attracted big audiences. Two features stand out prominently in the variety program—the success of Gracie Fields in a series of public broadcasts, and the remarkable popularity of programs of the quiz or parlour-game variety.

Examples of the former were in the long-established "Puzzle Corner" in "Monday Night at Eight," "Have a Go" with Wilfred Pickles, the quiz in "Merry-Go-Round" and "Radio Forfeits" conducted by Michael Miles. "Twenty Questions" was highly popular as a parlour-game program.

The output for Europe and in the overseas services was maintained both by direct transmissions and in the form of transcriptions. The teaching of English by radio was a feature greatly appreciated by listeners in many lands.

The most ambitious single undertaking in the foreign language services was a serial version in Spanish of *Don Quixote* in honour of the fourth centenary of the birth of Cervantes.

Domestically the most important event was the coming into force on Jan. 1 of the new charter, which was to have a life of five years, during which time the government undertook to hold an inquiry into the broadcasting service. Under the terms of the charter, agreement was reached between the corporation and the staff association on arbitration machinery in case of a difference of opinion on terms and conditions of service.

Lord Inman resigned the chairmanship of the board of governors in June and was succeeded by Lord Simon of Wythenshawe. (*See* also TELEVISION.)

Radio Detection: *see* ELECTRONICS; RADIO.
Radiology: *see* X-RAY AND RADIOLOGY.

Radium. No recovery of the radium associated with the uranium and vanadium ores of the western United States was reported after 1942. Imports of radium salts into the U.S. vary widely from year to year, and the drop from the wartime peak was precipitous, as is shown in the following table:

	Grams	Value		Grams	Value
1937	15.29	$ 377,659	1942	23.043	$ 377,326
1938	38.75	787,025	1943	90.755	1,366,538
1939	78.631	1,953,820	1944	101.290	1,374,933
1940	30.311	748,097	1945	67.342	991,979
1941	4.412	110,202	1946	17.229	326,450

It was possible that the attention being given to radioactive isotopes from atomic fission had detracted some from the normal use of radium. (G. A. Ro.)

Railroad Accidents: *see* DISASTERS.
Railroad Retirement Act: *see* SOCIAL SECURITY.

Railroads. The volume of freight traffic and the gross operating revenues of railroads in the United States in 1947 were higher than in any previous peacetime year and little lower than in the war period, but the net income and the return on investment, while better than in 1946, were lower than in prewar years. The shrinkage in the volume of rail passenger traffic, which began when World War II ended, was continued. The net railway operating income—the amount left to pay rentals, interest on debt, other fixed charges and dividends—in 1947 was approximately $748,000,000. The figure for 1946 was $620,000,000. The return on investment (minus depreciation) in 1947 was 3.32%; in 1946 it was 2.75%.

During the first nine months of 1947 there were 33 railroads of Class I (those having operating revenues of $1,000,000 or more per year) which failed to earn all of their rentals and charges. Those 33 railroads made up 17% of the total mileage of Class I railroads and included such important systems as the Pennsylvania and New York Central. Fortunately the other 95 Class I railroads were able to earn more than their charges, and for the railroads as a whole the net income after charges was $450,000,000, nearly double the amount earned in 1946. The substantial gain over 1946, however, was not enough to put the railroads in healthy financial condition.

Item	1947	1946	1944	1929
	(Millions)			
Freight revenue	$6,992	$5,787	$6,999	$4,826
Passenger revenue	945	1,259	1,790	874
Total operating revenues	8,582	7,628	9,437	6,280
Operating expenses	6,755	6,357	6,282	4,506
Taxes	907	498	1,846	397
Net railway operating income	748	620	1,106	1,252
Rate of return on investment less depreciation	3.32%	2.75%	4.71%	5.24%
	(Millions)			
Net income after charges	$450	$287	$667	$897
Revenue ton-miles	647,359	591,982	737,246	447,322
Revenue passenger-miles	44,790	64,673	95,549	31,074

The income account of Class I railroads in 1947, estimated in part by the Bureau of Railway Economics and published in *Railway Age,* Jan. 3, 1948, in comparison with 1946, 1944 (a war year) and 1929 (a prosperous predepression year) is given above in condensed form. The table shows also the volume of ton-miles and passenger-miles.

The figures show that the freight revenue of 1947 was 21% greater than in 1946 and almost exactly the same as in 1944, the wartime year of greatest freight traffic. In passenger service, however, the 1947 revenue was 25% less than in 1946 and only about one-half of that of 1944, when military traffic was at its highest level. In total operating revenues 1947 was 12% more than in the preceding year but 9% less than in 1944. The data reflecting the volume of traffic show similar comparative results, but because of advances in freight and passenger rates in 1947 the per cent of increase in freight revenue was greater than the per cent of increase in ton-miles and the per cent of decrease in passenger revenue was less than the per cent of decrease in passenger-miles. In the two most important items—net railway operating income and per cent return on investment—1947 was better than 1946 but much below 1944. The effect of higher operating costs in recent years is seen in the fact that the 1929 operating revenues of $6,280,000,000 yielded net income of nearly $900,000,000 while the 1947 operating revenues of $8,582,000,000 produced but $450,000,000 in net income. The rate of return on investment less depreciation was 5.24% in 1929 and 3.32% in 1947. The position of railroad spokesmen is that anything less than 6% is inadequate.

Rate Increases.—The impact of wage advances and the higher costs of fuel and other materials on operating expenses resulted in such dangerously low net earnings in 1946 that the railroads appealed to the Interstate Commerce commission for authority to increase freight rates about 20%. An interim increase of about 6.5% was permitted on July 1, 1946, and effective Jan. 1, 1947, a further advance was authorized, bringing the aggregate increase to about 17.6%. Further wage boosts and other additions to expenses in 1947 led the railroads, early in the year, to go to the commission again and request higher passenger fares as well as an additional increase of about 30% in freight rates. In Oct. 1947 the commission approved an interim advance of nearly 10% in freight rates and in December granted an additional interim increase of nearly 10%. As a result of these advances the average freight rate in Jan. 1948, was about 40% higher than in Dec. 1946. In addition, the commission allowed the railroads throughout the year 1947 to boost their passenger fares. The rates of increase were not uniform throughout the country, but typically the coach fare per passenger-mile was advanced from 2.2 cents to 2.5 cents, and the fare in Pullman cars went up from 3.3 cents to 3.5 cents. The rates for commutation passengers were also advanced on some railroads.

The rates paid to the railroads by the post office department for the carriage of U.S. mail on trains are set by the Interstate Commerce commission. Inasmuch as there had been no change in those rates in the preceding 20 years the railroads petitioned the commission for an advance of 45% in recognition of the higher costs of operation. In Dec. 1947 the commission authorized an interim increase of 25% pending final determination of

the total increase to be allowed. The commission also permitted the Railway Express agency, a railroad-owned subsidiary, to advance its rates for the transportation of express matter on passenger trains.

Advances in rates were not confined to railroads. The higher cost of wages and the increase in other elements of total operating costs bore as heavily on the operators of trucks, buses and air lines as upon the railroads, and those transportation agencies applied for and were given authority to increase their rates in degree similar to the advances in railroad rates. The competitive situation between the several forms of transportation, therefore, was not materially changed in the matter of relative rates.

In its decision of Oct. 7, 1947, approving an interim increase of 10% in railroad freight rates, the commission, noting that the railroads like many other industries were vulnerable to inflationary forces and that sharp increases in operating costs had occurred, said that while an increase in rates might stimulate already existing inflationary forces, that factor, in their judgment, was "outweighed by the necessity of keeping the carriers, in the face of higher costs of operation, in a reasonably healthy condition in order that they may maintain their credit, procure additional equipment which is now urgently needed, and rehabilitate and improve their properties generally to take care of the demand of the public for adequate transportation service."

Railroad Financial Organization.—Further progress was made in 1947 in improving railroad financial organization. The extent to which the railroads had become insolvent was indicated by the fact that during the depth of the depression in the early 1930s more than 77,000 mi., nearly one-third of total railroad mileage, were in receivership or trusteeship. The bankrupt mileage had been reduced to 31,149 by the end of 1946, and during 1947 the consummation of the reorganization of the New Haven, Rio Grande, Frisco and Cotton Belt systems and five smaller roads brought the total mileage in the hands of the courts down to 24,200. On Jan. 1, 1948, the Rock Island system of 7,650 mi. emerged from trusteeship, further reducing the bankrupt railroad mileage to 16,650 or about 7% of the total. The only large railroad system in reorganization as of Jan. 1, 1948, was the Missouri Pacific.

Wage Increases.—Outside of a very few instances of no more than local importance and of short duration, there were no railroad strikes or serious labour disturbances on railroads in 1947 although at the end of the year there was threat of strike by the enginemen and firemen and a small minority of yard crews. The round of wage increases, additional to those granted in 1946, was begun in March when the so-called nonoperating group, consisting of shopmen, trackmen, station employees, office clerks and others (about three-quarters of total employees) demanded an increase of 20 cents per hour. Following direct negotiation and mediation the dispute was settled peacefully by arbitration. The award of the arbitration board, accepted by both sides, gave the men an increase of 15½ cents per hour from Sept. 1.

The operating brotherhoods, comprising about 350,000 enginemen, firemen, conductors, trainmen and over 90% of the yardmen, on Sept. 30, 1947, presented demands for a wage advance of 30% and the adoption of many rule changes which would affect wages. The result of subsequent negotiations between a committee of railroad executives and union leaders, without intervention of governmental mediation, was an offer by the railroads to give the operating brotherhoods the increase of 15½ cents per hour granted in September to the nonoperating group and to change a few of the rules to the advantage of the employees. The offer was accepted by the conductors, trainmen and yardmen who belonged to the trainmen's union but was rejected by the enginemen, firemen and the small minority of yardmen who belong to the switchmen's union. The dissidents held out for better terms and threatened to strike. At the close of the year the dispute was in process of mediation.

The number of employees in 1947 averaged about 1,356,000, practically the same as in 1946 but approximately one-third more than in 1940. Estimates of the Bureau of Railway Economics placed the annual compensation per employee in 1947 at $3,200. The comparable figure in 1946 was $3,069. In 1940 it was $1,913. The average would have been higher in 1947 if the wage increases effective on Sept. 1 and Nov. 1 had been in effect throughout the year.

Freight Car Shortage.—The quality of rail freight service in 1947 was marred by a shortage in freight cars. During World War II it had not been possible to obtain the needed additional cars because the critical materials required in car construction were needed for military purposes. The cars available were used intensively and emerged from the war period in deteriorated and overage condition. Orders for a large number of cars had been placed in 1946, but the car builders could not get sufficient steel. The number of new cars delivered was less than the number of worn out and obsolete cars that had to be retired. The number of cars in service on Oct. 31, 1947 (1,725,357, exclusive of those privately owned), was 47,385 less than the number in service on that date in 1946. The cars on order on Dec. 1, 1947, were 125,395, including those ordered by the private car lines. At the close of the year the situation was more promising, and there was likelihood of attaining the goal of 10,000 new cars per month.

The car shortage brought many complaints about poor service, especially from shippers of grain, and was made the subject of inquiry by a congressional committee. By extraordinary efforts on the part of the railroads, and with shipper co-operation, the turn-around time of cars was reduced, so that with the smaller number of cars the railroads were able, without unreasonable delay, to handle the record-breaking volume of 1947 wheat. The total number of carloads of all commodities moved by the railroads in 1947 was 44,500,000. The comparable figure in 1946 was 41,300,000.

Locomotives.—In contrast to the freight car situation there was no shortage of locomotives in 1947 even though there was a reduction in the total number. The capacity of the new locomotives was very much greater per unit than that of the old locomotives which were retired. The shift from steam to diesel continued at an accelerated pace. Of the 2,155 locomotives ordered in 1947, the diesels numbered 2,075. Of the 79 steam locomotives ordered, 68 were for two coal-carrying roads—the Chesapeake and Ohio and the Norfolk and Western.

Passenger Train Service.—In passenger service the volume of rail traffic was smaller than in 1946 but higher than in any of the years between the two world wars. The overcrowding of trains, so common during World War II and in 1946, was corrected, and the "On Time" performance was much improved. Partly because of the competition of the bus and the air lines, there was a continuing improvement in rail service, especially in the type of recently acquired passenger train equipment and in higher train speed. The number of named streamline trains was increased to 108, with 223 complete sets of equipment. More trains were equipped with lounge and recreation cars, and in the case of coaches the new equipment had more comfortable seats, better lighting, and practically all cars in important through trains were air-conditioned.

Operating Efficiency.—In freight train service and the utilization of equipment, the performance statistics of the first ten months of 1947 showed substantial improvements over 1946 in operating efficiency. The average freight train load in tons of



EXCAVATING a snowbound British passenger train stalled between Manchester and Buxton, England, during the severe blizzard in Feb. 1947 which kept rail lines blocked in that area for 24 hours

freight and the average net ton-miles per train-hour were higher than ever before. In the average car load and the average car-miles and net ton-miles per car-day, the 1947 results were better than in 1946, although somewhat lower than in some of the war years.

Capital Expenditures.—The expansion in the railroads' investment account by capital expenditures for additions and betterments was greater in 1947 than in any year after 1923 when the railroads undertook an extensive program to make up the deficiencies from World War I. The 1947 gross capital expenditures were about $900,000,000. During the immediately preceding nine years the annual average was $459,000,000. Nearly three-quarters of these expenditures were for modern equipment, and a little more than one-quarter were for roadway and structures.

Legislation.—During the first session of the 80th congress in 1947 no important legislation affecting railroads was enacted, but when adjournment was taken in July, several bills were left pending. None was considered during the special session in the last two months of the year. Those bills, therefore, were on the calendar for the second session which began in Jan. 1948.

One of them, commonly known as the Bulwinkle bill, would give legislative sanction to rate-making conferences and other railroad joint actions when such actions were approved by the Interstate Commerce commission. The bill had the backing of the commission and the shippers' organizations but was opposed by the department of justice which regarded such actions as violations of the antitrust laws.

Another, commonly designated as the Reed bill, would amend section 77 of the National Bankruptcy act to afford greater protection to stockholders in railroad reorganizations. The bill was favourably reported by the respective committees of the senate and the house, but no action was taken by either branch of congress.

The so-called Lea committee, authorized by the house in 1945 to make a comprehensive study of all forms of transportation and recommend new legislation, had not completed its task within the allotted time. Its life was extended, and it was expected to report in 1948.

An attempt was made in the Howell-Hawkes bill to amend the Crosser act of 1946 by changing its provisions for sickness and maternity benefits. The house committee reported the bill favourably, but the senate committee voted to postpone action to 1948.

The St. Lawrence Seaway project was revived in 1947 by the introduction of an amended senate resolution which would approve the 1941 agreement with Canada and make the navigation feature self-liquidating by the imposition of tolls. The resolution was put over for consideration at the 1948 session.

The antitrust suit, initiated by the department of justice against an association of western railroads, the American Railroad association and certain individuals, made little progress in 1947. The second half of the year was taken up in the preparation of briefs. The defendants' reply brief was filed on Dec. 31. The suit was aimed particularly at the conference method of railroad rate making.

The long drawn out litigation over the affairs of Pullman, Inc., ended in 1947 when the stock of Pullman company and all of its cars and other equipment were purchased by a group of railroads and a new company formed to carry on the operation and servicing of Pullman cars under contracts with the individual railroads. Earlier the car building activities of Pullman-Standard had been divorced from the Pullman company which operated the Pullman cars for the railroads. The new Pullman company's board of directors had no railroad officer or other representative of railroads. In so far as the public was concerned, the conduct of Pullman service was the same as it was before the suit was brought, but there was no connection between it and the manufacture and sale of cars. The former connection was held by the courts to be a violation of antitrust laws. (*See* also DISASTERS; INTERSTATE COMMERCE COMMISSION; NATIONAL MEDIATION BOARD; UNITED STATES.)

(W. J. C.)

Other Countries.—In strong contrast to the outstanding events of preceding years, the most notable railway changes in 1947 were in the legislative sphere, as opposed to those of construction, reconstruction and technical progress. This postwar nationalization wave eliminated many of the company-owned-and-managed railways and converted them to government-owned-and-managed concerns, although not necessarily operated directly by a government department. Thus by 1948 the United States railways and the Canadian Pacific railway were almost the only outstanding examples of company ownership and operation.

While the nationalization of the four large British railways was the most revolutionary example of the change-over, the cases of company-owned lines in Argentina, together with some in Brazil and the proposed government ownership of the Rho-

desian railways, provided instances of importance to illustrate this world-wide trend.

Great Britain.—The bill to nationalize the British railways became the Transport act, 1947, and carried the date Aug. 6, 1947. It provided for the setting up of a British transport commission whose duty would be to secure "an efficient, adequate, economical and properly integrated system of public inland transport and port facilities within Great Britain for passengers and goods with due regard to safety of operation." The commission's powers, coinciding with the nationalization by government acquisition of the railways, operated from Jan. 1, 1948; they were to be exercised through a series of executives to cover respectively railways, London transport, docks and inland waterways, road transport and, probably, at a later date, hotels. The chairman of the commission, Sir Cyril Hurcomb, announced on Nov. 26 that the railway system (to be known as British railways) would be organized in six regions (the London midland, the western, the southern, the eastern, the northeastern and the Scottish) replacing the four main-line railway company systems of the London Midland and Scottish, the Great Western, the London and North Eastern and the Southern. The regions were provisional. The rate of interest on the stock to be issued, in place of railway stock, by the British government was not known in 1947. It would undoubtedly result in a reduction of interest charges on capital.

Europe.—For the electrification plans that formed the greater part of European railway reconstruction, *see* ELECTRIC TRANSPORTATION.

In France and Belgium reconstruction of war-damaged railway facilities was forwarded with unexampled energy; passenger train services approached the pre-1939 level in terms of speed, if not yet in frequency, in spite of the necessary use of many temporary bridges, speed restrictions over damaged sections and the lower standard of maintenance of locomotives and equipment. Excellent work was done in the Netherlands where the railways had suffered disastrously from German destruction and many large bridges had to be rebuilt; shortage of signalling equipment and rolling stock delayed the return to prewar standards. Italy made rapid progress with the rebuilding of its main-line rail arteries and re-electrification of sections demolished in the war. The Swiss Federal railways celebrated their centenary in 1947 and the International Railway Congress association met at Lucerne in June in honour of the occasion. Progress continued with the doubling of the last remaining single-track sections of the Gotthard international route. The Danish state railways also celebrated their centenary in 1947. In Sweden the important group of company-owned railways, known as the Göteborg-Dalarne-Gefle traffic group, and including the efficient Bergslagen railway, were being taken over by the government and consolidated with the state railway system, thus leaving only a few lines of local importance outside the government-owned-and-operated system. Further sections of line were electrified and experiments were being made with oil-burning locomotives and diesel traction, but France provided the leading western European example of the use of oil burners, because, as in other countries, of the shortage of coal.

The German railway was still operated in four sections, coinciding with the four zones of occupation. It was understood that all the lines in the Russian zone except three main arteries had been reduced from double to single track. International services passing through Germany increased: the Paris to Stockholm route and some of the train-ferry routes across the Baltic from Germany were reopened. Poland provided some coal for the Swedish, French and other railways. In Yugoslavia some railway construction continued, largely by voluntary workers, linking up Sarajevo with the Danube valley. Information of technical interest from Russia or its satellite countries was meagre. A through sleeping car ran between Paris and Istanbul, and, when conditions in Palestine permitted, this through-service could be extended to Cairo, with a transfer by boat across the Bosporus.

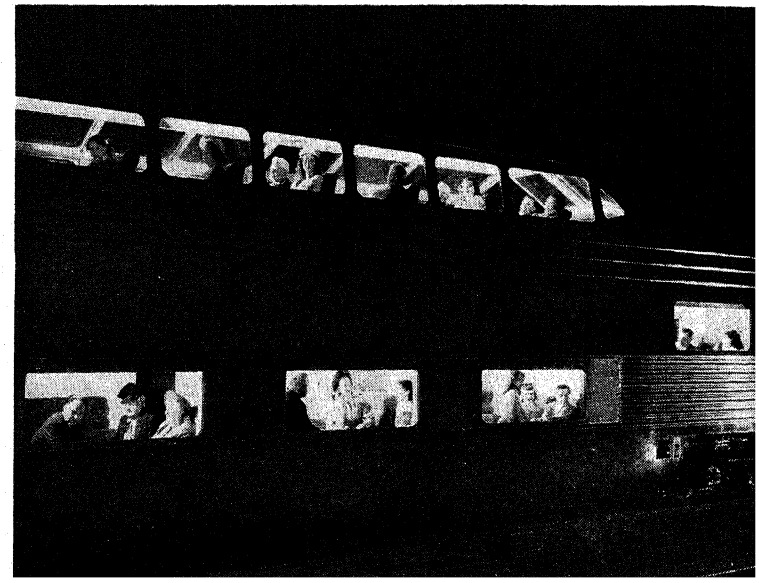
Asia.—The partitioning of India led to the division of the large northwestern system into two parts, one in Pakistan and the other in India; the exchange of refugees between the two territories was given temporary priority over all other traffic moves. The railway system was almost entirely run by Indians. The Palestine railways suffered grievously from racial difficulties, and the cost of reconstruction and repairs placed a heavy load on the administration. In Burma and Malaya facilities were largely reconstructed and most main-line services were reinaugurated, but little was known concerning the railways in Indo-China, in Japan or in the Netherlands Indies and China, where hostilities continued to disrupt communications almost as fast as they were repaired.

Africa.—The South African Railways and Harbours administration was able to record peak traffics and the arrival of much-needed new locomotives and rolling stock, while projects involving large scale capital expenditure were being carried out at Johannesburg and other centres. In Rhodesia the government determined to acquire the Rhodesian railways, which also serve the Portuguese port of Beira and Mashonaland as well as providing a through link with the South African system via Mafeking.

Australasia.—The New Zealand government railways continued their policy of linking up branch lines long isolated from the main lines in the North and South Islands. Shortage of coal restricted the services, and labour troubles adversely affected traffic. New Zealand was one of the first railways to introduce the principle of the 40-hour week, and the problems to surmount were not light. The proposal to standardize the gauges in the various states of Australia in accordance with the Clapp report made slow yet steady progress, but the capital cost was very heavy, and the states would require commonwealth assistance. Deficiency and the high cost of coal limited the potential mileage operated in certain of the states, and labour troubles reduced the volume of traffic. Victoria determined to make trials with powdered-fuel locomotives, and, in general, some arrears of maintenance incurred during the war period were overcome. In certain states the financial deficits on the railways assumed alarming proportions.

South America.—Terms for the acquisition of the foreign-

"TRAIN OF TOMORROW," an experimental passenger train manufactured by the General Motors Corp., featuring multilevel astra-dome cars, which made a six-month exhibition tour of principal U.S. cities in 1947



owned railways in Argentina were announced in 1947, although the date of transfer was made retroactive to July 1946. The price agreed for the railways and their subsidiaries was £150,000,000, but the sale had not yet been actually consummated; the question was linked with problems of currency and trade balances. The main railways involved were the Buenos Aires Great Southern, the Buenos Aires Western, the Buenos Aires and Pacific, the Central Argentine, the Argentine North Eastern and the Entre Rios railways. A similar policy was being adopted in Brazil, one railway affected being the São Paulo. Progress was made in Bolivia with the Corumbá Santa Cruz de la Sierra railway, and also in Brazil with the link between Baia and the state of Minas Gerais, the line to Monte Azul being completed early in 1947.

Canada.—Both the large Canadian railway systems were able to achieve virtually prewar standard of service by 1947, and important progress was made in overcoming the arrears of wartime undermaintenance. The Canadian National railway introduced diesel services on Prince Edward Island and placed a new train-ferry of notable design there; the Canadian Pacific proposed to use diesel-engine services in its operations on Vancouver Island. The financial situation was not healthy in view of steadily rising costs for labour and materials: Canada was virtually the only country with the prewar level of rates, and the railways asked for a 30% rise, but no decision was announced by the dominion government. (C. E. R. S.)

Rainfall: *see* METEOROLOGY.
Raisins: *see* FRUIT.

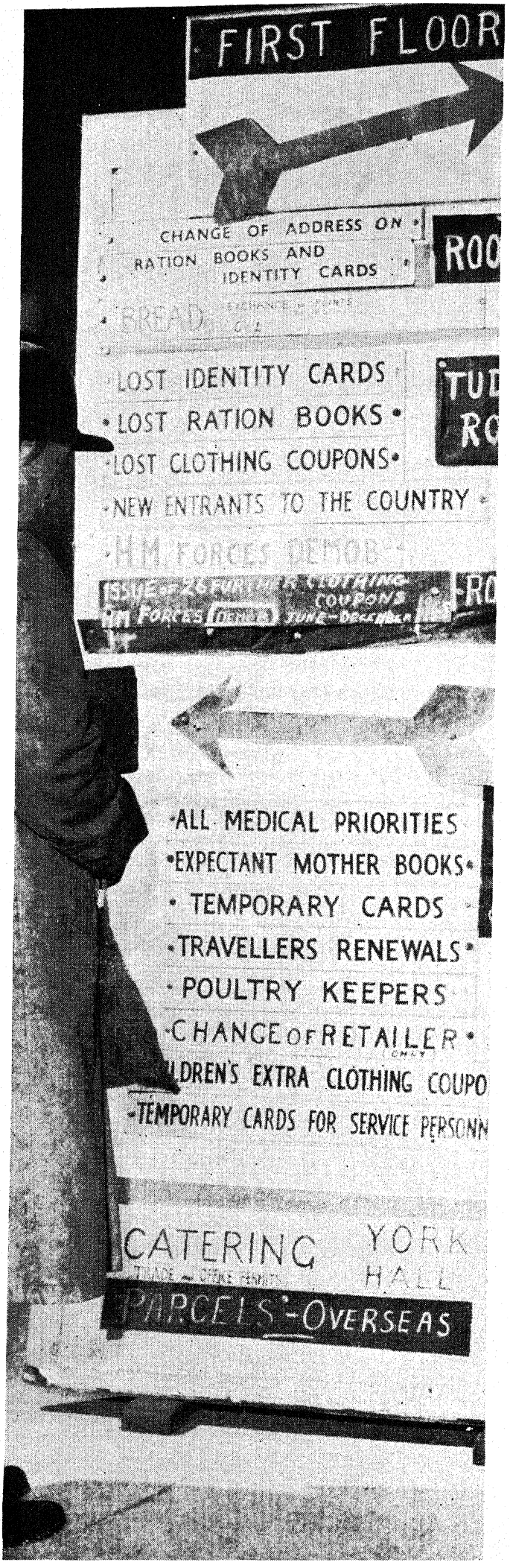
Ramadier, Paul (1888–), French statesman, was born in May 1888 at La Rochelle. He read law at the Universities of Toulouse and Paris and, having taken his degree at the latter, in 1907 opened a lawyer's practice in Paris, specializing in the legal position of the co-operative movement. Elected deputy of the Aveyron *département* in 1928 on a Socialist ticket, he represented his constituency in the chamber of deputies until 1940. He was minister of labour in 1937–38 and minister of food in 1945–46. On Jan. 22, 1947, he was elected prime minister by the national assembly. He twice reconstructed his cabinet: on May 9 and on Oct. 22; he resigned on Nov. 19.

Ramjets: *see* JET PROPULSION.
Rapid Transit: *see* ELECTRIC TRANSPORTATION.
Rates of Exchange: *see* EXCHANGE CONTROL AND EXCHANGE RATES.

Rationing. The removal of food supplies from the wartime rationing system in the United States became complete in 1947 with the termination of sugar rationing.

Elimination of the rationing controls began in the United States on V-J day—Aug. 15, 1945. Rationing of canned fruits, fruit juices and canned vegetables ended on that date. Next to be removed from the controls were condensed and evaporated milk; these items were dropped from the point system on Sept. 12, 1945. Meats, dairy products, canned fish and fats and oils were released on Nov. 24, 1945.

Sugar for civilian consumption was in short supply in 1946, but 1947 brought a change. Higher world production, the result primarily of a great increase in Cuba's output, lifted the available supply to an approximate balance between world production and world consumption. Accordingly, the United States government ended the rationing of sugar to household consumers on



RATIONING DIRECTORY at the headquarters of a British food and registration office in London during 1947

June 12 and to industrial users on July 28, 1947. (*See* PRICE ADMINISTRATION, OFFICE OF.) (C. P. A.)

Other Countries.—Differential rationing scales for various age groups and different types of workers were general in Europe, but in Great Britain this principle was only applied to expectant mothers, children under five and merchant seamen. An exception to this was to be found in the British bread rationing scheme, under which there were different scales for children and young people of various groups up to 18, for normal adults, expectant mothers and for manual workers. Priority milk was granted to infants, children at school, old people and the sick; while through the system of works canteens certain additional allowances of various foods were granted to workers.

Great Britain.—On Feb. 2, the portion of the meat ration consisting of tinned corned meat was raised from *2d.* to *4d.*, the total ration remaining at *1s. 4d.* per week; but with effect from June 13, this portion was reduced to *2d.*, and as from Sept. 7, the total ration was reduced to *1s.*, all carcass meat. As a result of the fuel crisis the sweet ration was temporarily reduced during March and April, these cuts being made good later. Further alterations in the autumn were a cut in the points from 32 to 28 per four weeks from Aug. 17, a reduction of from 15% to 18% in foods allocated to restaurants, except where the ceiling price per meal was *2s. 3d.*, and the reduction from October of the bacon ration to 1 oz. per week; banquets for more than 100 people were prohibited. On Nov. 8 potato rationing came into force for the first time, with a weekly allowance of 3 lb. per person. Fewer clothes coupons were allowed for the period Sept. 1–March 1. The abolition of the basic petrol ration in October put an end to all private motoring by Nov. 30.

Australia.—Rationing of meat, butter, sugar, cotton and some other clothing materials continued during 1947 in accordance with a statement by the director of rationing that to discontinue this system would show an utter disregard for the needs of the British people. Sugar rationing was discontinued on July 2.

Canada.—Meat rationing was abolished from March 27, but two meatless days remained in restaurants. Butter, honey and jam rationing was removed on June 9, and the sugar ration increased by 1 lb. per quarter from April 1.

France.—The basic bread ration was reduced on April 24 from 300 grams (10½ oz.) to 250 grams (8½ oz.) per day for all except heavy workers; it was further reduced on Sept. 1 to 200 grams, a lower figure than at any time during World War II. On Aug. 29 a decree closed butcher's shops for five days a week and restricted meat dishes in restaurants to two days.

Netherlands.—The meat ration was reduced from 200 grams per week to 150 on June 6, children and heavy workers being excepted.

Italy.—On April 3, the government announced the termination of political bread price and similar subsidies and an immediate price increase of 50%, employers being obliged to give low-paid workers an allowance to offset this. There was to be a differential rationing system for bread, pastries, fat and other foods, with preference for people of small means. Meat was restricted to three days a week, and fresh pastries might only be sold in retail shops on Saturdays and Sundays.

Germany.—In the Anglo-American zone the bread ration was increased on July 24 from 6,000 to 8,000 grams per month. It was announced that all Ruhr miners whose pits reached a production peak equalling the best four weeks from the end of the war would receive a U.S. food parcel equal to 40,000 calories and that a proportion of all foreign exchange earned by Ruhr coal would be set aside to buy food for the miners. The normal ration scale was 1,550 calories per day. In Austria the scale was the same.

Eire.—Bread rationing was introduced on Jan. 18. (*See* also FOOD SUPPLY OF THE WORLD.) (J. LN.)

Rayon and Other Synthetic Fibres.

Rayon yarn production in the U.S. was about 14% higher in 1947 than in the previous year. Of the total production of 975,000,000 lb., 228,000,000 lb. were viscose and acetate staple. Of the 747,000,000 lb. of filament yarn, 501,500,000 lb. were used in the textile industry, including woven fabrics, and the knitting industry. Tire manufacturers, the new large-scale consumers of synthetic yarn, used 227,500,000 lb. of filament yarn. Exports totalled 16,000,000 lb.

Table I.—*United States Rayon Production in Millions of Pounds*

	1942	1943	1944	1945	1946	1947
Rayon filament yarn	479	502	555	624	677	747
Rayon staple fibre	154	162	168	168	177	228

In the production of woven fabrics, the U.S. exceeded its previous high record of 1946 by approximately 10%. Almost 2,000,000,000 yd. of fabric in rayon were provided to textile consumers by U.S. mills in 1947. Two major types were represented, the all-filament fabrics, closest relatives of the old silk fabrics, and the spun rayons, simulating linen, wool and cotton

Table II.—*Production of Rayon Broad Woven Fabrics (Except Tire Fabrics)*

(In millions of linear yards)

	All-filament	All-spun rayon	Comb. filament and spun rayon	All other rayon mixtures
1945	1,018.2	162.1	159.8	178.2
1946	1,158.4	195.8	178.2	250.8
1947	1,210	294	182	170

fabrics. The fabric industry consumed about 450,000,000 lb. of filament and spun rayon, 25,000,000 lb. of cotton, 3,000,000 lb. of nylon and 56,000,000 lb. of all other yarn, other than rayon, cotton and nylon.

Production of rayon knit fabric (fabric sold to the garment manufacturing industry, not knit underwear or glove fabric) reached about 113,000,000 lb., compared with 147,000,000 lb. in 1946. The decrease was primarily in the circular knit fabric, especially in the dress field, where production dropped sharply. In the warp knit division (fabric knitted flat, most closely resembling woven fabric) the year's production was about 31,300,000 lb., compared with 32,800,000 lb. in 1946. Production of circular knit goods dropped to 77,500,000 lb., compared with 98,800,000 lb. in 1946. Rayon hosiery continued at a low rate of production, resulting from the re-introduction of nylon after 1945. There was sufficient use, however, to consume about 19,000,000 lb. of filament yarn, 2,000,000 by the full-fashioned manufacturers and 17,000,000 by the seamless hosiery mills.

Prices for rayon yarn and fabric advanced in 1947, after remaining comparatively static from 1941. This stability contrasted with the general price movement on all commodities of the U.S., as well as textile products. Wholesale price index numbers (1935–39 = 100) were as follows:

Monthly Average	All Commodities	All Textile Products	Rayon Yarn and Staple
1941	108.4	119.3	96.5
1942	122.6	136.2	98.4
1943	145.9	137.1	98.4
1944	129.1	138.5	98.4
1945	131.4	140.8	98.1
1946	150.0	163.9	99.1
1947*	186.0	196.6	119.0

*Based on 10 months.

World production was given impetus during 1947 by the partial recovery of Germany and Japan, which prior to World War II were the two largest producers of rayon. In the first

half of 1947, Germany's plants produced almost double the amount of the last half of 1946. In staple fibre, however, the increase was only 10%. In Japan, the American military government announced a goal of 165,000,000 lb. of filament annually, and 135,000,000 lb. of staple. In 1938, Japanese production of filament yarn totalled 640,000,000 lb., and 980,000,000 lb. of staple. Figures published in 1947 stated that annual production was at the rate of 120,000,000 lb. of filament and 240,000,000 lb. of staple. One-third of the capacity was operable.

In the United Kingdom, the average monthly production of rayon yarn in the first half of 1947 was 15,800,000 lb., of which 6,600,000 was staple and 9,200,000 filament. This did not differ much from the 1946 rate of 15,000,000 lb. monthly—5,900,000 of staple and 9,100,000 of filament. Exports took 6,600,000 of the total, of which Australia received 2,300,000 and Canada, 1,700,000.

Total world production figures for 1946 were issued in June 1947, and showed an 18% increase over 1945, but still 41% below 1941, the peak year. The chief gain was in filament yarn, 22%; the staple output rose 10½%. World conditions again gave the U.S. the leading position as rayon producer. Consumption per capita also led in the U.S.—5.9 lb. per person.

The increased world production of rayon filament, 22%, was largely due to expanded facilities in the U.S. and South American countries, but European production, despite declines in Austria, Germany, Rumania and Switzerland, showed a 64% increase over 1945. The new impetus in production came from Belgium, Finland and Sweden. South America, the newest producing area, reached a production of 38,000,000 lb., 3% of the world output.

Canadian rayon production continued at about the same rate in 1947 as in 1946. In the first eight months, filament rayon output was 3,900,000 lb., compared with 3,200,000 in the same period of 1946.

Nylon and Other Synthetics.—Nylon, the second most important synthetic fibre, in 1947 entered the first year of its second decade, with demands for ever-increasing supply and an ever-expanding market. While principally known as a hosiery yarn, nylon was listed as being used in 62 different civilian and industrial articles, at a hearing before the U.S. congress on July 7, 1947. Production figures on nylon were not published, but 1946 production was estimated to be about 25,000,000 lb. for domestic use. The E. I. du Pont de Nemours company continued to be the sole producer. Prices of U.S. nylon early in 1947 ranged from $5.50 per pound for 15 denier, to $1.55 per pound for 210 denier.

Nylon industrial fabrics, particularly in laundry bags, pressing cloths and boat sails, were becoming staple articles. Nylon tire cords went into heavy-duty types for transport aeroplanes, bulldozers and other mechanized vehicular equipment; passenger cars did not need the margin of higher strength.

The manufacture of nylon yarn outside the U.S. was licensed by the du Pont company; in 1947, Great Britain and France were the principal licencees. Canada had a partial installation ready. To all other countries, du Pont exported 146,593 lb. in 1946.

Development of other synthetic fibres in 1947 was given new impetus by lifting of wartime controls on the use of resins. Of the synthetic yarns known as thermoplastic fibres, the two best known were Vinylite and Saran. In the fibres made from copolymers of vinyl chloride and vinyl acetate, the best known was Vinyon, mostly produced as a staple fibre. It was used principally in the manufacture of tea bags. Other uses mentioned in 1947 were for shoe materials, screening, industrial filters, bolting cloth and goods of the sheerest types.

Protein fibres (*azlon* was the new generic name proposed for the group) included Aralac in the U.S. and Lanital in Italy. Both were used in combination with stronger fibres, particularly wool, although a new use was for upholstery goods, combined with cotton.

Glass fibre was marketed as continuous filament yarn, staple fibres, mineral-wool and flock fibres. The mineral-wool type used for insulation averaged between 125,000,000 and 150,000,000 lb. in 1944–45. Fiberglas, the textile-type of fibre, including the filament and staple, reached 10,000,000 lb. in 1945, but production was reduced considerably thereafter.

(I. L. Bl.)

Receipts, Government: *see* Budget, National.
Reciprocal Trade Agreements: *see* International Trade.
Reclamation: *see* Canals and Inland Waterways; Floods and Flood Control; Forests; Irrigation; Soil Erosion and Soil Conservation.

Reconstruction Finance Corporation.

The Reconstruction Finance corporation was organized and began operations Feb. 2, 1932, following its creation by the U.S. congress Jan. 22, 1932. The succession of the corporation was originally fixed at 10 years, later extended to 15 years and, pursuant to public law 132, 80th congress, approved June 30, 1947, it was extended to June 30, 1948.

The management of the corporation is vested in a bipartisan board of five directors, appointed for a term of two years by the president with the advice and consent of the senate. The board consisted in 1947 of John D. Goodloe, chairman, Henry A. Mulligan, Harvey J. Gunderson, Henry T. Bodman and Harley Hise.

The capital stock of the Reconstruction Finance corporation originally was $500,000,000, all of which was subscribed by the secretary of the treasury, and in 1941 the corporation retired $175,000,000 of the stock at par.

Lending Activities.—In the early part of 1947, RFC inaugurated a small loan participation program, the objective of which was to make longer-term credit more readily available to small business concerns through regular banking channels. Under the plan the corporation would consider taking a participation of not more than 75% in business loans up to a maximum of $100,000 when so requested by a bank. From the beginning of the program to June 30, 1947, the corporation had agreed to participate in 1,639 small loans amounting to $40,300,000. Including the small loan participation commitments, loan authorizations for national defense purposes and loans authorized in connection with the veterans' emergency housing program, 10,589 business loans in the approximate aggregate amount of $550,000,000 were authorized by the corporation during the fiscal year 1947. In such loans banks agreed to participate with the corporation to the extent of approximately $114,473,000.

In the more than 13 years that the corporation had been authorized to make loans directly to business enterprises, it had made commitments for 43,400 such loans totalling in excess of $3,819,000,000, including participation by banks aggregating approximately $393,136,000. More than 90% of the number of all business loans authorized by RFC had been to small business.

During the 1947 fiscal year authorizations for loans and purchases of obligations in connection with projects authorized under federal, state or municipal law were made in the amount of $1,115,000. Public law 256, 80th congress, approved July 29, 1947, limits the amount of public agency loans outstanding

to $125,000,000.

The corporation authorized 83 catastrophe loans amounting to $383,000 during the fiscal year 1947.

RFC was authorized to furnish a market for veterans' home loans made pursuant to the provisions of the Servicemen's Readjustment act of 1944, as amended. The corporation's authority to carry on this activity expired June 30, 1947, and as of that date it had purchased 11,800 such mortgages amounting to $67,680,000 and had commitments outstanding to purchase 13,200 additional mortgages in the aggregate amount of $81,200,000.

Other authorizations in the 1947 fiscal year comprised loans to railroads aggregating $82,850,000; $347,500 to drainage and irrigation districts; preferred stock loans to insurance companies amounting to $5,000,000; and loans to the government of the Philippines in the amount of $70,000,000.

Purchase of Surplus Property for Resale to Small Business.—Because of a ruling of the comptroller general, the acceptance of applications by RFC for the purchase of surplus property for resale to small business was temporarily discontinued in March 1947, but authority to carry on this activity was reinstated by public law 132, 80th congress. During the 1947 fiscal year approximately 13,200 sales covering surplus property, having a value in excess of $40,000,000, were consummated and more than 19,000 small business priority applications were cancelled because of the inavailability of the material desired.

Nonlending Activities.—RFC was authorized to continue to operate by lease or otherwise the government-owned tin smelter at Texas City, Tex., until June 30, 1949, or until such earlier time as congress should otherwise provide. During the period July 1, 1946–June 30, 1947, RFC purchased $54,988,000 of tin, tin ores and concentrates; and its sales of tin for the same period amounted to $89,716,000.

As a national defense measure a synthetic rubber program was undertaken by the government in 1940 when for all practical purposes there was no commercial production of the product in the United States. RFC constructed more than 51 plants and related facilities for synthetic rubber production, representing an investment in excess of $666,000,000. These facilities were operated for the account of RFC and by the close of 1945 the plants were producing at a rate of more than 1,000,000 tons of synthetic rubber annually. In the fiscal year 1947, 1,531,000,000 lb. of synthetic rubber were produced in 44 of the plants at a cost of approximately $214,000,000, and in the same period the corporation sold 1,504,000,000 lb. of synthetic rubber for a consideration of $279,800,000. RFC was authorized (public law 24, 80th congress) to continue the manufacture and sale of synthetic rubber until March 31, 1948, and to carry on essential research in connection with the development of the synthetic rubber industry.

During 1946 and 1947 the RFC, through its subsidiary U.S. Commercial company, was engaged in selling merchandise made available to it in Germany, Japan and Korea by the United States military authorities. The primary purpose of the program was to provide dollar exchange for use by the United States military authorities in facilitating administration in those areas.

During the fiscal year 1947, sales amounted to approximately $109,400,000.

Liquidation Activities.—A substantial number of industrial plants and other war facilities owned by RFC and representing an investment of more than $6,000,000,000 had been sold, declared surplus to War Assets administration or disposed of otherwise. During the fiscal year 1947 RFC declared surplus plants and other such facilities in which its aggregate investment amounted to more than $2,000,000,000. The corporation held such plants and other facilities, with a book value of $1,245,000,000 as of the close of the fiscal year, exclusive of the synthetic rubber plants, the Texas City tin smelter, and the fibre plantations in Central America, Panamá and Haiti. The corporation's investment in the fibre plantations amounted to $13,280,000.

Certain assets of the Smaller War Plants corporation, including plants, equipment and outstanding loans receivable, were transferred to RFC pursuant to executive order of Dec. 27, 1945. In the fiscal year 1947, RFC declared surplus to War Assets administration equipment formerly owned by Smaller War Plants corporation, representing an investment of approximately $1,700,000. The investment at the close of the fiscal year in the remaining lands, structures and equipment amounted to $4,349,000.

The purchase and sale of certain strategic materials and supplies which the RFC had bought and sold during World War II were continued during the fiscal year 1947. Purchases amounting to approximately $535,000,000 of such commodities were consummated in the fiscal year, comprising principally natural rubber, alcohol, molasses and copper. Sales for the same period were in the aggregate amount of $884,300,000. From 1940 when RFC began the acquisition of strategic minerals, metals and other critical and strategic supplies to June 30, 1947, it had expended approximately $9,681,000,000 for this purpose. During the same period its sales of such commodities and materials amounted to $9,505,000,000.

The activities in connection with the liquidation of the affairs of RFC's subsidiary War Damage corporation during the fiscal year 1947 comprised primarily the settlement of claims requiring the expenditure of approximately $893,000 and the continuation of the audit of the insurance companies which acted as its fiduciary agents. Through the facilities of 546 fire and 88 casualty and surety insurance companies, acting as fiduciary agents of the corporation, more than 8,700,000 policies or renewal certificates were issued representing a potential liability of approximately $140,000,000,000. The fire insurance companies had a participating interest in the operating profits or losses of the program up to a maximum of $20,000,000, and the casualty and surety insurance companies had a like interest limited to $5,000,000. Gross premiums collected amounted to approximately $250,000,000 and the net profits realized from the operations of the program in the amount of $209,827,810 were paid into the United States treasury.

During the period from Feb. 2, 1932, date of organization of the corporation, through June 30, 1947, loans and other authorizations made by the RFC with respect to its lending activities and loans to its war subsidiaries aggregated $42,390,301,523, including $4,914,603,216 for allocations and loans to other governmental agencies and for relief by direction of congress. Of the total amount authorized, $5,275,892,607 was withdrawn or cancelled and disbursements totalled $36,023,428,933. The amount outstanding at June 30, 1947, was $2,057,454,140 after repayments and other credits amounting to $33,965,974,792. (J. D. G.)

Reconversion: *see* BUSINESS REVIEW; LAW; RATIONING.

Red Cross.

United States.—Two events stood out in the history of the American Red Cross during 1947. First was a reorganization under which chapters were given greater voice in determining Red Cross policies. The Central committee was abolished and replaced by a board of 50 governors—30 elected by chapters, 8 appointed by the president of the United States (one designated president of the Red Cross) and 12 members at large elected by the other 38. The

reorganization was voted by congress and signed in May, 1946. President Harry S. Truman appointed Basil O'Connor, who had been serving as chairman of the Red Cross since July 1944, president of the organization for a three-year term.

The second event was inauguration of a new national blood program to furnish whole blood, plasma and eventually other derivatives, without charge for the products, to the entire nation. The program would require three to five years to reach full operation, and approximately 3,700,000 pints of whole blood annually would be needed. Preliminary organization was completed by the end of 1947, and the first blood centres were scheduled to open in 1948. Donors in small towns and rural districts were to be reached by "bloodmobiles"; the donations thus collected would be returned to originating communities after processing.

Disaster relief operations, financed by allocations of $11,000,000, were greater in 1947 than in any of the preceding 10 years. Aid was provided to more than 300,000 victims. Principal disasters calling for Red Cross assistance included the tornado at Woodward, Okla., and the nearby towns of Glazier and Higgins, Tex.; the Texas City explosions and fires; the June floods in seven midwestern and eastern states; the Florida-Gulf states hurricane in September and the New England forest fires in October.

Claims Service representatives handled 1,095,832 claims of veterans or their beneficiaries for government benefits. Paid field directors were serving in 116 veterans' administration hospitals at year-end, assisted by 11,000 Red Cross chapter volunteers working on regular schedule to provide programs of recreation and entertainment for the hospitalized. Chapter Home Service workers aided veterans or their families with personal problems in 2,029,000 instances, and similarly helped families of servicemen upon 1,658,000 occasions.

Camp Service field directors aided servicemen upon 1,236,300 occasions in the U.S. and overseas in coping with problems affecting the welfare or morale of the individual or his family. Medical social workers performed similar services for the hospitalized, and recreation workers conducted well-rounded programs for occupation forces. Emergency financial assistance to men and women in uniform totalled $3,778,100. An agreement was reached with the army and navy under which Red Cross overseas club operations would be gradually turned over to the armed services, the change-over to be complete by March 31, 1948. Traditional camp and hospital programs overseas were to be continued.

In addition to the blood program, health activities included instruction in safety, home nursing and nutrition. At the end of 1947, Red Cross instructors in water safety numbered 21,000; in first aid, 29,000; and in accident prevention, 7,000. Persons completing water safety courses numbered 470,390, of whom 91,239 qualified as Red Cross life savers. First aid trainees numbered 346,871, while 31,723 persons received training in accident prevention. The Nutrition Service issued 37,754 certificates to persons completing classes, and home nursing 118,340. Red Cross public health nurses made 351,600 visits to persons needing their assistance.

More than 275,000 trained volunteers served a total of 25,000,000 hours. Production workers made 2,565,200 garments and other articles for use in relief and other activities. Canteen workers served 3,145,000 persons; the Motor Service made 668,600 trips.

Expansion of Red Cross College units continued during 1947, with groups active on the campuses of 239 institutions of higher learning. They served veterans and their families attending college, promoted Red Cross classes in water safety, first aid and other subjects, and worked with Red Cross chapters in their service programs on behalf of hospitalized veterans, servicemen and civilians.

The Junior Red Cross continued its program of educational rehabilitation by sending school and other supplies valued at $1,832,200 to children in war-devastated countries. With an enrolment of 19,270,800 members, it also furnished Navajo Indian children with cod liver oil, eye glasses, first aid kits, wool cloth, blankets, sports and educational equipment.

(H. Bm.)

World.—The League of Red Cross societies sponsored two regional conferences during the year. The first, held at Caracas, Venezuela, in February brought together most of the representatives of the 22 societies of the western hemisphere. The delegates worked out plans for greater co-operation among the societies in the relief of disaster victims, discussed new health programs, and called particular attention to the need for continued aid to war victims abroad. The second, in September at Belgrade, Yugoslavia, was concerned principally with problems of postwar relief and health programs.

Two meetings of the board of governors of the league were held, one in Paris in May, the second in Geneva, Switzerland, in September. At the latter meeting the newly organized Red Cross societies of the Philippines and Syria were admitted to league membership, raising the number of member societies to 64 with a combined world-wide membership of more than 100,000,000.

The International committee of the Red Cross—an independent body of Swiss citizens—brought together in Geneva in March representatives of the principal Allied governments to discuss revisions of the Red Cross treaties and the development of a new convention to protect civilian populations in war time. The committee continued its efforts to aid war prisoners still held by Allied governments and called for their earliest possible repatriation.

A number of the national societies initiated new blood donor programs or expanded this service during the year, including the United States (*see* above) and Canada. The Netherlands Red Cross further developed its nation-wide blood service, and many other European societies showed increased interest in blood programs. The Danish Red Cross conducted antituberculosis vaccination programs in a number of European countries.

Disaster relief continued to demand Red Cross attention throughout the world. The American Red Cross aided flood sufferers in England and famine victims in Rumania. Floods in Bulgaria, explosions in France and Spain, fires and earthquakes in South America found the various national Red Cross societies taking significant part in relief work.

The division of India was reflected in Red Cross organization there with plans developed for a Pakistan Red Crescent to succeed the Indian Red Cross in the new Moslem country.

The Japanese Red Cross concentrated on a new peacetime program and held its first postwar fund campaign. A new Red Cross in U.S.-occupied Korea was formed. German Red Cross units in the western zones of Germany gave special services to returning war prisoners and developed nursing and other civilian services.

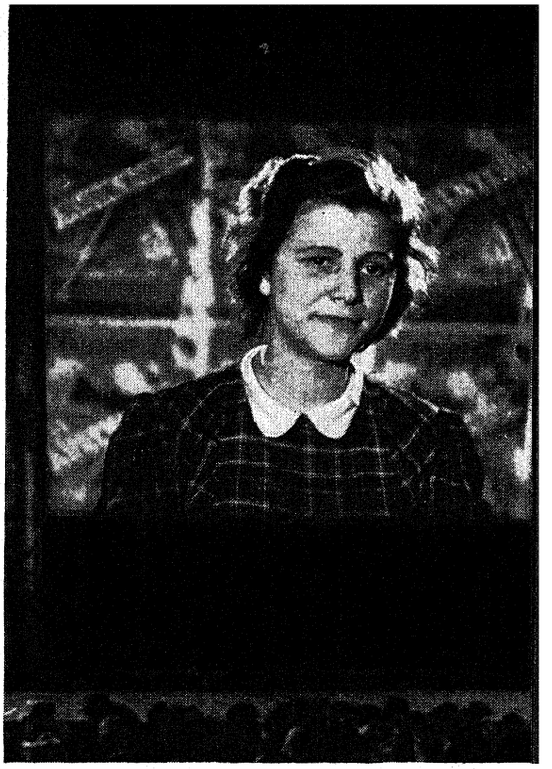
(*See* also Prisoners of War.) (P. E. R.)

Re-employment of War Veterans: *see* Selective Service.
Reforestation: *see* Forests.
Reformed Church: *see* Presbyterian Church.

Refugees. The departure from Germany of 2,000 Ukrainian Mennonite refugees for Paraguay in Jan. 1947 initiated the movement of refugees in resettlement which gained increasing momentum during the year. In 1945 the substantial

Below: MARIONETTES being fashioned by a young inmate of a displaced persons' camp in Europe during 1947





Above: NEWSREEL captioned "children looking for their parents," a 1947 device used in German theatres for reuniting families separated during the chaotic last months of World War II



Above: JEWISH CHILDREN among the 4,300 refugees aboard the "Exodus 1947" bound for Palestine, who were transferred under protest to British vessels at Gibraltar and returned to Hamburg, Germany, in Aug. 1947

Below: DISPLACED PERSONS being transported from Lecce, Italy, to a new camp established for them by U.N.R.R.A. near Bari in 1947



movement from central Europe had been in repatriation to the home countries of eastern and western Europe from which over 8,500,000 slave labourers and concentration camp victims had been drawn during the war. By the end of 1946 this movement, which comprised more than 7,000,000 victims of German labour recruitment policies, had come to an end, leaving behind as the hard core of nonrepatriable displaced persons approximately 1,000,000 Poles, Ukrainians, Balts, Yugoslavs and Jewish refugees who were unwilling to return to their former countries. They preferred the meagre existence of camps and assembly centres and the uncertainties of resettlement in other countries to return to their countries of origin in which such profound political changes had taken place as to make life unattractive.

The Intergovernmental Committee on Refugees, whose efforts to resettle refugees had been handicapped in 1945 and 1946 by the limitations of shipping and the rigid controls of the occupying authorities on the exit of persons from Germany and Austria, concluded agreements with Brazil, Venezuela, Peru, Chile, and other Latin American countries for resettlement of refugees on the land and in industry.

Four ships were chartered from the U.S. army to shuttle refugees across the Atlantic to South America and Canada. During 1947 British and Norwegian ships joined the fleet to expand the movement in resettlement to Australia and the Argentine. Under President Harry S. Truman's directive of Dec. 22, 1945, some 28,000 displaced persons had been given visas of admission to the U.S. by Dec. 1947. Twenty thousand had been recruited for work in Belgium, and 30,000 had been received in England under the movement known as Westward Ho. Canada announced its willingness to receive refugees nominated by relatives already resident in the dominion and to accept for employment an additional 20,000 workers in lumber, textiles, domestic service and industry. Australia initiated its program of selecting 20,000 immigrants from among the refugees in Europe in the fall of the year. The Netherlands announced recruitment plans involving the selection of 8,000 workers. Conservative estimates were that more than 110,000 displaced persons had started life anew in countries of immigration at the end of the year as the forerunners of many more thousands to come in the following two years.

Governments were slow in responding to the appeal of the United Nations to join the International Refugee organization, which was proposed as the international agency to deal with the problem of refugees and displaced persons. The constitution of the I.R.O., adopted by the general assembly of the United Nations at its meeting in New York in Dec. 1946, provided that the organization would come into being when 15 nations had ratified the constitution. Allocated contributions of member nations totalled 75% of the provisional budget of $155,000,000 for the first year's operations. By Dec. 31, 1947, only 11 governments, Australia, Canada, China, Guatemala, Dominican Republic, Iceland, the Netherlands, Norway, New Zealand, Great Britain and the United States had ratified the constitution. Their contributions to the budget totalled 70.14%.

Pending activation of the International Refugee organization, the preparatory commission for the I.R.O., consisting of 20 governments which had either ratified the constitution or signified their intention to do so, assumed operating responsibility for the problem by accepting the functions of U.N.R.R.A. and the Intergovernmental Committee on Refugees, which terminated their activities on behalf of refugees on July 1, 1947. The preparatory commission was handicapped by inadequate funds, a substantial portion of which had to be expended on the care and maintenance of refugees in the camps in Germany, Austria and Italy. The possibility of exploiting all available opportunities for resettlement, particularly in overseas countries, was thus precluded.

The urgency of resettling refugees at the earliest possible time was highlighted by withdrawal of the Allied military forces from Italy in Dec. 1947 and by the difficulties experienced in drafting the Austrian peace treaty. The eastern European governments made persistent demands for repatriation of their dissident nationals and repeated charges that those resisting repatriation were mostly war criminals, quislings or traitors or that they were being misled by political enemies of their home countries. Upon the withdrawal of British and U.S. troops from Italy it was feared that demands for repatriation of the estimated 150,000 refugees in Italy, mostly Yugoslavs, could not be resisted by the Italian government. The latter, however, gave public assurances that it would protect the right of the refugees to choose between repatriation and resettlement in other countries. In Austria negotiations on the peace treaty were delayed in part by the demand of the Soviet government that all refugees and displaced nationals of United Nations countries and *Volksdeutsche* from the Balkan countries alike be removed from Austria. These two groups totalled approximately 450,000, of which 250,000 were *Volksdeutsche* who had fled into Austria after the war, chiefly from Yugoslavia. They constituted a real burden on the Austrian economy and threatened constantly to create serious political tensions among the occupying authorities and within the government.

Jewish refugees in central Europe numbered more than 200,000, the majority of whom had fled from Poland during 1946 and early 1947. Their destination was Palestine by any available route. During the summer of 1947, 20,000 Jewish refugees from Rumania infiltrated into Austria, Germany and Italy in flight from political and economic pressures which severely restricted their opportunities for a livelihood. This movement slowed down in the fall of 1947 as tighter controls were imposed on the Rumanian-Hungarian border. The hopes of Jewish refugees were raised by the action of the United Nations general assembly in voting for the partition of Palestine.

Integration in the German economy of the 6,000,000 members of the German minorities of Poland, Czechoslovakia and Hungary whose transfer to Germany had taken place under the Potsdam agreement proceeded very slowly during 1947. Their presence was resented by the Germans, who were forced to share their limited rations and housing facilities. Because of the overcrowding in Germany, the movement of *Sudetendeutsche* from Czechoslovakia was halted before its completion, leaving approximately 160,000 persons arrested in the process of expulsion. Denmark was forced to maintain within its borders more than 100,000 Germans whose repatriation could not be arranged. Smaller numbers of *Reichsdeutsche* and *Sudetendeutsche* whose ultimate destination was Germany were also held in Austria pending arrangements for their reception.

Immigration legislation to admit 400,000 refugees and displaced persons to the United States in excess of existing quotas was the subject of heated debate in the U.S. congress and was widely discussed in the press. Prospects of favourable action on this legislation raised hopes that a substantial reduction in the displaced persons population of central Europe might be achieved.

In anticipation of meeting the manpower requirements of the "Marshall plan" countries, the preparatory commission for the I.R.O. was assembling data at the turn of the year on the occupations and skills of refugees and displaced persons. The employables were estimated to number more than 500,000. In addition, the preparatory commission listed opportunities for the resettlement of more than 250,000 refugees during 1948 in Latin American countries, England, Canada, Australia and the western European countries. These resettlement agreements

were in process of renegotiation as the quotas of original agreements approached fulfilment.

In the far east, more than 2,000,000 Koreans had been repatriated to Korea since 1945. Approximately 1,000,000 returned from Japan, where some 2,000,000 labourers and their families had been taken during the war for employment in industry. Included also were some 500,000 from north Korea and approximately 350,000 from Manchuria. More than 800,000 Japanese were repatriated from Korea to Japan during 1946 and 1947, including some from the Soviet zone of occupation.

Repatriation of Japanese from China continued during 1947. Of the estimated 2,000,000 at the end of the war, 1,500,000 had been repatriated by the close of 1947. The repatriation of overseas Chinese from China to the Philippines, the Netherlands Indies, Siam, Burma and Indo-China proceeded more slowly owing to delay in immigration procedures in the receiving countries. Because of disturbed internal conditions in China, no places of final settlement of the 20,000,000 Chinese displaced during the war appeared likely. (*See* also JEWISH RELIGIOUS LIFE; PRISONERS OF WAR.)

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Relay Racing: *see* TRACK AND FIELD SPORTS.

Relief. The main attention in administration of relief in the United States during 1947 was to raise payments to meet the rapidly increasing cost of living. Congress authorized increases in the subsidies when matched by similar increases made by states. A complicated formula was adopted in the categories of old-age assistance and aid to dependent children, providing for about the same potential increase in the two categories. Congress suggested that the states allow enough to meet the budgetary deficit in each family, irrespective of federal grant; a few states such as Massachusetts had adopted this method from the first days of the Social Security administration.

The categorical assistance program—old age, dependent children and blind—was liberalized by the states in some respects by easing the requirements of eligibility, such as time of residence in the state; but on the other hand there was a general movement to enact laws which would place a lien upon the property of a deceased beneficiary, whereby the state would reimburse itself.

The American Public Welfare association estimated in Sept. 1947 that 1 out of 3 in the country more than 65 years of age was receiving public assistance; 1,750,000 children and 80,000 blind were receiving assistance under the Social Security law; nearly 2,000,000 were receiving unemployment compensation; and 3,000,000 former servicemen, their families or survivors were receiving benefits through the Veterans' administration.

Australia.—At the end of 1946 a constitutional amendment was ratified empowering the dominion government to make nation-wide provisions, in addition to invalid and old-age pensions, for maternity allowances, widows' pensions, child endowment, relief for the unemployed, sickness benefits including medical care, hospital benefits and drugs, allowances to students and family allowances. The question of abolishing the means test was also under consideration. Some of these services had been in operation in parts of Australia for years, but in 1947 they were consolidated under a national administration and nationally aided finance.

Australia thus adopted the same simplified structure of relief benefits as that of New Zealand, except that in the latter dominion the worker and employer had to pay a large share of the total cost to a plan approximating social insurance. In Australia the whole financial responsibility rested upon the governmental authorities, dominion and provincial. In New Zealand there was no means test.

Great Britain.—Progress toward implementing the Beveridge report during 1947 was mainly in the social insurances, in which the pattern first established by New Zealand was followed in the main. Seven distinct governmental authorities concerned with various aspects of social insurance were consolidated into a single department: the ministry of national insurance. Instead of separate and different rates for the different types of protection, premiums for both worker and employer were consolidated into one payment: 4*s* 11*d* a week from the worker and 4*s* 2*d* a week from the employer. Similarly, benefits were placed on a flat basis. While the consolidation was not to be fully effected until July 5, 1948, certain provisions, such as old age, blind and widows' (insurance) pensions, with their insured benefits, were adopted early in 1947. This action had a bearing on relief, as supplementary grants to pensioners were made by the assistance board, on evidence of need. The need for such grants was greatly decreased by the more adequate insurance pensions.

Reorganization of relief remained in the planning stage, but it was contemplated that the whole system of public outdoor relief be nationalized and modernized, leaving with the local authorities only institutional care for the aged and infirm, or special services for the deaf, the blind and physically handicapped.

Reflecting this acceptance of complete public responsibility for the care of foreseeable distress, the London Charity Organization society changed its name to the Family Welfare association, and limited its function to counselling and advice on family matters, including advisory service on available governmental resources.

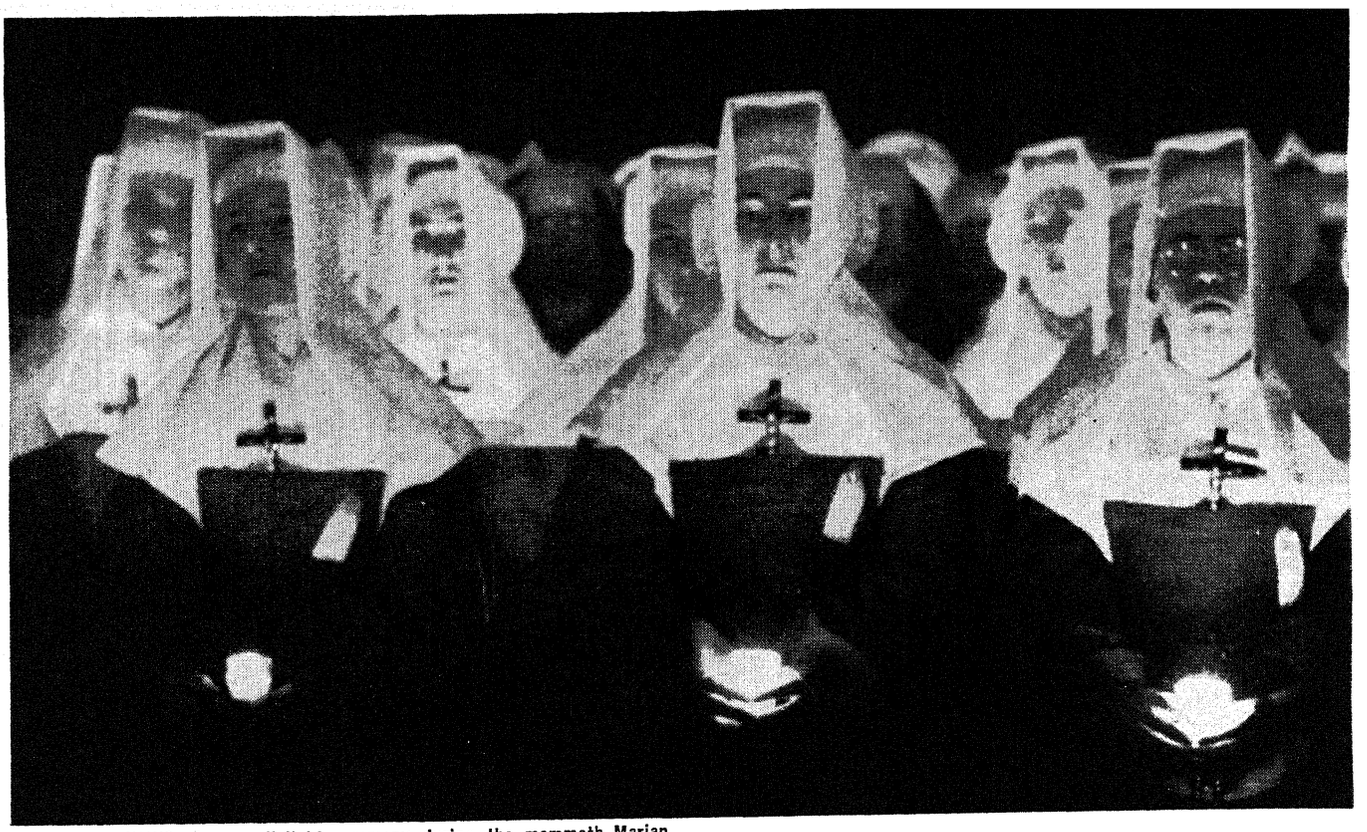
Canada.—By 1947 Canada was spending more than $200,000,000 a year in its grants to families in behalf of their children. Although the plan of giving allowances to families in the lower-income group in partial support of the children was employed only in Great Britain and the English-speaking dominions of the British empire, in Canada it had reached dimensions almost equal to the total per capita expenses for public welfare in the United States.

Parliament increased old-age pensions by $10 per month to offset the rise in cost of living; such payments had to be matched by the provinces. It also suggested that the provinces raise their own grants for old-age assistance and aid to dependent children beyond the sum required for matching the national grant. (*See* also CHILD WELFARE; COMMUNITY CHEST; MUNICIPAL GOVERNMENT; RED CROSS; SOCIAL SECURITY.)

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Relief and Rehabilitation Administration, United Nations: *see* UNITED NATIONS RELIEF AND REHABILITATION ADMINISTRATION.

Religion. Only about one-third of the world's population can be credited to the systematically organized religions whose members could in any precise sense be counted, and even with respect to these, exceedingly wide margins of uncertainty



CANADIAN NUNS at a candlelight ceremony during the mammoth Marian congress held at Ottawa in June 1947. Thousands of Catholics attended the five-day international congress honouring the Virgin Mary

exist. In the U.S.S.R., for example, it was highly uncertain in 1947 how many adherents to the Eastern Orthodox Church had survived the long-continued soviet antireligious policy. It was known, however, that some 3,500,000 Uniate Catholics had transferred from the Roman Church to Eastern Orthodoxy as a result of the changed political affiliations of the eastern European states.

The *American Jewish Year Book* for 1946–47 ventured for the first time after World War II to estimate the number of Jews in the world. Its figures had been reduced from 16,600,000 to about 11,000,000, of whom about half lived in the United States and Canada. Fresh postwar compilations of the strength of religious bodies in Europe increased the estimated number of adherents to Roman Catholicism, Eastern Orthodoxy and Protestantism, but do not fit into any estimates for the rest of the world.

Physical and political conflicts based on religion were increasingly frequent and acute during 1947. Within particular nations, relations between church and state became newly sensitive. Decisions of the U.S. supreme court were felt by many to obscure the historic separation of church and state. In Great Britain, discussions raising the question of the disestablishment of the Church of England were coupled with proposals for the continued legal co-operation of church and state. In other parts of the world, policies aiming either at the outright control of the church by the state, or the virtual control of the state by the church, had aggressive expression. Conflicts between enormous masses of people, based on differences of religion and culture, flared into violence, notably between India and Pakistan, and between Jews and Arabs in the near east.

When religious operations had sought to cross national boundaries, as in the case of Christian foreign missions, the receptiveness of one culture to influences from another had steadily diminished. Nationalism had increasingly identified its inherited religions with political identity and safety of the newer states. This tended greatly to limit freedom of religious propaganda, and was in direct conflict with efforts of the United Nations to set up a world charter of religious freedom, including the right of adherents to one faith peaceably to propagandize adherents of another.

In the United States, theological conflict between elements within the Protestant churches reached a new decisiveness. Thus the conservative wing of the Northern Baptist churches set up a counterorganization to the parent body, substantially establishing another denomination. The ultra-conservative American Council of Churches, long in opposition to the Federal Council of Churches, announced a meeting for the purpose of organizing a rival World council, to be held in Amsterdam, Holland, on the week preceding the organizing session of the World council in 1948.

Tensions between Protestants and Roman Catholics in the United States took on a new frankness of expression. High Catholic dignitaries charged Protestants with cultural narrowness and bias, and Protestants alleged un-American political policies on the part of the Catholic Church. The Association of Protestants and Other Americans United for the Separation of Church and State, organized during 1947, disclaimed religious opposition to Catholicism, but based its position on the alleged purpose of Catholicism to secure public tax funds for the support of sectarian schools and institutions, as evidenced in the North College Hill, Ohio, case.

The issue of church and state, as related to the use of released public school time for religious instruction by the churches, seriously divided Protestant sentiment. The most fundamentalistic wing of Protestantism and the most secularistic found themselves curiously lined up together in the filing of briefs before the supreme court opposing released school time. The major body of middle-of-the-road denominations favoured and desired to extend it on the basis of interfaith co-operation.

Considering the world as a whole, Protestantism definitely moved away from the disposition to leave political matters exclusively to the state. It asserted more aggressively the responsibility of the church for leadership in determining the policies of economic and world order. This trend was strongly evidenced in the reorganized and strengthened Lutheran World Federation, established at Copenhagen during the year.

Coincident with numerous conflicts involving religious differences, strong movements were underway during 1947 to com-

pose differences. There was a consolidation of theological thinking about a common position somewhat to the right of that formerly held. In the U.S. and Europe the recovery of a Bible-centred emphasis in Protestantism was marked. The relationships between theologians of different communions and nationalities as they made preparations for the World Council of Churches in 1948 convinced them that they had more in common than was supposed, and that their agreements were increasing.

Evidence accumulated that multitudes of people were looking with new expectation to religion to overcome the perplexities and fears of the disorganized times. A nation-wide survey conducted by a columnist in the New York *Herald Tribune* asked what public leaders were doing the most good for the country. The answers rated religious leaders first, and Congressmen last. This survey showed that rural people and the poorer elements of population were currently the most responsive to religion.

The relief and rehabilitation of countries devastated by World War II and its aftermath were special objects of religious concern and responsibility. Thus Protestant and Eastern Orthodox churches, uniting in the organization called Church World Service, contributed $14,500,000 in money and goods during 1947—an advance of more than $1,000,000 over the previous year; a goal of $24,000,000 was set for 1948. Reports of the department of commerce, however, showed that the highest degree of support for religious work of all denominations occurred during the depression of the early 1930s, and that the nation had failed to contribute correspondingly in the postwar era of prosperity. The proportion of the national income devoted to religion and philanthropy in 1947 was the smallest in 30 years.

The 1947 session of the Conference of Science, Philosophy and Religion in Philadelphia discussed the possibility of a "religion for one world," expressed in many forms but having a common centre of ultimate loyalty, and proceeding through a co-operative effort to discover truth. In its most believing and aspiring moods, religion had always remained convinced of the possibility of harmonizing the conflicts of humanity, conquering its ills, and integrating the world into an ordered, peaceful and mutually helpful whole. For large numbers of Protestants and Eastern Orthodox churches this hope was newly symbolized by the World Council of Churches—a sort of religious counterpart of the United Nations. The council in 1947 united 127 denominations or national churches in 39 countries on all continents. (*See* also CHRISTIAN UNITY; CHURCH MEMBERSHIP; also under separate denominations.) (H. P. D.)

Religious Denominations: *see* CHURCH MEMBERSHIP.

Reparations. **Germany.**—The slow progress in reparations allocations and deliveries in late 1946 and early 1947 was regarded with concern by members of the Inter-Allied Reparations agency. Their pressing rehabilitation needs made it important that they secure as soon as possible a share of the more than 1,600 plants set aside for reparation from the three western zones by the Allied Control council in March 1946 when the first level-of-industry plan was adopted.

Accordingly, the problem of economic unification was high on the agenda at the Moscow meeting of the Council of Foreign Ministers (March 10–April 24, 1947). However, the U.S.S.R. set as the price for unification the payment in reparations of $10,000,000,000 (at 1938 prices), payable in capital equipment, external assets, and from current production over a period of 20 years.

Both the United States and Great Britain rejected this demand. They contended that no reparations from current production were contemplated by the Potsdam declaration which, they said, superseded the Yalta agreement, upon a hitherto unpublished clause of which the soviet claim was based. Moreover, payments from current production would delay Germany's return to a self-supporting basis, and thus indirectly increase the Anglo-American occupation burden.

After the meeting military authorities resumed the allocation of factories to I.A.R.A. and dismantling proceeded. However, according to an I.A.R.A. report released on July 17, reparations allocated to it during the 18 months ended June 30, 1947, included only 262 German merchant ships of 750,995 gross tons valued at $48,869,000 and industrial equipment valued at 138,275,378 rm. (1938 value). Reports of the British and U.S. zone commanders issued in August showed that up to the end of July only 79 plants had been dismantled in the U.S. zone and 39 in the U.K. zone.

The U.S. and British governments announced a revised level-of-industry plan for the combined Anglo-American zones on Aug. 29. The effect of the new plan would be to return sufficient industrial capacity in the bizonal area to approximate the level of industry prevailing in 1936. As a result, on Oct. 16 Anglo-American authorities made a downward revision of plants to be dismantled from more than 1,600 to 682, of which 186 were in the U.S. zone. Including 176 plants to come from the French zone, the total value was unofficially estimated at about $1,000,000,000. The list involved about 1% of the total number of plants in western Germany. Of the Anglo-U.S. total of 682, 302 were strictly war plants and 380 were industrial plants.

U.S. authorities said the announcement of the new list "opens the way for the resumption of normal allocations to the U.S.S.R." They added that all plants already allocated to the U.S.S.R. were in the process of dismantling, but said no further dismantlings would take place until further allocations were made by the Allied Control council.

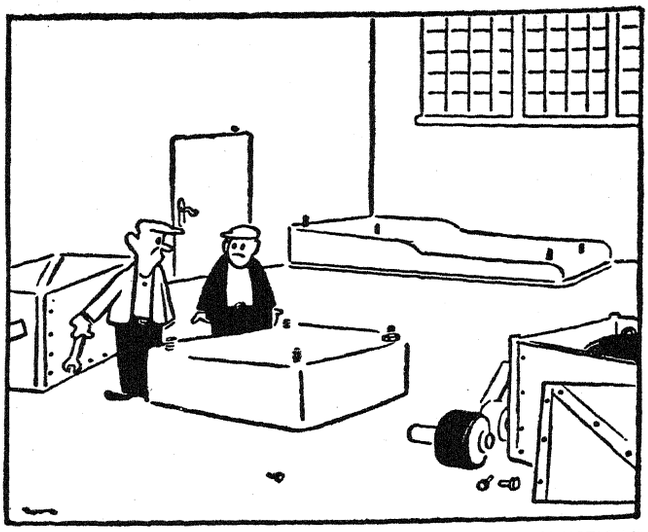
The reparations removal program aroused opposition among the Germans themselves as well as in certain circles in Great Britain and the United States. In the latter part of 1947, several U.S. congressmen demanded the cessation of shipments, particularly to the Soviet Union.

Reparations emerged as a key issue at the London meeting of the Council of Foreign Ministers (Nov. 25–Dec. 15, 1947). Vyacheslav Molotov renewed the soviet reparations demands which had been made at the Moscow meeting. Gen. George C. Marshall and Ernest Bevin categorically rejected these demands, although the French delegation, as at Moscow, indicated it was not opposed to them in principle.

With the failure of the London conference, the United States ceased reparations deliveries to the U.S.S.R. in December, and a similar move was contemplated by Great Britain. Moreover, dismantling in both zones was reported to have come to almost a standstill, despite the urgent need of other European nations for German surplus capital equipment.

Little information was forthcoming in 1947 on reparations activities in the soviet zone, but it was apparent that removals were substantial. Data contained in a U.S. military government report, *Economic Data on Potsdam Germany,* released on Nov. 9, gave rise to estimates that the U.S.S.R. had taken about $1,250,000,000 worth of reparations from current production in its zone since 1945. At the London meeting Bevin said the U.S.S.R. had taken "considerably more than $7,000,000,000" worth of reparations from its zone. Marshall more conservatively estimated the annual rate of removal at more than $500,000,000.

Austria.—It was agreed at Potsdam that no reparations would be exacted from Austria, but the U.S.S.R. was to be entitled to all German assets in eastern Austria. Difficulties ensued on the formulation of a definition of German assets. At the Moscow meeting the basic cleavage was on the inclusion



"NOW WE CAN DELIVER REPARATIONS FROM CURRENT PRODUCTION," a caustic barb directed at Allied reparations policies in Germany which appeared in the *Hannoversche Presse* during 1947

(opposed by the United States and Great Britain) of assets taken by the Hitler regime by force or duress from Austrian citizens and U.N. nationals.

After the close of the meeting the matter (along with other disputed clauses of the proposed Austrian treaty) was referred to the four-power Austrian Treaty commission which met in Vienna from May 12 to Oct. 11, 1947. The commission made an extensive examination of the basic types of German assets, but again reached no agreement.

Shortly before the London meeting in November, a French compromise proposal was submitted to the deputies of the foreign ministers. Bypassing a definition of German assets, the plan reportedly would give the U.S.S.R. one-third of the Austrian oil production and most of the Danube shipping plus $100,000,000 in reparations from current production and industrial equipment in lieu of the soviet claims.

The U.S.S.R. not only rejected the proposal at the London meeting but refused to put forward any concrete claims of its own. However, the matter was again referred to the deputies at the close of the conference, and there were indications that some sort of an agreement might be reached. Still unresolved, however, were the Yugoslav claims made at the Moscow meeting for $150,000,000 in reparations from Austria.

According to an Austrian government statement issued on Nov. 27, the total value of industrial equipment removed by the soviet authorities from their zone after 1945 amounted to 700,000,000 schillings.

Japan.—The end of the year found the Far Eastern commission (F.E.C.) still trying to determine, on a broad political basis, the shares of reparations which each particular country should receive. However, a policy decision approved on May 8, 1947, provided that in determining the shares, account should be taken of the damage suffered by each country as a result of Japanese aggression and of the contribution made by each country to Japan's defeat, "including the extent and duration of its resistance to Japanese aggression." Approval was given to the exaction of reparation from current production.

One of the stumbling blocks in the determination of shares was the Soviet Union's contention, in claiming reparations from Japan proper, that the industrial facilities which soviet forces had removed in a wholesale fashion from Manchuria should be regarded as war booty, and not be included in reparations discussions.

A policy decision approved by the commission on May 22 stipulated that in selecting plants for removal, S.C.A.P. (supreme commander for the Allied Powers) should give preference to facilities employed in war industries and war-supporting industries, particularly those owned by Zaibatsu concerns and other large combines. Another decision approved on Aug. 14 provided for the destruction of all special-purpose munitions machinery. S.C.A.P. was to make available for claim as reparations "all other industrial machinery and equipment in primary war industries and such other industrial facilities in secondary war industries and war-supporting industries as may be in excess of the peaceful needs of the Japanese economy."

Early in September the entire Japanese reparations program was attacked by Clifford S. Strike, an industrial engineer who had served as chairman of a special committee on Japanese reparations which had been dispatched to Japan in January by the U.S. war department. He claimed that the F.E.C. policy of large reparations removals meant economic disaster for Japan and took issue with reports made in 1946 by U.S. Ambassador Edwin W. Pauley recommending about a 30% reduction in industrial capacity. Pauley's reports had formed the basis of most of the F.E.C. policy decisions. According to Strike's unofficial report, his committee had recommended limited reparations removals, but he said these removals would involve only a small percentage of the 1,100 plants already earmarked by F.E.C. representatives in Japan.

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Representatives, House of: *see* CONGRESS, UNITED STATES; ELECTIONS.

Republican Party.

The Republican party's principal objective in 1947 was to set a record that would justify the U.S. voters' confidence in giving it control of congress in the 1946 elections, and to gain an advantageous position for the 1948 presidential contest.

The G.O.P. had promised—and tried to achieve—government economy, tax reduction, a curb on labour excesses and elimination of Communists from various federal departments. These had been the issues on which the party had returned to power in 1946. The efforts were only partially successful, however, largely because of White House opposition.

The Republicans fell far short of their promises in cutting federal expenditures, considering house Republicans' pledge to save $6,000,000,000, and their senate colleagues' commitment of a $4,500,000,000 reduction. Senator H. Styles Bridges of New Hampshire, finance committee chairman, estimated the over-all reduction at $7,000,000,000, but this figure included enforced restoration to the treasury of unexpended balances held by various departments and bureaus. It was generally believed that the ultimate reduction amounted to approximately $3,000,000,000. Although smaller than anticipated, it represented the first step in the direction of federal economy in more than a decade.

The G.O.P. made two unsuccessful attempts to reduce taxes, figuring this to be a vote-getting issue. The first measure provided for graduated cuts, effective July 1, 1947. When the house sustained the veto of President Harry S. Truman, who argued that the measure would have an inflationary effect, congress changed the effective date to Jan. 1, 1948. Truman's second veto was overridden in the house, but the senate failed by five votes to repass the bill. As 1947 ended, the G.O.P. leadership was preparing another tax reduction bill for presentation to the regular session in 1948.

The Republicans had better luck in their anti-Communist crusade; Russia's postwar recalcitrance contributed to their success. President Truman had originally minimized the need for legislation or regulations restricting Communist activities, but he eventually issued a loyalty order, providing that suspected subverters be screened and discharged, if found wanting. In December, Attorney General Thomas C. Clark issued a list of organizations considered Communistic as a guide for application of the president's loyalty tests.

The Republicans also included an anti-Communist clause in the Taft-Hartley act providing that labour union officials must make affidavit that they are not Communists, under penalty of losing all privileges under the National Labor Relations act. The house committee on un-American activities forced the indictment of several Hollywood writers and actors for refusing to answer the question: "Are you a Communist?"

The G.O.P. did not store up the expected political capital from the red issue, however. For one thing, Truman's reversal of his position stole their thunder. Secondly, Moscow's hostility toward the United States made it a national rather than a partisan question.

In passing the Taft-Hartley act over President Truman's veto, the Republicans did fulfill their pledge to try to end the postwar industrial disputes that had threatened peacetime recovery. Although its sponsors maintained that the law was designed to free rather than penalize labour, union spokesmen denounced it as a slave labour bill and threatened to work for the defeat of every member of congress who had voted for it, regardless of party.

The G.O.P. abandoned many traces of "isolationism" in 1947. It supported President Truman's request for $400,000,000 to strengthen Greece and Turkey against Communist attack, externally and internally. With some modifications as to the amount of money and the kind of supervision, it backed the administration's proposal for $597,000,000 stopgap aid to France, Austria and Italy, and the long-range Marshall plan for rehabilitation of western Europe. As nearly as possible under the American system of politics and government, the management of foreign affairs became a nonpartisan enterprise in 1947.

As the year closed, however, the Republicans were engaged in a sharp controversy with President Truman over his ten-point, anti-inflation program. They opposed it on the ground that his request for selective controls over prices and wages, as well as the power to allocate basic materials, would lead to the creation of a police state. Republican senate leader Robert A. Taft headed the fight for adoption of more conventional efforts to check the upward trend of prices, which had already begun to thrust itself forward as possibly the most explosive issue of the 1948 presidential campaign.

Taft's immediate radio rejoinder to the Truman proposals, as well as his general tendency to issue statements without making clear whether he was speaking for himself or the party, brought mild criticism from some of his associates; they thought him too precipitate, too unyielding and too conservative. They denied, however, that their complaints constituted a rebellion against his leadership. Among his critics were Senators Ralph E. Flanders and George D. Aiken of Vermont, H. Styles Bridges and Charles W. Tobey of New Hampshire, Raymond E. Baldwin of Connecticut and Wayne L. Morse of Oregon.

Three prominent Republicans announced their candidacies for the 1948 presidential nomination—ex-Governor Harold E. Stassen of Minnesota, Senator Taft and Governor Earl Warren of California. Governor Thomas E. Dewey of New York was regarded as an active, though not an avowed candidate. Despite their failure to announce their plans, Generals Dwight Eisenhower and Douglas A. MacArthur were frequently mentioned as possibilities.

Stassen caused continual flurry in the political dovecotes by his activities. He visited the Soviet Union and interviewed Joseph Stalin. He crisscrossed the nation for months in an admitted campaign for delegates. Although he did not mention them by name, he condemned Governor Dewey as "evasive" because of his failure to discuss national issues, and he referred to Senator Taft's program of limited aid to Europe as "miserly." He had promised to wage an unorthodox fight for the nomination, and it was generally agreed that he was living up to his promise.

There were no changes in the Republican leadership in congress during 1947. Senator Arthur H. Vandenberg of Michigan acted as president pro tem of the Senate, Wallace H. White, Jr. of Maine as majority leader, Kenneth S. Wherry of Nebraska as whip, and Senator Taft as policy committee chairman. Speaker Joseph W. Martin, Jr. of Massachusetts presided over the house, with Charles A. Halleck of Indiana as majority leader and Leslie C. Arends of Illinois as whip. (*See* also ELECTIONS; UNITED STATES.) (R. TU.)

Research Libraries, Association of: *see* SOCIETIES AND ASSOCIATIONS.

Resins: *see* PAINTS AND VARNISHES; PLASTICS INDUSTRY.

Retail Sales: *see* BUSINESS REVIEW.

Réunion: *see* FRENCH OVERSEAS TERRITORIES.

RFC: *see* RECONSTRUCTION FINANCE CORPORATION.

Rheumatism: *see* ARTHRITIS.

Rhineland: *see* SAAR.

Rhode Island. A north Atlantic state of the United States, in New England; one of the 13 original states; popularly known as "Little Rhody." Area, 1,214 sq.mi. (smallest of the United States), including 156 sq.mi. of water; pop. (1940) 713,346. The urban population was 653,383 (91.6%). On July 1, 1944, the bureau of the census estimated the civilian population of the state at 778,972. Capital, Providence (253,504). Other cities include Pawtucket (75,797); Woonsocket (49,303); Cranston (47,085); Newport (30,532); Warwick (28,757); Central Falls (25,248).

History.—At the regular 1947 session of the legislature, leading measures passed included the following: an act making appropriations for the support of the state for the fiscal year ending June 30, 1948, reaching total net state appropriations of $34,946,192.18, which was more than $10,000,000 increase over the previous year, of which increase $5,340,000 was to aid cities and towns and allow an increase of $600 salary to each teacher; an act to provide additional revenues for the state and its municipalities and creating as new taxes or amended taxes: business corporation tax, sales and use tax, tax upon tobacco products, tax upon gasoline and other fuels, unincorporated business tax, taxation of public service corporations, tax upon intoxicating beverages, and tax upon pari-mutuel betting; an act to encourage development of housing facilities by authorizing life insurance companies to own and operate housing projects and other real estate; an act to provide for the development of hospital facilities adequate to serve all people of the state; an act providing for the incorporation of co-operative associations; an act to provide for the establishment and operation of nonprofit school lunch programs in schools in the state; an act extending the benefits under the workmen's compensation law; a series of acts granting an additional tax exemption in the amount of $1,000 value of property of disabled veterans, exempting veterans who have suffered amputation of any limbs or are paralyzed from payment of fee for annual registration and licence to operate any motor vehicle, providing for recording of

certificates of honourable discharge by veterans without payment of any fee, exempting from parking meter charges persons who by reason of amputation of limbs drive a specially constructed motor vehicle, and providing for tax exemptions on property owned by veterans' organizations; an act creating a direct primary system for the nomination of party candidates for elective office; an act proposing an amendment to the state constitution providing absentee voting (passage of second legislature).

The chief executive officers of the state elected in Nov. 1946 for 1947–48 were John O. Pastore, governor; John S. McKiernan, lieutenant governor; Armand H. Cote, secretary of state; John H. Nolan, attorney general; Russell H. Handy, general treasurer. Edmund W. Flynn was chief justice of the supreme court.

Education.—During 1946–47 there were in the public elementary schools 57,020 pupils and 2,003 teachers; in junior high schools 17,156 pupils and 867 teachers; in senior high schools (3 years) 15,261 pupils and 734 teachers; in senior high schools (4 years and vocational) 4,974 pupils and 234 teachers. Pupils attending private schools were: elementary 24,378; junior high 4,827; senior high (3 years) 840; senior high (4 years) 6,500. Total number of teachers in private day schools was 1,396. The director of education in 1947 was Michael F. Walsh.

Social Insurance and Assistance, Public Welfare and Related Programs.—The total number of persons receiving public assistance in all categories (excluding incapacitated fathers) in Nov. 1947 was 25,261 or about 3.5% of the state's 1940 population. The total amounts paid out during the year Dec. 1, 1946–Nov. 30, 1947, were as follows: general public assistance $1,610,624; soldiers' welfare $177,296 (Nov. 1946–Oct. 1947); old-age assistance $3,999,574; aid to dependent children $2,157,642; aid to the blind $65,977. In unemployment compensation, the net amount of benefit payments during 1947 was $9,801,427.81 to 51,527 different individuals. The amount paid into the fund during 1947 including interest was $13,790,972.05. There were 846 inmates in correctional institutions on Nov. 30, 1947, and 4,847 patients in charitable institutions and institutions for defectives, the number in the latter being 3,798.

Communications.—The total mileage of highways on Dec. 31, 1946 (excluding city streets) was 2,671.65, of which the constructed state highway system comprised 826.3 mi. At the close of the year 1946 railroads were operating 186 mi. of road. On Dec. 31, 1947, electric railways operating had 18.71 mi. of road, motor buses 201.12 mi. of road, and trackless trolleys 66.41 mi. of road. Water-borne commerce of the state for 1946 was 6,513,790 tons, of which 473,860 tons were foreign commerce (imports 439,432 tons; exports 34,428 tons) and 6,039,930 tons were coastwise (receipts 5,690,010 tons; shipments 349,920 tons). On Dec. 31, 1947, there were two public owned (state) airports, both class 3, and five private owned airports or landing fields, all class 1. In Dec. 1947 there were 210,397 telephones in service.

Banking and Finance.—There were 31 banking institutions in 1947. Resources of 22 banks under state supervision totalled $861,390,416.32, and of 9 banks under federal supervision $242,730,918.99. Savings deposits (exclusive of club accounts) in savings banks and trust companies (the 22 state banks) amounted to $545,366,680.41 on June 30, 1947. In addition, 6 loan and investment companies had resources of $3,747,566.04; 8 building and loan associations $73,276,472.81; 24 credit unions $12,062,696.50.

At the close of the fiscal year, June 30, 1947, total state receipts were $27,179,933.83; expenditures and encumbrances $27,161,147.35; surplus from operation $18,786.48. The state gross debt was $43,847,000.00, net debt $39,700,646.50.

Agriculture.—The total estimated value of agricultural production was $24,120,000 in 1947 and actual value was $21,077,000 in 1946. Total acreage of principal crops harvested was 51,000 in 1947. Cash estimated income from crops in 1947 was $6,630,000 and actual income was $5,743,000 in 1946; from livestock and livestock products $15,490,000 in 1947 and $13,227,000 in 1946; from government payments $600,000 in 1947 and $807,000 in 1946; total cash income $22,720,000 in 1947 and $19,777,000 in 1946. Products consumed on farms had an estimated value of $1,400,000 in 1947 and $1,300,000 in 1946.

Table I.—*Leading Agricultural Products of Rhode Island, 1947 and 1946*

Crop	1947	1946
Corn, grain and silage and forage (grain equivalent) bu.	352,000	312,000
Hay (tame), tons	57,000	53,000
Alfalfa, tons	2,000	2,000
Potatoes, bu.	1,512,000	1,742,000
Oats, bu.	33,000	32,000
Apples (commercial), bu.	187,000	162,000
Peaches, bu.	13,000	15,000
Pears, bu.	6,000	6,000
Grapes, tons	100	200

Table II.—*Livestock and Livestock Products of Rhode Island, 1947 and 1946*

Item	1947	1946
Cows and heifers, 2 years and over	22,000	22,000
All cattle and calves	28,000	29,000
Hens, 3 months and over	563,000	578,000
Sheep and lambs	2,000	2,000
Hogs	10,000	8,000
Milk produced, lb.	129,000,000	122,000,000
Eggs produced, doz.	7,083,000	6,300,000
Chickens raised, no.	816,000	830,000
Turkeys raised, no.	32,000	31,000

Manufacturing.—The total estimated value of manufactures was $516,390,541 for 1939 and $517,196,193 for 1937. (No census report after that for 1939.) The number of establishments was 1,460. Employment in Dec. 1947 totalled 135,237 wage earners and 19,318 nonproduction workers (salaried personnel) and weekly payroll of $6,446,725 for all manufacturing industries in Rhode Island according to report of state department of labour. Wage-earners were distributed among manufacturing industries in order: textile products 61,690; jewellery-silverware 16,439; machinery 13,414; iron-steel products 8,979; rubber products 7,500; electrical machinery 5,675; nonferrous metal 3,160; miscellaneous 18,380.

Mineral Production.—The value of mineral production in Rhode Island is small, exceeding only that of Delaware and the District of Columbia. Value in 1945 was $508,000, in 1944 $612,000 and in 1943 $808,000. The principal products are stone ($219,263 in 1945, $213,351 in 1944 and $410,478 in 1943) and sand and gravel ($221,530 in 1945, $287,112 in 1944 and $327,750 in 1943). Production of stone reached 11,280 tons in 1945, 19,790 tons in 1944 and 171,230 tons in 1943; sand and gravel 317,300 tons in 1945; 352,905 tons in 1944, and 356,043 tons in 1943. (Figures for 1946 and 1947 were not available.) (M. C. ML.)

Rhodesia, Northern.

A British protectorate in central Africa, bounded on the north by Tanganyika and the Belgian Congo, on the east by Nyasaland and Portuguese East Africa, on the south by Southern Rhodesia and South-West Africa, and on the west by Portuguese West Africa. Area: 290,320 sq.mi.; pop. (1946 est.): 1,678,132, mainly African but including about 21,000 Europeans. Capital: Lusaka; other important towns: Livingstone, Fort Jameson and Broken Hill. The protectorate is administered by a governor (appointed by the British crown) assisted by an executive council (containing an unofficial element) and a legislative council with an unofficial majority. Governor: Sir Gilbert Rennie (appointed 1947).

History.—An important development occurred in the internal political affairs of Northern Rhodesia when an African representative council was set up in 1946. The council, which consists of the secretary for native affairs as president with 29 members (mostly elected) from the various districts of the protectorate, held its first meeting in Nov. 1946. It held further meetings in 1947. On the economic side, a cost of living commission started work in the protectorate in June 1947. A grant of £196,075 was sanctioned during the year, under the Colonial Development and Welfare act, for the development of broadcasting in Northern Rhodesia. Smaller grants included £5,690 for sociological research in the protectorate and £2,100 in support of the Rhodes-Livingstone institute.

Finance and Trade.—The currency of Northern Rhodesia is that of the self-governing colony of Southern Rhodesia. Revenue (1946) £3,317,000; expenditure £3,057,000. Imports (1946) £7,400,000; exports £12,600,000. The main wealth of the protectorate is derived from the so-called "copperbelt," where four large copper mines are under active exploitation. There are also deposits of zinc and cobalt. Apart from mineral exports (of which copper forms much the largest item), there is an export trade in grain, tobacco and timber. (*See* also RHODESIA, SOUTHERN.)

(J. E. SH.)

Rhodesia, Southern.

A self-governing colony in Africa of the British commonwealth, with imperial government supervision over native rights. Area: 150,333 sq.mi.; pop. (est. 1947) 1,777,980 (European 83,450, Asiatic and coloured 7,530, the rest African). Chief towns: Salisbury (69,049); Bulawayo (51,698); Umtali (9,786); Gwelo (9,807). Languages: English, Afrikaans, and native tribal languages. Governor: Major General Sir John Noble Kennedy (appointed Sept. 15, 1946); prime minister: Sir Godfrey Huggins.

History.—During his visit to the colony in April 1947 George VI opened the Rhodesian parliament, the first time a reigning monarch had done so. A project for the manufacture of steel in the two Rhodesias, including the construction of the Sinoia-Kafue railway, planned by leading British industrial and financial interests and involving an expenditure of about £25,000,000, received promises of support from the governments of Great Britain, Northern and Southern Rhodesia. Rhodesia railways were nationalized by purchase of the shares for £3,250,000 and de-

bentures for £20,347,500. A 2½% loan, 1965–70, was issued at £99, and underwritten in London for 1%, the first postwar government loan to be so underwritten. The agricultural season was the driest recorded, causing a deficiency in maize of 1,750,000 bags; a drought relief organization transported hay to stricken areas and removed cattle by rail on a large scale to better grazing. Defense measures, in addition to the empire air training scheme, included the retention of the Rhodesian African Rifles (native troops) and the royal Rhodesia regiment on a voluntary basis.

European immigration amounted to 9,145 persons in 1946 and a further 6,908 in the first half of 1947, causing difficulties in housing. The cost of living index rose from 130.7 in 1945 to 141 in July 1947.

Education.—Schools for European children, 90 (14,450 pupils); for Asiatic and coloured children, 23 (2,114 pupils); for native children, 1,715 (151,476 pupils).

Finance.—Estimated 1947–48: revenue £11,148,000 (plus £1,785,000 surplus); expenditure £12,660,000. Revenue 1945–46: customs £1,706,234; income tax £6,013,802; native tax £464,810; mining £268,406. Public debt stood at £24,501,579 on March 31, 1946. Gold output was 544,596 oz. (£4,697,922).

Trade and Communications.—1946: Imports £20,746,000; exports £21,716,000. Roads (motor services) 1,685 mi.; rail 1,361 mi. (*See* also RHODESIA, NORTHERN.) (G. R. MN.)

Rice. Another record U.S. rice crop was grown in 1947, exceeding the previous record crop of 1946 by 8% and rising to nearly 50% above the 10-year (1936–45) average. The 1947 crop was estimated at 79,345,000 bu. compared with 72,216,000 bu. in 1946 and an average of 58,220,000 bu., 1936–45. The increase was caused chiefly by the expansion of acreage to 1,677,000 ac., compared with the 10-year average of 1,239,000 ac. Average yield for the crop was 47.3 bu. per acre, exactly the 10-year average, slightly more than the 45.9 bu. yield of 1946. Yields were less than average in Arkansas and Louisiana because of winds and rains and damage by salt water on some areas near the Gulf.

The rice market began the year 1947 at the high level of $2.17 per bu. to growers for rough rice, about the level attained in the fall of 1946. Prices advanced steadily to a high of $2.71 per bu. in August and then held fairly steady through the fall, advancing to $2.82 in December. Stocks at the beginning of the year were down to 48,000,000 lb., the lowest after 1943 and less than half the average, but the large crop provided a supply of record proportions. Exports rose to more than 1,100,000,000 lb., leaving for civilian use nearly 5 lb. per capita—slightly less than the prewar average of 5.6 lb.

U.S. Rice Production by States, 1947 and 1946 and 10-Year Average
(In thousands of bushels)

State	1947	1946	Average 1936–45
Texas	23,700	17,716	14,877
Louisiana	21,455	22,676	21,243
California	17,860	17,584	10,982
Arkansas	16,330	14,240	11,118

World rice production in the 1947–48 crop year was estimated to be about 6,950,000,000 bu., slightly higher than the 6,900,000,000 bu. produced in 1946–47 but 7% less than prewar output. The increase was mostly in China, Japan, the Philippines and Burma, with largest gains in the latter country. A slight increase was reported for Europe and South America. The prewar exporting countries did not have sufficient surpluses to supply the needs of the large rice-consuming countries where population had been increasing. Only about one-third of the 7,000,000–8,000,000 tons usually reported was available for the winter of 1947–48. (*See* also FOOD SUPPLY OF THE WORLD.) (J. C. MS.)

Rio de Janeiro, Treaty of: *see* INTER-AMERICAN DEFENSE CONFERENCE.

Rio De Oro: *see* SPANISH COLONIAL EMPIRE.

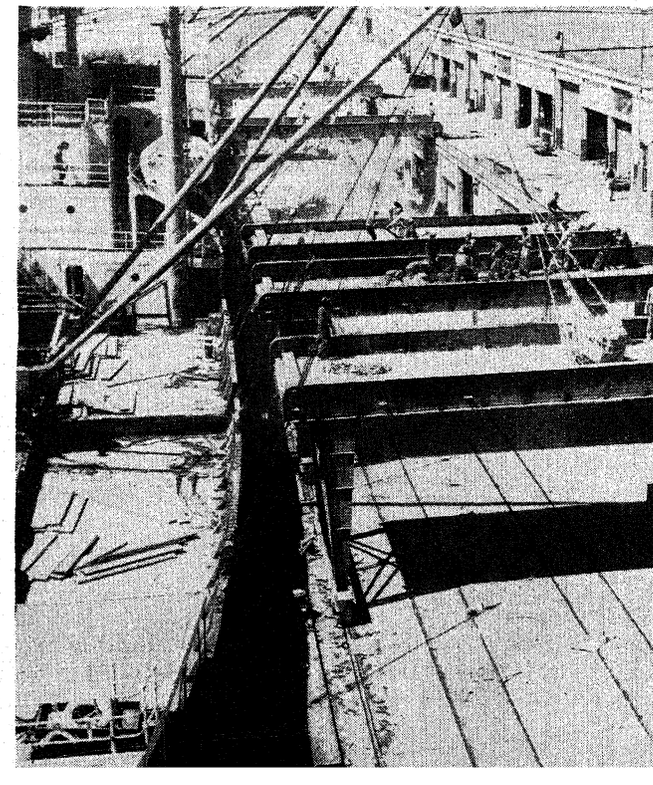
Rio Muni: *see* SPANISH COLONIAL EMPIRE.

Rivers and Harbours. Improvement operations were executed on 91 regular river and harbour projects by the U.S. army corps of engineers in 1947. Of this number, four were completed. Maintenance was performed on a total of 291 projects, including the extensive intercoastal waterways and Mississippi river system, the connecting channels on the Great Lakes and the many coastal and inland harbours. The corps also continued operation and maintenance of the channels and canals of the Ohio river system, the Upper Mississippi river, the Illinois waterway and the hydroelectric generating plants on the Missouri river at Fort Peck, Mont., and the Columbia river at Bonneville, Ore. During the fiscal year ending June 30, 1947, $89,169,789.29 of federal funds was expended for new work and maintenance of river and navigation projects and inland and coastal harbours.

The Rivers and Harbors act approved July 31, 1947, provided $116,718,700 for maintenance and improvement of the nation's rivers and harbours. Of this total, $37,176,700 was designated for new construction work on 58 projects in 27 states. The important river and harbour projects allocated $1,000,000 or more for construction were: McNary dam, Columbia river, Ore. and Wash., $4,500,000; Missouri river, Kansas City, Mo., to Sioux City, Ia., $4,500,000; Mississippi river, between Ohio and Missouri rivers, $4,500,000; Missouri river, mouth to Kansas City, $2,250,000; Gulf Intracoastal waterway between Apalachee bay, Fla., and the Mexican border, $3,987,000; Neches and Angelina rivers, Tex., $1,300,000; New Haven harbour, Conn., $1,200,000; Sabine-Neches waterway, Tex., $1,000,000; Black Rock channel and Tonawanda harbour, N.Y., $1,000,000; San Diego river and Mission bay, Calif., $1,000,000.

Authorized projects previously scheduled under the Rivers and Harbors act and for which funds had been provided by congress in the 1947 fiscal year budget were curtailed by a presidential economy order in September. Subsequent revisions of the order, however, permitted resumption of work on prac-

CARGO of raw rubber from the Netherlands Indies being unloaded at the International Free Zone in the port of New Orleans, La. The free zone was inaugurated on May 1, 1947, to allow for the manipulation or processing of foreign goods without payment of customs duties



tically all projects where contracts were in force. The principal projects on which new work was performed during the year, other than canals and inland waterways, included the completion of dredging and removal of rocks, wrecks and other obstacles in the New York and New Jersey channels in Arthur kill from above the Baltimore and Ohio railroad bridge to Elizabethport, N.J., to a depth of 37 ft., and continued dredging and rock removal in the southern half of the channel in Kill Van Kull from Bergen point to Bayonne bridge to a depth of 37 ft.; dredging of the westerly strip of Ambrose channel and the centre of Anchorage channel in New York city harbour to a depth of 45 ft. Deepening of the Lake Worth inlet, Florida harbour, was started in the 300-ft. outer channel and in the inner channel to and including the turning basin. At Los Angeles and Long Beach harbours, Calif., construction was continued on the 13,350-ft. breakwater, and at Moss Landing harbour, Calif., dredging of the entrance of the inner channels and construction of north and south timber jetties were completed. Construction was initiated on Dam B on the Neches river, Tex., for navigation purposes.

Maintenance operations of previously completed river and harbour projects were continued on the Atlantic, Gulf and Pacific coasts, in the interior, on the Great Lakes and in Alaska, Hawaii, Puerto Rico and the Virgin Islands. In addition, the corps of engineers continued work on 15 projects required by the department of the navy and other government agencies with funds furnished by those agencies.

At Bonneville dam and reservoir, Ore. and Wash., the ten electric-power generating units were operated at capacity throughout the year. In the first 6 months of the year, the units produced 3,711,155,000 kw.hr. At Fort Peck dam, on the Missouri river in Montana, the reservoir was operated throughout the year for the maintenance of navigation on the Missouri river and the secondary purposes of flood control and hydroelectric production. Operation of the completed 35,000-kw. generating unit was continued during the major portion of the year; total power production during the first 6 months amounted to 204,347,000 kw.hr. Installation of the second generating unit of 15,000-kw. capacity was continued, with congress appropriating $657,500 for construction and $150,000 for miscellaneous work between July 31, 1947, and June 30, 1948. (G. HB.)

Canada.—The 1947 session of parliament voted $1,022,150 for dredging the St. Lawrence river channel and Montreal harbour, as the first part of a 5-year program to widen the harbour and deepen the sea channel to 35 ft. While the project did not bring larger ships to Montreal, it aided navigation during low-water periods.

When 1947 navigation closed at port Churchill, Man., it had shipped through the Hudson bay route a little more than the 4,290,000 bu. of grain shipped at the 1936 peak. Churchill thus became second to Montreal as Canada's largest wheat-exporting port.

During the summer of 1947, Saint John, N.B., operated at an unprecedented rate. Later in the year the Canadian National railways offered reduction of freight rates on certain commodities at Portland, Me., which was immediately protested by the ports of Halifax, N.S., and Saint John in a joint brief to the federal transport minister. (C. CY.)

Great Britain.—During 1947 much work was done in Britain to repair war damage. The £1,000,000 scheme of the Mersey Docks and Harbour board for the construction of the West Waterloo dock (entrance and lock 450 ft. by 65 ft., sill 17 ft. 6 in., at low water, ordinary spring tides) was continued, with the numerous other works of the board, including repairs to locks and improvements in handling equipment. For the Port of London authority, 50 three-ton electric cranes were scheduled for operation in April 1947. Nationalization of ports under the Transport act, 1947, would call for far-reaching legislation.

Radar was employed successfully in the operation of the Liverpool-Wallasey ferry service across the river Mersey, in thick fog, and experiments were under way for the control of inward-bound vessels to ocean ports. (The radar installation at Halifax harbour, Canada, had a range of 25 mi. and a radial accuracy of 150 ft.)

Other Countries.—In South Africa the new graving dock at East London, with a ship capacity of 17,000 tons, was opened in March 1947 by Princess Elizabeth.

Of political significance was the evacuation by the British navy of Alexandria, Egypt, which had been the chief naval base of the Mediterranean fleet for 64 years, and the bastion of the Suez canal defenses. Of similar interest was the transfer of the Dodecanese Islands, providing only for ships of small draught, from Italy to Greece. During the summer of 1947, reparations from Germany included the transfer of a large floating dock to Piræus harbour, Athens. A decision had not yet been reached by the Allies whether or not to destroy the water wharves at Kiel and Eckernforde. It was found, however, that it was impossible to draw a clear line between war and peace potential. In contrast, it was said that the German Baltic ports were to be improved to an increased depth of 23 ft.

The need for ship repairs during World War II projected the dry dock into a more prominent position than hitherto. If the modern docks at Hamburg and Wilhelmshaven, Germany, were omitted because of their unusual design of great width and shallow depth, it was found that the length : entrance ratio fell to 8:1 and the length : sill depth ratio remained at 26:1. The tendency toward greater dimensions would be determined largely by other controlling factors, principally the economic depths of navigable channel, largely affected by dredging costs. (*See* also AQUEDUCTS; CANALS AND INLAND WATERWAYS; DAMS; FLOODS AND FLOOD CONTROL.) (D. G. DS.)

Roads and Highways.

United States.—The large highway program planned as a postwar activity and previously delayed by high prices and shortages of equipment and materials gained considerable momentum in 1947. The pattern for improvement had been set by the federal-aid legislation of 1944 which provided $500,000,000 for each of the first three postwar fiscal years for construction of express highways through cities, improvement of main rural roads and construction of secondary or farm-to-market roads. A notable event of the year was the designation of a national system of interstate highways that was limited in extent to 40,000 mi.

Work of all types was done. Near the end of the year it was estimated that federal-aid construction and other work supervised by state highway departments and completed during the year would approach $900,000,000. This exceeded the dollar value for any previous year, but since prices ranged from 81% to 93% more than the 1940 level it was not a record for work performed. Near the end of 1947 federal-aid projects programmed and in various stages short of completion included 37,458 mi. at a total cost of $1,797,000,000.

During the year motor vehicle registrations rose to more than 37,000,000, and highway traffic exceeded all previous records. Congestion on main routes in and near cities accentuated the need for major improvements. A beginning was made in the construction of express highways in or near Boston, New York city, Pittsburgh, Jacksonville (Fla.), Cleveland, Detroit, Chicago, Dallas, Fort Worth, Los Angeles and other cities.

In the fiscal year ending June 30, 1947, 7,929 mi. of highway were completed with federal-aid funds, consisting of 2,901 mi. on the federal-aid system, 4,609 mi. of secondary or farm-

to-market roads and 329 mi. of miscellaneous construction. The total cost was $212,800,000, of which $122,384,000 was federal aid.

Canada.—Highway improvement was general through the settled portion of Canada, and new routes were extended into wilderness areas. Quebec province had under way a $25,000,000 program and other provinces had programs of large size. Express highways of the most modern type were being considered by Montreal, Que., and Winnipeg, Man., and other cities were considering major improvements to solve traffic congestion. In the fall of 1947 the pioneer road from Grimshaw, Alta., to Great Bear lake, N.W. Terr., was nearing completion. Much progress was made on the $6,000,000 highway from Prince George, B.C., to connect with the Alaska highway at Dawson Creek, B.C. Completion was expected in 1948. This construction, an extension of the Cariboo road from Vancouver, B.C., was to give a more direct approach from Seattle, Wash., Portland, Ore., and other west coast points to the Alaska highway.

The Alaska Highway.—The highway was kept in good condition and was used to supply airports along the route, for business travel and transport and by hunting parties. Permits were necessary to travel the Canadian section and these were not issued to tourists. Buses operated on schedule over the entire route winter and summer. Through traffic amounted to about 700 vehicles per month in winter and rose to 1,700 in July. An important development during the summer was the beginning of freight movement from the port at Haines, Alaska, to the Alaska highway and thence over the highway northwest to Fairbanks, Alaska, and east to White Horse, Yukon Terr., Can.

Inter-American and Pan-American Highways.—Progress was made by Mexico in closing the gap approaching its southern border and some work was done in Central American countries, but lack of funds prevented any great amount of progress. Extensive improvements were made on long stretches of the Inter-American highway, but there were unimproved gaps in southern Mexico, northern Guatemala, Costa Rica and Panamá over which motor vehicles could not be driven. There were no notable improvements in the Pan-American highway of South America, although various countries bettered the condition of short sections.

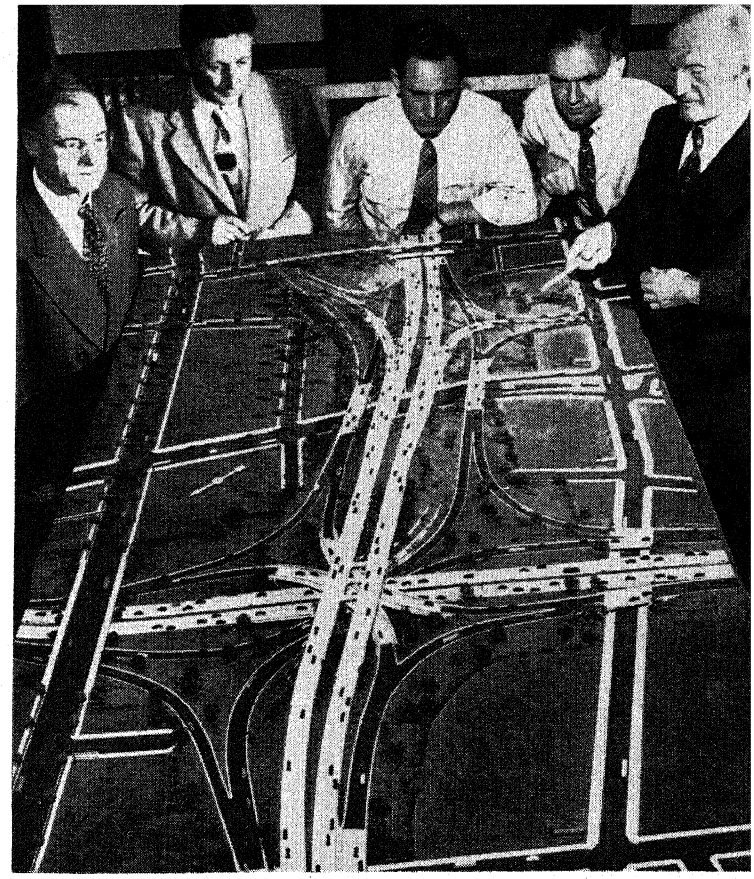
Central and South America.—Mexico made rapid progress on the route paralleling practically the entire length of its border with the United States and announced that it was nearing completion. In April 1947, Brazil placed in service a new 30-mi. concrete highway from the coffee port of Santos up a steep escarpment to São Paulo. An old road had been used to transport about 50,000 tons per month in each direction. The new road doubled the capacity of highway transport and was designed to accommodate 3,500 vehicles per hour.

Brazil continued its preparations for the construction of a 24,000-mi. highway system. Each state, with the exception of Amazonas, had a highway department.

About 1,000 mi. of new roads were built from the coast to the interior of Venezuela by a number of oil companies. The 200-mi. Guarico road from the Caribbean port Puerta de la Cruz to the interior was completed at a cost of $6,000,000, shared by 11 oil companies.

Highway transport underwent rapid development in Uruguay as a result of increases in railroad freight rates. Steady progress was made in road construction.

United Kingdom.—Highways throughout the United Kingdom were in excellent condition. War damage and deterioration had been repaired. Economic conditions and the urgent need for other facilities such as housing, however, prevented a major effort toward modernization of the highway system. Legislation was enacted for nationalization of bus transportation and truck transportation for distances of more than 25 mi. In June work was begun on the first of three tunnels under the Tyne river to accommodate vehicles, bicycles and pedestrians.



HIGHWAY ENGINEERS studying plans for improving traffic conditions in Los Angeles, Calif., during 1947. The model shown featured express highways and expanded parking facilities in midtown areas

Continental Europe.—Most of the countries of Europe made considerable progress during 1947 in restoring highway surfaces to their prewar condition and in improvising crossings at destroyed bridges, although there was practically no construction of new highways of modern design. The bad condition of railroads and water shipping coupled with heavy demands for transport of food and fuel, and for housing and rehabilitation of industry created large demands for highway transport.

In Italy the capacity of freight vehicles was 50% more than the prewar level and road surfaces approached their prewar condition. The same road condition was reported for much of Austria.

Germany, with the most urgent need for transport, suffered greatly from lack of roads and vehicles. There were about 3,000 mi. of autobahnen, in good condition except as to bridges, but this system was by no means adequate to give the service required by the dense population.

Norway reported stagnation of its highway program. Before World War II from 300 mi. to 425 mi. of road were built annually; after the war the rate was at about 125 mi. per year.

Little was known concerning Russian road improvement. The government reported that it was building a concrete road from Moscow to the southern shore of the Crimea.

Turkey.—The government had become strongly interested in highway transport to supplement its rail system and planned to build 12,000 mi. of first-class highways. The inadequate road and rail transport system was blamed for holding back the nation's full development. Late in 1947 a group of engineers was sent by the United States to assist the Turkish government, and some machinery was supplied.

India.—During the first six months of 1947 active steps were taken toward construction of national highways. A central standards and design office was set up under 30 consulting engineers. Technical co-ordination of the work of various branches of government and the independent states was being established. Political turmoil during the summer, however, delayed progress.

China.—This was the only country that made a large addition to its main highways during World War II; 2,820 mi. were added. A well-organized highway department worked to accomplish a 10-year plan to build 33,000 mi. of national highways and 124,000 mi. of secondary roads. Bus operation between cities was extended during the year.

Africa and Australia.—Road improvement continued, but there were no notable projects. The central government of Australia authorized funds for access roads to remote and sparsely settled areas.

Philippine Islands.—Activity in restoring war-damaged highways increased rapidly during the year. The United States provided a group of engineers and nearly $10,000,000 to assist the Philippine bureau of public works in rehabilitating highways. Numerous improvements were started, including reconstruction of major routes entering Manila. (*See* also MOTOR TRANSPORTATION.) (T. H. MACD.)

Robinson, Sir Robert (1886–), British chemist who was awarded the Nobel prize for chemistry on Nov. 13, 1947, was born Sept. 13, and was educated at the University of Manchester. Starting his academic career in 1912 as professor of organic chemistry (pure and applied) at the University of Sydney, he later held similar posts at a number of British universities and was Waynflete professor of chemistry at Oxford university from 1930. In 1945, he was elected president of the British Royal society.

An outstanding organic chemist, Sir Robert worked principally in exploration of the intricate compounds found in living vegetable substances. He is noted for his successful synthesis of the chief colour pigments of fruits and flowers and played an important role in the collaboration on the chemistry of penicillin. In 1947, he was collaborating with his wife, Gertrude Maud Robinson, on production of synthetic penicillin.

Sir Robert received the Nobel prize for his research on plant products, particularly alkaloids.

Rockefeller Foundation: *see* SOCIETIES AND ASSOCIATIONS.
Rockets: *see* MUNITIONS OF WAR.
Roentgen Ray: *see* X-RAY AND RADIOLOGY.

Roman Catholic Church. The pope is recognized as supreme ruler and pastor of the Roman Catholic Church. It is he who creates cardinals and appoints archbishops, bishops, vicars and prefects apostolic who exercise ecclesiastical jurisdiction throughout the world.

During 1947 the sacred college of cardinals was reduced to 61, through the deaths of Rodrigue Cardinal Villeneuve, archbishop of Quebec, Carlo Cardinal Salotti, prefect of the Congregation of Rites, and Pierre Petit Cardinal de Julleville, archbishop of Rouen, France. No new cardinals were created.

A number of canonizations took place in 1947. In May, Nicholas de Flüe was solemnly enrolled in the ranks of the saints at a ceremony attended by a large Swiss delegation. In June the canonization of three new saints was solemnized. They were John de Britto, Giuseppe Cafasso and Bernardino Realino. In July four more were declared saints, Catherine Labouré, Louis Grignon de Montfort, Michael Garicoits, and Jeanne Elizabeth Bichier des Ages.

The pope issued several encyclical letters during the year. The anniversary of St. Benedict was the occasion of one (*Fulgens radiatur*), issued on March 21. It recalled the powerful influence of the saint upon the culture of the west, and urged imitation of his example in devotion to prayer and work. On Dec. 18, the pope released a very short encyclical (*Optatissima pax*), which stressed the need for joint effort, concord and peaceful work in rebuilding the world. These should replace strife and class hatred. Most significant encyclical of the year was that on the liturgy (*Mediator Dei*), dated Nov. 20. The first of its four parts treated of the nature, origin and development of the liturgy. Part two was concerned exclusively with the Holy Eucharist, explaining the nature of the sacrifice, urging more participation of the faithful, and reviewing the development of the practice of adoring the Holy Eucharist. The third part treated of the office and the ecclesiastical calendar. The final section was a pastoral exhortation, correcting some exaggerated tendencies in ascetical practice and insisting on due regard for liturgical laws. The 15,000-word document was one of the longest encyclicals ever issued. Its exhaustive discussion of social worship was considered especially significant.

Institutes of lay persons seeking a life of perfection were the subject of an apostolic constitution (*Provida Mater Ecclesia*), issued in March. The document recognized the fact that such groups were springing up in answer to needs of the times. It laid down norms for their organization and exempted them from the canons governing strictly religious communities. Considerable room was left for experimentation and adaptation to particular situations.

Wartime exemptions from the usual laws of fast and abstinence continued in force at the discretion of the bishops. These dispensations, granted in view of world food conditions, were confirmed for the postwar period in Jan. 1946. They were not revoked during 1947.

Continuing the trend noted in 1946, two additional congregations elected Americans superiors general. In July, at Paris, the Very Rev. William Slattery, C.M., became head of the Vincentians. In Rome the Most Rev. John H. Boccela, T.O.R., was selected as general of the Third Order Regular of St. Francis.

Church-state relations continued crucial in several countries. During January, in an effort to neutralize Catholic political opposition, the Polish government promised constitutional pledges of the rights of the church. Subsequently the church was attacked for interfering in politics and its publications were restricted. During the year Bernard Cardinal Griffin, archbishop of London, Eng., visited Poland and reported on his findings. At the year's end Adam Cardinal Sapieha, archbishop of Cracow, Poland, visited Rome, but no agreement on Polish relations with the Vatican had yet been reached.

In Germany, especially the soviet zone, the need of priests was acute. From former East Prussia and the German territory taken over by Poland came many Catholics, most of them settling in the Russian zone of occupation. A survey revealed 3,308,668 Catholics in the soviet zone, where previously only a fraction of that number had lived. Catholics in Hungary rallied around Josef Cardinal Mindszenty, the primate, in an effort to vindicate the rights of religion. The communist-inspired drive against religious education continued; the Catholic press was severely restricted; institutions were seized as occasion offered.

The situation in Yugoslavia continued bad, and several attacks were made on Catholic priests. Efforts to get U.S. Catholic press representatives accredited to Yugoslavia were completely unsuccessful. No agreement could be reached by the Vatican with the new government of Rumania; the nunciature was not filled and a regent, Bishop Gerald P. O'Hara of Savannah-Atlanta, Ga., was sent to Bucharest instead. In Belgrade,

Yugoslavia, Bishop Joseph P. Hurley of Saint Augustine, Fla., remained as regent of the nunciature.

Missions.—Catholic missions in communist-held China suffered during 1947. Previously they had not been interfered with to any great extent, but gradually the attitude of the Red army changed. At the year's end Chinese Communists displaced 72 Trappist monks from their monastery and forced them to join a "death march," which resulted in the death of 14. Various missions suffered also, and few new appointments were being made to the Communist areas.

Elsewhere mission needs were great. Postwar Japan seemed well disposed toward Christianity and during the year several score missionaries were dispatched to Japan by U.S. Catholics. In the Philippines, still suffering from war damage, a serious shortage of priests continued. North American missionaries were again sent during 1947 to various Latin American countries in need of additional clergy.

United States.—The number of Catholics in the U.S., Hawaii and Alaska was estimated at 25,268,173 in 1947, representing an increase of 866,049 over the previous year. There were 22 archdioceses, 100 dioceses, and 1 vicariate-apostolic (Alaska). Cardinals numbered 4, archbishops 22, bishops 145, and priests in excess of 40,470. There were 140,563 sisters and 6,938 brothers.

Catholic colleges and universities numbered 216, high schools 2,431, and elementary schools 8,165.

During 1947 a new diocese was created in Austin, Tex., while that of Leavenworth, Kan., was renamed Kansas City in Kansas. Mgr. Louis J. Reicher was consecrated first bishop of Austin, Tex. The archiepiscopal sees of Baltimore, Md. and Washington, D.C., were separated after the death of Archbishop Michael J. Curley in May, 1947. Mgr. Patrick A. O'Boyle was named archbishop of Washington, while Bishop Francis P. Keough of Providence, R.I., was transferred to the Baltimore see. During October, Archbishop John J. Cantwell of Los Angeles, Calif., died, as did Archbishop James H. Ryan of Omaha, Neb., during mid-November. Bishop Thomas A. Boland was named bishop of Paterson, N.J., to fill the vacancy left at the death of Bishop Thomas H. McLaughlin, who died in March. Mgr. Albert R. Zuroweste was consecrated bishop of Belleville, Ill., and Mgr. Mark K. Carroll was designated bishop of Wichita, Kans.

Seventeen bishops were appointed as coadjutors or auxiliaries in as many dioceses.

The U.S. hierarchy, at their November meeting, issued a joint statement condemning secularism and blaming the separation of religion from daily life for many of the social evils of the times. At the same meeting they authorized establishment of a National Catholic Resettlement council, to be made up of representatives of national organizations and various dioceses, to promote the work of resettling Europe's displaced persons in the U.S. In December the council was formed under the leadership of War Relief Services—National Catholic Welfare conference. On Labour day the social action department of N.C.W.C. issued a forward-looking statement urging democratic co-operation of management and labour in solving labour disputes, greater production as a means to economic stabilization, and the maintenance of full employment.

Awards given U.S. Catholics during 1947 included the designation of William G. Bruce, veteran publisher, to receive the Laetare medal. The Hoey awards went to Julian J. Reiss of New York and Clarence T. Hunter of St. Louis, Mo., for their distinguished work in interracial relations. Bishop William D. O'Brien, auxiliary of Chicago, Ill., was honoured for his long work with the Extension society and named assistant at the papal throne. Joseph Matt, a layman, celebrated his golden jubilee as editor of the *Wanderer,* Catholic weekly of St. Paul, Minn.

At the Eucharistic congress marking the centenary of the diocese of Buffalo, N.Y., 70 archbishops and bishops were in attendance. The event was one of the most significant of the year and drew a crowd estimated at 100,000.

Other Events.—A special mission to study conditions of Europe's displaced persons and prospects of resettlement in Latin America was carried out by Mgr. John O'Grady, secretary of the National Conference of Catholic Charities. The pope received his report in person. In Rome the Vatican Emigration office was established, with Rev. Edward J. Killion, C.SS.R., designated as its director. During the year Catholics in the western countries continued to assist displaced persons. United States Catholics shipped goods and food abroad totalling more than $10,000,000.

The National Catholic School of Social Service and the social service department of Catholic University of America, Washington, D.C., were merged and a larger, co-ordinated institution was organized to promote Catholic study of social work.

Notable deaths of the year included those of Mgr. Peter K. Guilday, veteran professor of history at Catholic university, and Dr. Herbert Corey, author and distinguished convert from Marxism. In August the body of Archbishop Edward J. Hanna, formerly of San Francisco, Calif., was removed from Rome, where he had died during World War II, and was laid to rest in San Francisco.

During June the Marian congress held at Ottawa, Canada, drew 200,000 faithful. Nine cardinals and several hundred archbishops and bishops attended during the five days dedicated to Our Lady's intercession for world peace. (*See* also CATHOLIC ORGANIZATIONS FOR YOUTH; CATHOLIC RURAL LIFE CONFERENCE, NATIONAL; CATHOLIC WELFARE CONFERENCE, NATIONAL; CHURCH MEMBERSHIP; SOCIETIES AND ASSOCIATIONS; VATICAN CITY STATE.) (J. LaF.)

Roosevelt, Anna Eleanor (1884–), U.S. government official, newspaper columnist and widow of Franklin D. Roosevelt, 32nd president of the United States, was born Oct. 11, 1884, in New York city, the daughter of Elliott and Anna Hall Roosevelt. She married Franklin Roosevelt, a distant cousin, March 17, 1905. Mrs. Roosevelt took an active interest in furthering her husband's political career. Following his election to the presidency in 1932, she embarked on a career as a speaker and writer. Her newspaper column, "My Day," became widely syndicated. Mrs. Roosevelt was named (Dec. 19, 1945) by President Harry S. Truman as a member of the U.S. delegation to the United Nations general assembly, and on April 29, 1946, she was elected chairman of the Commission on Human Rights of the United Nations Economic and Social council.

In her frequent clashes with the Russian delegates over aims and ideals, Mrs. Roosevelt complained that while the Russians verbalized on democratic procedure, they had no concept of what the phrase meant. Appointed as delegate to the general assembly's Sept. 1947 session, Mrs. Roosevelt answered Andrei Vishinsky's warmongering charges on Oct. 6, declaring that her sympathy with the soviet proposal to reduce warmongering influences to a minimum did not extend to the soviet position that this was the task of the press.

Subsequently she urged the Soviet Union to acknowledge basic east-west differences and to seek instead some means of co-operation.

Rosenwald Fund, The Julius: *see* SOCIETIES AND ASSOCIATIONS.

Rotary International: *see* SOCIETIES AND ASSOCIATIONS.

Rowing. A healthy growth in competitive rowing was maintained in 1947. More regattas were held in the U.S. and abroad with greater numbers of competitors and a higher standard of oarsmanship.

In England, Cambridge turned the tables on Oxford, winner in 1946 in the oldest rowing classic.

In the United States, three great college regattas were held besides many dual, triangular and quadrangular contests. The Eastern Intercollegiate sprint championships at Princeton, N.J., had 28 entries in freshman, junior varsity and varsity events. At Poughkeepsie, N.Y., the long-distance classic was revived after a lapse of five years, at three miles instead of four. There 31 college crews raced. The second annual Pacific Coast sprint championships at Lake Washington, Seattle, attracted 12 varsity crews. Harvard was victor at both Princeton and Seattle and the U.S. Naval academy won the varsity event at Poughkeepsie.

In the Eastern Intercollegiates, the freshman final went to Princeton in 6 min. 18.2 sec.; Navy was second and Yale third. Other entries, eliminated in the trials, were Harvard, the University of Pennsylvania, Massachusetts Institute of Technology, Rutgers and Columbia.

Harvard also took the junior varsity final from Penn in 6 min. 14 sec. to 6 min. 14.2 sec. with Princeton third. Crews in this event, eliminated in the heats, were Navy, Yale, M.I.T., Syracuse, Columbia, Rutgers and Cornell.

Harvard's varsity, one of the smoothest and most powerful crews in many years, came through to the finals which they won in 6 min. 5 sec. at 2,000 m. in dead water, 1 sec. over the Olympic record. Navy was second and Cornell third. These three seeded crews had previously defeated Princeton, Yale, M.I.T., Penn, Rutgers, Columbia and Syracuse in the heats.

On the same day at Cambridge, Harvard also won the lightweight crown with the Wright trophy from Princeton, Yale, Penn, Cornell, M.I.T. and Columbia in that order. The winner's time was 6 min. 54.2 sec. for the Henley distance.

The Poughkeepsie renewal was a great rowing spectacle. Eleven varsity crews, the best in the country barring the absent Yale and Harvard eights, gave thousands of spectators a great thrill. The same number rowed the junior varsity race at the same distance and seven freshman crews faced the starter at two miles.

Navy won the varsity contest, followed by Cornell, Washington, California, Princeton, Syracuse, Wisconsin, M.I.T., Penn, Rutgers and Columbia. Time, 13 min. 59.2 sec.

California took the junior varsity in 14 min. 30.3 sec. with Navy and Cornell second and third. Washington, Syracuse, Penn, Wisconsin, M.I.T., Rutgers and Columbia followed.

The freshman race went to Washington in 9 min. 40.3 sec. with Syracuse a length back, trailed by Navy, Princeton, Cornell, Penn and Columbia. Smooth water prevailed. This regatta recorded the largest number of entries ever seen at Poughkeepsie.

At New London, Conn., the Harvard-Yale classic was renewed at four miles. Harvard won the varsity by one and one-half lengths and the junior varsity race as well. Yale's freshman crew defeated the Crimson.

In the second annual Pacific Coast sprint championships on Lake Washington, Seattle, Harvard defeated the largest field of college eights ever assembled in one race. Weather conditions were excellent. The time for the 2,000-m. distance was 5 min. 49 sec., which bettered the world's record for still water. Yale and Washington in second and third places were serious threats, both being clocked under the record; Syracuse, Cornell, California, Wisconsin, followed closely; M.I.T. and Princeton were tied for eighth place, and Penn, Columbia and U.C.L.A. trailed. The final positions were determined by motion-picture camera.

The Dad Vail Rowing association regatta was revived on the Charles river. Boston university captured the new Vail trophy from the Dartmouth Rowing club, trailed by Marietta college of Ohio, Rollins college of Florida and American International college of Springfield, Mass.

Rutgers university, former Dad Vail champion, no longer competing in the varsity event, took the junior varsity race with Boston university second. No freshman race was held. Harvard and Navy deserve top ranking for the 1947 season, and eastern rowing was superior to that of the west.

Schoolboy activity in the U.S. and Canada increased. The Scholastic rowing championships at Wyandotte, Mich., were witnessed by thousands. La Salle high school, Philadelphia, won the eight-oared shell championship, and Joseph McIntyre of Philadelphia the singles championship. In Canada, Joe Kelly of Belleville high school won the high school singles, and Roosevelt high school, of Wyandotte, Mich., regained the Cleland cup and the high school eight championship.

The National Association of Amateur Oarsmen held its 73rd annual regatta at Detroit in July. Ecorse Boat club won the team trophy without gaining a single first place. The Buffalo West Sides captured the eights and Jack Kelly was dethroned as American champion after capsizing while in the lead. Theodore Dubois of Winnipeg, Canada, former American champion in 1939, became the new American champion, with Joe Angyal, New York, lightweight medalist, second.

The largest regatta on the North American continent was the 65th running of the Royal Canadian Henley at St. Catharines, Ont. Forty-nine events were held with nearly 600 entries in the four-day regatta.

The Buffalo West Sides took the Club Point trophy and with it the senior eights and the Hanlan cup. The Wyandottes of Michigan were second.

John B. Kelly, Jr., successfully defended his title in the Senior Singles championships, with Dubois of Canada second.

Joe Angyal won both lightweight crowns.

The Rowing committee of the U.S. Olympic federation voted to hold the Olympic rowing trials on the Schuylkill river, Philadelphia, between June 30 and July 10, 1948, in preparation for the 12th Olympiad at London in Aug. 1948.

John B. Kelly, Jr., unsuccessful finalist for the Diamond Sculls in 1946, returned to win the coveted trophy from a large field of foreign scullers at the Royal English Henley early in July. Jesus college, Cambridge, won the Grand Challenge cup and Kent school won the Thames cup. (C. L. BT.)

Roxas y Acuna, Manuel (1892–), Philippine statesman and president of the Republic of the Philippines, was born Jan. 1, in Capiz, Panay Island, the Philippines. He was educated in English-language public schools and was graduated from the University of the Philippines college of law, Manila, in 1913 with an LL.B. degree. Elected to the house of representatives in 1921 Roxas later became speaker of the house.

Shortly after the Japanese attack on the Philippines, Roxas was assigned, Dec. 16, 1941, as liaison officer and aide to Gen. Douglas MacArthur. When the latter went to Australia Roxas remained for a while on Corregidor and later turned up as a cabinet minister in the pro-Japanese Laurel government. After the war when he was charged with collaboration, Roxas claimed that he used his high position to carry out espionage for the Allies; and he was subsequently cleared of collaborationist charges.

Roxas was elected president of the republic in April 1946 and was inaugurated the following month on May 28. In the spring of 1947 an attempt to assassinate him failed.

Roxas signed two treaties with the U.S. in 1947. The first, March 14, guaranteed U.S. leaseholds on military and naval bases in the islands for 99 years; the second was a U.S.-Filipino five-year military assistance pact.

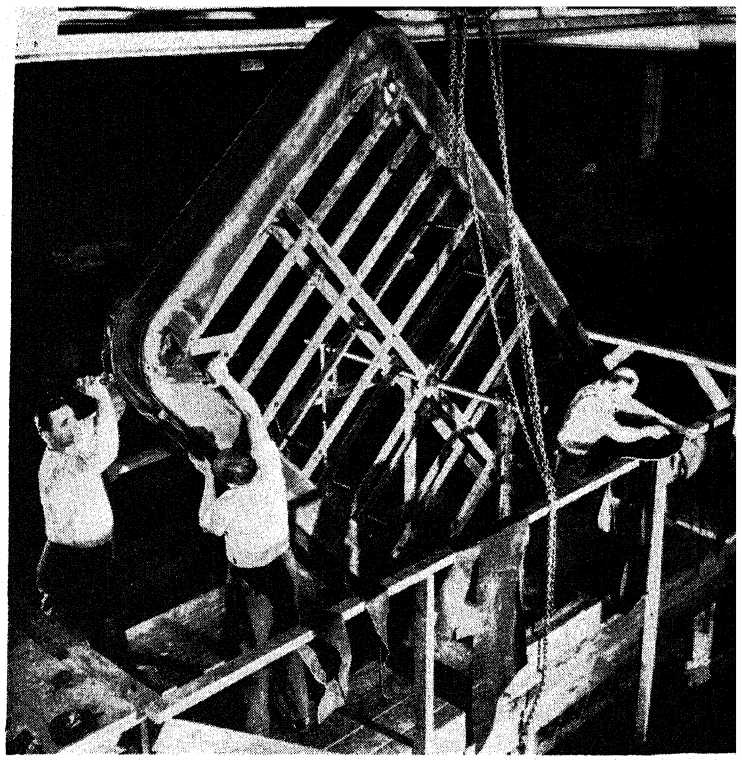
Royall, Kenneth Claiborne (1894–), U.S. government official and lawyer, was born on July 24 in Goldsboro, N.C. He studied at the University of North Carolina and later at Harvard where he took his law degree in 1917. He served in the artillery in World War I and later practised law in Goldsboro, becoming one of the state's most successful lawyers. In World War II he was made chief of the army service forces legal section with the rank of colonel. Later, he became deputy fiscal director of the service forces (he was made a brigadier general in late 1943) and in Oct. 1945, Pres. Harry S. Truman appointed Royall to the post of undersecretary of war.

Upon the resignation of Robert P. Patterson as secretary of war, President Truman named Royall his successor on July 18, 1947. A month later he was made secretary for the army in the new national military organization headed by Secy. of Defense James Forrestal. Royall was a foremost advocate of "preparedness," and his views on army policy were set forth in a speech made in the summer of 1947 before graduating officers at the Command and General Staff school, when he extolled "military strength as the best guarantee of peace." In a statement made on Dec. 2, 1947, before the president's air policy commission, he urged the U.S. not to weaken its sea and ground establishments by granting the lion's share of arms appropriations to the air force.

Ruanda and Urundi: *see* BELGIAN COLONIAL EMPIRE; TRUSTEE TERRITORIES.

Rubber. The rubber industry maintained a high level of output during 1947, particularly in the United States, where it was estimated that the year's tire production would exceed by more than 10% the high of 87,000,000 produced in 1946. The total value of manufactured product and the consumption of rubber (1,207,000 short tons) were also rated higher than in any previous year. This unusually high rate of activity prevailed in the first two quarters and in the fourth, with a mild slowing down in the summer months.

Congress extended government controls over the use and production of rubber until March 31, 1948, authorized the purchase of crude rubber by private agencies after May 1, 1947, and deferred until later a permanent policy respecting the sale of government-owned plants, except for designated "fringe" plants not deemed essential to U.S. national defense. Subsequently, the Civilian Production administration defined effective controls (under rubber order R-1) to continue such functions as allocation, consumption, inventories of rubber and specifications for rubber products. With the resumption of free trading within the United States, the price of rubber in the far east dropped from a high of 22 cents to about 15 cents by June. On Sept. 9 the Office of Materials Distribution, U.S. department of commerce, announced the elimination of controls over the use of natural rubber in about 30,000 nontransportation items in line with the easier supply position of the agricultural product. This action also concentrated the use of synthetic rubber, principally in tires and tubes, with continued consumption of GR-S estimated at the rate of one-third of the total GR-S (butadiene-styrene co-polymer) and crude rubber processed and a consequent firming in the price of rubber to a high of 22 cents in November and of 20.4 cents at the year-end.



RECORD-SIZE flexible rubber joint, designed to convey steam from turbine to condenser under conditions of extreme temperature change, is shown nearing completion at the Passaic works of the U.S. Rubber Co. in 1947

Viewpoints differed concerning the method of ultimate withdrawal of the government from ownership and operation of plants for U.S.-made rubber. Private operation of these plants under sale or lease arrangements and with removal of government controls was a widely supported proposal. The early discontinuance of the public pooling of patents was urged in order to provide the incentive for industry to make most rapid improvements in the products and processes involved. One large unit of industry recommended government stock piling and production only for purposes of military security. Another advocated the use of a minimum of 112,000 short tons a year of synthetic rubber produced in government-owned plants, a substantial stock pile of crude rubber and the development of additional rubber-growing areas in the western hemisphere with a minimum annual yield of 112,000 tons. The house subcommittee of ten members, headed by Paul Shafer of Michigan, conducted hearings in the last quarter at Port Neches and Velasco, Tex.; Louisville, Ky.; Akron, O., and final hearings in December at Washington, D.C., with the purpose of drafting a law to assure adequate rubber supplies in the interests of public security. Testimony was heard from officials of the Reconstruction Finance corporation (Office of Rubber Reserve), National Security Resources board and other federal agencies, the Rubber Manufacturers association and executives of several rubber companies. Shafer intimated at the end of the hearings that permanent legislation might require considerable time, but that his committee favoured continuation of existing R-1 controls and elimination or modification of existing pooling of research in the synthetic rubber field.

Widespread disappointment was expressed in many quarters at the seeming failure of the private purchase of crude rubber in the U.S.A. to prevent the decline in market prices. Malayan growers attributed this unsatisfactory response in prices to the continued allocation of rubber within the United States, thus preventing its unrestricted use. From London at mid-year gloomy reports emanated that the Americans were retaining control of the price situation with the prospect of a further de-

cline. Sir John Hay, chairman, United Sua Betong Rubber Estates, was reported as criticizing the discrimination favourable to the U.S. synthetic to the detriment of marketing the natural product. The Rubber Study group, which met in Paris in July, was urged by representatives of the rubber-growing countries to implement the free play of the consumer demand for rubber as an aid to their economic recovery. Governments of the member countries were to be apprised of the need for their active participation in effecting this objective.

In Malaya plans to modernize and revive the rubber-growing industry were actively studied. These plans included loans, possibly out of government funds, for the gradual replacement of low-yielding trees by better strains. While estate owners generally seemed to favour government participation in this replacement operation, concern was felt that a too rapid rate of production would adversely affect prices. Also, their competition from the small farmer (native estate owner), especially if aided as was proposed by access to bud wood and government loans, and from the U.S. synthetic production, had to be considered carefully. The main source of competition confronting the Malayan plantations, however, would be the rubber production of the Netherlands Indies, which had been slow in recovering from World War II. Despite plans to improve the yields of rubber in Malaya, and proposals such as the one to make Ceylon a rubber manufacturing centre for all items except tires, rubber producers the world over were awaiting the ultimate disposal of the units for making the U.S. rubber GR-S before committing themselves to large-scale new operations.

Raw Materials.—In the first three quarters of 1947 the consumption of rubber in the United States was 928,480 short tons, with 443,440 short tons crude and the balance synthetic rubber, mainly GR-S. Estimates for the year indicated that the consumption of crude and synthetic rubbers would be nearly equal compared with 27% crude in 1946 and 13% crude in 1945; 604,800 short tons of crude rubber and 448,440 short tons of synthetic rubber comprised the United States new supply of these commodities during the first three quarters. Last-quarter estimates for the total rubber consumption in 1947 by the United States were 1,207,000 short tons and for the world 1,802,000 short tons.

The price of U.S. GR-S remained 18.5 cents a pound throughout the year, whereas on June 1 the corresponding product of Canadian manufacture was reduced from 18.5 cents to 16.5 cents. Canadian Reconstruction Minister Clarence Howe announced at the end of 1947 the production figures for GR-S and Butyl at the Polymer corporation's plant:

	(In thousands of pounds) GR-S	Butyl
1944	57,057	1,233
1945	82,228	18,941
1946	80,279	25,148
1947	79,000	16,000

The response of Nigerian exports of crude rubber to the stimulus of emergency buying presented an interesting case:

	Short Tons Crude Rubber
1941	2,302
1942	7,467*
1943	8,250
1944	10,543
1945	11,787
1946	12,821

*Of which 2,136 short tons were wild rubbers.

E. G. Holt, rubber adviser to the department of commerce, reported rubber consumption in the United Kingdom of 35,609 short tons in the first quarter and 43,397 short tons in the second quarter. He reported that in Germany the Schkopau plant in the Russian zone was producing rubber early in the year at the capacity rate 3,500 metric tons (3,850 short tons) monthly. The Hüls plant in the British zone was producing 2,016 metric tons (2,218 short tons) the first quarter and 2,507 metric tons (2,758 short tons) the second quarter.

The U.S. tire fabric and cord output in 1946 of 522,000,000 lb. was a record high; 236,000,000 lb. of cotton tire fabric, 74,000,000 lb. of cotton tire cord and 212,000,000 lb. of rayon-nylon tire fabric and cord made up this total. Estimates for their consumption in 1947 were somewhat in excess of this figure. Nylon was used only in nominal amounts. This quantity of rayon-nylon tire fabric and cord was in the order of 24 times the 1939 production.

During World War II carbon-black plants erected to supply the demand were predominantly of the type to produce furnace blacks, whereas the tire industry had previously consumed almost wholly blacks of the channel type. It was of interest that the fine furnace types of black had reinforcement properties about equal to channel black, resulting in good wear of tire treads in abrasive service. Furnace blacks also worked particularly well with synthetic rubbers. Thus, the excess emergency facilities provided for furnace blacks appeared justified by the continued demand for their products in peacetime. In 1946 the rubber industry consumed 1,200,000,000 lb. of carbon black, more than double the annual consumption in prewar years.

Finished Goods.—The rubber industry maintained a high level of output throughout 1947. Shipment of civilian replacement tires in 1946 were 54,584,000 passenger tires and 10,776,000 truck-bus tires, compared with 26,999,000 and 3,868,000, respectively, in 1936. Civilian retread and recap units for 1946 passenger car tires were 16,000,000 compared with 3,000,000 for 1936, and for truck-bus tires 2,500,000 against 1,000,000 in 1936. The peak production rate attained by the rubber goods industry during the first half of 1947 was retarded somewhat at midyear, but had shown recovery by the fourth quarter. Mechanical rubber goods reported its highest production rate in history for the 12 months ending June 30. Heavy bookings for future orders in industrial products, footwear and soles and heels were reported in October. U.S. exports of rubber goods totalled $54,790,000 for the first quarter, $58,241,000 for the second quarter. The decline in volume of exports later in 1947 was attributed to the resumption of manufacture by the countries originating the orders, although dollar balances were doubtless also implicated.

The consumption of rubber by all other countries for 1947 was about half that of the United States. France in April produced 7,560 short tons of rubber articles other than tires, compared with 8,050 short tons of these commodities in April 1938. Increased exports of rubber goods from England were projected by Sir Stafford Cripps after a survey of the known capacity (1947) of the factories at a rate for 1948 attaining more than $4,000,000 a month, 425% of that in 1938. In Italy 137 firms employing 42,000 persons consumed 13,400 short tons of crude and synthetic rubbers in 1946. The Union of South Africa reported 4,330 persons employed in about 70 rubber factories in 1947. In the peak year, 1943, the union had exported 23,000,000 lb. of tires and tubes, mainly to Egypt, Kenya and Iraq. In Germany the production of rubber goods was hampered by shortages of coal, power and buna in the western section, and in the eastern section where buna was plentiful by the scarcities of coal, gasoline and chemicals. Almost 90% of the German rubber-fabricating industry was located in the British and U.S. zones, where the limited production of buna at Hüls had to be supplemented by outside supplies of buna from Schkopau and by importation of natural rubber. These plants in western Germany had a combined capacity of 119,000 car and truck tires and 432,000 cycle tires monthly.

A major reduction in the prices of tires and tubes in the

United States, averaging about 12%, was made effective in the second quarter. In the last quarter these prices were adjusted upward to a level close to that prevailing at the beginning of the year. In early autumn the department of justice brought suit against eight tire companies, ten company officials and the Rubber Manufacturers Association, Inc., on charges of violating the Sherman act by agreeing to establish the sales prices of certain rubber articles. The defendants pleaded not guilty.

Rubber Study Group.—The Rubber Study group met in Paris, France, on July 1–8, 1947, for its fourth session to review the world rubber situation in the light of changes since it met in The Hague, the Netherlands, in Nov. 1946 and to consider the organization of an enlarged study group. Delegates from 19 countries and observers from 9 other countries and from the United Nations and the Food and Agricultural organization were present. In a resolution released at the conclusion of the meeting it was recommended: (1) that membership be open to all countries substantially interested in the production, consumption of or trade in rubber; (2) that the group consider measures designed to expand world consumption of rubber; (3) that the group consider how best to deal with any special difficulties which might exist or might be expected to arise, and submit recommendations on the subject to the participating governments and (4) that the group maintain a secretariat for the proper conduct of its work and arrange for the collection and dissemination of statistics.

In order to implement the fourth recommendation, an initial management committee of the following nation members was also recommended—France, the Netherlands, the United Kingdom and the United States. It was agreed that the permanent site of the secretariat should be in London. (*See* also CARBON BLACK; PETROLEUM; RAYON AND OTHER SYNTHETIC FIBRES.)

(H. L. TL.)

Rugby: *see* FOOTBALL.
Ruhr: *see* SAAR.
Rulers: *see* PRESIDENTS, SOVEREIGNS AND RULERS.

Rumania. A republic of southeastern Europe, bounded on the north and northeast by the U.S.S.R., on the east by the Black sea, on the south by Bulgaria and on the west by Yugoslavia and Hungary. Area (Sept. 15, 1947): 91,671 sq.mi.; pop. (July 1, 1946, est.): 16,472,000. Chief towns (pop. July 1, 1945, est.): Bucharest (cap., 984,619); Cluj (110,956); Jassy or Iasi (108,987); Timisoara (108,296); Ploesti (105,114); Braila (97,293); Galatz (93,229). Language (1946 est.): Rumanian 84%; Magyar 8.5%; German 4.5%; others 3%. Religion (1946 est.): Greek Orthodox 81%; Greek Catholic 9%; Roman Catholic 7%; others 3%. Provisional council of state: Mihai Sadoveanu, Constantin Parhon, Ion Nicure, Roman Stere and Stefan Voitec; prime minister: Petru Groza.

History.—The food shortage resulting from the 1946 drought created at the beginning of 1947 a famine situation in Moldavia and great hardship in most provinces. Appeals for help brought some gifts of food and medical material from western Europe and the U.S., but the bulk of Rumania's needs had to be covered by using its limited export resources to pay for imports of food. This meant that imports of much-needed industrial raw materials and equipment had to be sacrificed, with great loss to the country's economic recovery. Grain was received from the U.S.S.R. as a loan to be repaid later, though the communists represented this as aid freely given.

This serious setback, coming on top of the general economic exhaustion of the preceding two years, whose largest single cause was the burden of soviet military occupation and reparations, led to a rapid fall of the currency. The inflation increased during the summer. On Aug. 14 and 15, 1947, the new leu was stabilized at the rate of 1 new to 20,000 old. The new exchange rate was to be 605.4 lei to the pound and 150 to the dollar. Only a small proportion of the old currency surrendered was exchanged for cash, the rest being frozen with the assurance that it would be exchanged "at a later date."

During the year the opposition National Peasant party continued to suffer interference and persecution from the police. In June a group of its leaders, including the former party chairman, Ion Mihalache, attempted to leave Rumania by air, but were arrested on the airfield. The affair was denounced as treason and led to the arrest of all prominent party figures and of their leader, Iuliu Maniu. The party was formally suppressed, and the trial of the leaders for conspiracy took place at the end of October. They were accused of plotting with representatives of Britain and the U.S. in Bucharest the overthrow by violence of the Rumanian government, of espionage in the interest of the western powers and of a "reactionary" and "antiworking class" policy before World War II. On Nov. 11 Maniu and Mihalache were sentenced to solitary confinement for life.

Changes took place during the year in two of the parties belonging to the government coalition (National Democratic front). The Socialist party had split in 1945, when a section led by Constantin Petrescu went into opposition but the majority decided to collaborate with the Communists. In October the foundation of the Cominform in Belgrade, Yugoslavia, brought new demands from the Communists for fusion of the two workers' parties. A congress of the Socialist party, which was denounced as packed by the opposition Socialists, met and decided for fusion.

The other governmental group which still showed signs of an independent attitude were the Liberals of the former premier, George Tatarescu. This right-wing politician had long tried to play with the Russians and with the Rumanian Communists. In May his patience began to wear thin, and he wrote a memorandum to his cabinet colleagues in which he criticized police repression and official industrial policy, especially a law which reorganized existing factories into a number of industrial groups, controlled by the government. This measure, with the formality of nationalization, brought most of Rumanian industry under close state control. Since a Tatarescu follower had been minister of finance, it was easy to blame the Liberals for the inflation. Communist attacks continued during the summer, and on Nov. 6 Tatarescu and his party colleagues resigned following a vote of no confidence.

Mme. Ana Pauker, a Communist leader, succeeded Tatarescu as minister of foreign affairs.

On Dec. 30 the Rumanian government announced the abdication of King Michael (*q.v.*) and the establishment of a "people's republic." A council of state of five members was appointed to govern until a constituent assembly and a president were elected. The former king left Rumania on Jan. 3, 1948. (*See* also PEACE TREATIES.)

(H. S.-W.)

Education.—(1943) Kindergarten schools 1,094, scholars 57,512; elementary schools 11,041, scholars 1,607,879; universities (1945): 4, students 27,082.

Finance.—Commercial bank deposits (1947) 750,700,000,000 lei; savings bank deposits (1947) 80,000,000,000 lei; gold reserves (1946) U.S. $269,000,000; public debt (1945) 98,930,752,000 lei. Currency: leu; exchange rate (Aug. 15, 1947): $1 = 150 lei.

Trade and Communication.—Trade with Great Britain (1947, first 8 months): exports £122,662; imports £47,077. Roads (1945): 43,163 mi.; railways (1945) 5,962 mi.

Agriculture.—Wheat (1946) 1,773,118 short tons. Acreage planted (1947): (in thousand acres): wheat 4,151; rye 222; barley 1,022; oats 1,284; maize 10,789; buckwheat 899. Livestock pop. (1947): horses 768,461; cattle 3,047,964; sheep 7,084,633; pigs 1,405,726; goats 225,363; poultry 11,894,038.

Mineral Production.—Crude petroleum (1946) 4,606,000 short tons.

Running: *see* TRACK AND FIELD SPORTS.

Rural Electrification. The electrification of rural areas in the United States continued at a rapid pace during 1947. As of June 30, 1947, the Rural Electrification administration estimated that 3,574,641 farms, or 61% of all U.S. farms, were served with central station electricity. This represented an increase of 394,338 electrified farms over the previous year. REA estimated that 2,284,528 farms and about as many nonfarm dwelling units and other rural establishments still lacked electric service.

During the calendar year 1947, the REA program passed two significant milestones: cumulative loan approvals passed $1,000,000,000, and connected consumers went to more than 2,000,000. REA borrowers connected more new consumers than in any previous year, bringing service to an estimated 346,000 farms and other rural units. They added an estimated 87,000 mi. of distribution lines to their rural systems. The borrowers included 947 rural electric co-operatives, 41 public power districts, 20 other public bodies and 21 commercial power companies. At the end of 1947, they were serving 2,030,000 rural consumers and operating 594,000 mi. of distribution lines. During the calendar year, REA approved loans for its borrowers amounting to $232,518,256. This increased the total of all approved loans to $1,190,527,346. Loan funds advanced to borrowers during 1947 to pay for completed construction totalled $225,412,000, or about $81,000,000 more than was advanced in any previous year of the program. This indicated an improved supply of materials. In addition to the new miles of lines placed in operation, the construction program of the borrowers included the "heavying-up" of many miles of lines and other facilities to handle increased loads. It also included construction of additional generating and transmission facilities.

In 1947 REA borrowers started construction of power lines into hundreds of unelectrified rural areas, including many sparsely settled sections of the great plains. Thirty-five new systems were energized during the year, and extensive new construction work stemmed from the 869 systems already in operation.

The co-operatives also prepared plans for the extension of service into many other areas. Demand of rural people for service continued strong. At the close of the year, REA had on hand, or in process of preparation, a backlog of loan applications totalling $265,000,000.

Borrowers in nearly every state reported in 1947 that larger supplies of electrical energy were needed to meet increased power consumption on electrified farms. The increased demand reflected the needs of newly electrified farms and more intensive use of power on farms already served. Electricity had become a production tool on the farm, as well as an instrument for better living; farmers now used it to operate water systems, milking machines and milk coolers, pig and chick brooders, feed grinders, hay hoists, hay driers, grain blowers, corn shellers, farm shop tools and a variety of other production devices. Rural consumers served by REA-financed lines used 3,332,000,000 kw.hr. of electricity during the fiscal year that ended June 30, 1947, as compared with 2,477,000,000 kw.hr. in 1946 and 1,925,000,000 kw.hr. in 1945.

This greatly increased use of power by rural people helped REA borrowers to continue in 1947 the impressive financial record that had marked previous years. As of Sept. 30, a total of $143,372,000 of principal and interest had been paid on REA loans. Of this amount, $20,000,000 represented repayment of principal in advance of due dates. (C. Hn.)

Canada.—Expansion of rural electrification was undertaken in several parts of Canada in 1947. Nova Scotia reported 1947 completion of only a few miles of rural lines, bringing the total to 2,000 mi. of new rural lines, with 70,000 persons provided with power facilities. Prince Edward Island planned to take over all private electric generating companies at a cost of $8,000,000, and hook up existing power lines in two grids, which would simplify rural electrification. Power shortages in New Brunswick forced many industries to curtail operation and prevented widespread extension of lines into rural areas. Agitation began for increased electrical energy output based on coal or tidal power, rather than hydro power, to speed rural electrification. In Quebec, new rural substations, first of their kind in Canada, could be adapted for capacities ranging from 1,000 volts to 15,000 volts.

In Ontario 23,700 mi. of rural lines were constructed or were under construction at the end of 1946. They served 178,000 consumers. Late in 1946 the commission began a five-year plan of rural expansion, aimed at installing 7,300 mi. of new lines at a cost of $22,400,000, to bring power to 58,000 new rural consumers, including 32,000 farmers. During 1947 about 1,200 mi. were installed, and 16,800 of these new customers added.

In 1947 Saskatchewan passed legislation to reorganize the 18-year-old Saskatchewan Power commission into a crown corporation. With the objective of welding the power system of the province into a single system, the government had purchased two large private companies in 1945; in 1947 a third was added. While the commission concentrated on serving small urban areas, some new rural lines were added. In the Alberta government's throne speech of 1947, an extension of rural electrification was promised, but shortages continued to slow up plans.

By April 1947, 16.1% of Canada's farms were served by electricity. Of this number, 35% were in Ontario and .21% in Saskatchewan. At that time Ontario was using 79.75% of all the power that went into rural electric lines. (C. Cy.)

Great Britain.—Shortage of supplies and of generating plant at the power stations, together with the position created by the passing of the Electricity act, 1947, retarded progress with new rural-distribution schemes in Great Britain. The success already achieved in some parts of the country, however, was illustrated by figures given late in 1947 for the Dumfriesshire, Scotland, supply area, which showed that 12,000 rural consumers out of a total of 15,000 were connected to the supply, the estimated total of units sold during the year being more than 32,000,000, at an average price of 1.30*d.*, and the maximum demand nearly 10,300 kw.

Constructional work on several of the North of Scotland Hydro-Electric board's generation and distribution schemes gathered momentum, and in May work began on the Mullardoch-Fasnakyle-Affric project to produce about 250,000,000 kw.hr. per annum. By the early 1950s the total generating capacity provided by the board was expected to reach 820,000 kw. to generate 2,300,000,000 kw.hr. a year. Research and development work in agricultural electrification was being carried out upon grain drying and hop drying and upon hay finishing by blowing cold or slightly warmed air through the grass.

Other European Countries.—Work was started on the rural-electrification scheme of the Eire Electricity Supply board. It was decided to develop in each county 25 sq.mi. unit areas having a network to supply every farm within the area. In the U.S.S.R., isolated rural communities were being supplied with electricity from small hydroelectric stations, and some Danish villages were being electrified from wind-driven generators of about 35 kw. capacity. A 5-h.p. or 7½-h.p. tractor, electrically operated through a 170-yd. length of trailing cable, was developed in Norway, particularly for use on small farms. A 5-h.p. unit ploughing on the rope-haulage system was being manufactured in France, and in the U.S.S.R. a 54-h.p. electric tractor, supplied through a 750-m. cable, was developed and a number of experimental models successfully passed extensive field trials.

The machines could do 2 ac.–2½ ac. an hour with a consumption per acre of 18.6 kw.hr. Steps were being taken to promote increased electrification of agriculture in the Netherlands also, where interest was being shown in its application to ploughing. In France electricity was applied on the farm to grain drying in the barn by blowing cold air through the grain. (E. W. G.)

Rural Rehabilitation Loans: *see* FARMERS HOME ADMINISTRATION.

Russell Sage Foundation: *see* SOCIETIES AND ASSOCIATIONS.

Russia: *see* UNION OF SOVIET SOCIALIST REPUBLICS.

Russian Literature.

The standard of soviet literature reached its lowest point during 1947, when none of the most highly acclaimed soviet writers produced work of vital interest to readers outside the Soviet Union, while those writers with the makings of a universal appeal, such as Leonid Leonov, were barren. The immediate cause of this failure must be sought in the ideological purge inaugurated in 1946 by Andrey Alexandrovich Zhdanov. Official pronouncements during 1947 soon demonstrated that more lay behind the purge than met the eye. Initially the main charge was that certain writers and editors were not pulling their weight in the reconstruction of their war-ravaged fatherland; but it was soon evident that the main preoccupation of the Communist party was the harnessing of soviet literary talent to the task of convincing the people of the U.S.S.R. of their own invincible moral strength, of their essential goodness, of the superiority of "soviet man" to any other kind of man, and of the ability of mankind, soviet mankind, to master his fate, fashion the universe to his will, and stride onward and upward in an uninterrupted progression. This thesis, applied to the arts in general and literature in particular, could only be expressed in the method known as socialist realism, an unrelievedly optimistic approach which was contrasted with the pessimistic decadence of western formalism. Socialist realism was defined afresh by Alexander Fadeyev, the new secretary of the Soviet Writers' union, on the occasion of the annual congress of the union. It was nothing less than the celebration of "the new human being of our age." More particularly, it was "the outcome of the appearance of a new type of hero enjoying opportunities for unlimited moral progress—the merging of reality and the ideal in the living image of man." This had in fact for long been the official ideal of soviet writers; but hitherto they were able to dilute the heroic qualities of the new man with observations and qualifications from real life. The year 1947 saw the temporary end of such qualifications. Any writer who still showed an interest in the workings of the human soul and allowed himself to speculate, however obliquely, as to the real meaning of life upon this planet was labelled as a decadent formalist. The most impressive casualty was Boris Pasternak, the *doyen* of soviet poets, who was comprehensively attacked in the Communist party's cultural weekly, *Kultura i Zhizn* (*Culture and Life*), in April. Later in the year the campaign was broadened as part of the general line stressing the superiority of Russian to western culture, and the complete independence of Russia from western influences. The climax of this movement was the public rebuking of Gheorghi Alexandrov, the minister for agitation and propaganda, who had himself until then been in charge of the ideological crusade. The rebuke was administered by Zhdanov. Alexandrov's fault was his too sympathetic treatment of the philosophers of the west in his own monumental work *A History of Western Philosophy*, which hitherto had represented the party's view. It would evidently be some time before the more able soviet writers perfected a new technique for producing readable novels in which all the characters would be either socialist heroes or members of a lower species of mankind. (W. E. Cw.)

Russian S.F.S.R.: *see* UNION OF SOVIET SOCIALIST REPUBLICS.

Rye.

The 1947 crop of rye in the U.S. increased remarkably over the short crop of 1946, which was the smallest in more than 70 years except for that of 1934. The 1947 crop was estimated at 25,977,000 bu. compared with 18,879,000 bu. in 1946, a gain of 38% but still much below the ten-year (1936–45) average of 37,934,000 bu. The acreage of rye harvested in 1947 was estimated at 2,022,000 or 22% above the 1,607,000 ac. harvested in 1946. Average yield was 12.8 bu. per acre, however—above the 11.7 bu. average of 1946 and 11.9 bu. for 1936–45. Rye stocks were very low on June 1, 1947, following the small 1946 crop and the strong demand for all grains for feed. Less than 5% of the 1946 crop remained on farms on June 1, 1947. The average farm price of rye was $2.18 per bushel in Jan. 1947, $2.36 in July and $2.45 in December.

U.S. Rye Production in Leading States, 1947, 1946 and 10-Year Average, 1936–45

(In thousands of bushels)

State	1947	1946	10-yr. Average 1936–45	State	1947	1946	10-yr. Average 1936–45
South Dakota	4,858	2,530	6,589	Kansas	627	556	917
North Dakota	4,360	2,156	6,750	Kentucky	518	518	253
Nebraska	2,592	3,070	4,155	Ohio	510	289	916
Minnesota	2,460	1,534	4,384	Montana	507	330	413
Michigan	1,120	672	1,104	Oklahoma	480	432	760
Wisconsin	1,000	874	2,181	Colorado	470	646	704
Indiana	8,400	621	1,479	Virginia	392	392	511
Illinois	7,980	475	912	Missouri	338	368	512

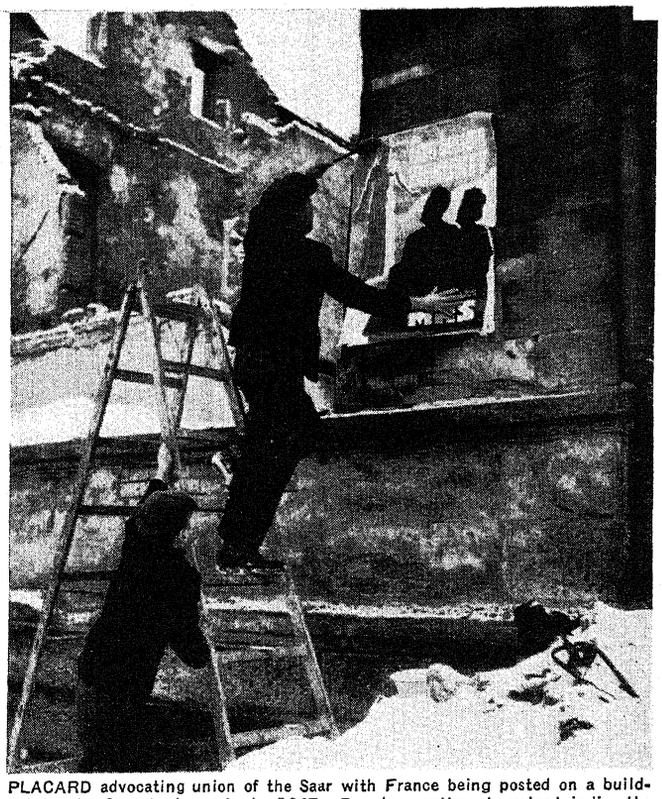
The world's rye crop increased to about 1,515,000,000 bu. in 1947 compared with 1,455,000,000 bu. in 1946 and a prewar (1935–39) average of 1,730,000,000 bu. The increases were in the Soviet Union, Hungary, Canada and the U.S. The Soviet Union crop amounted to about 60% of the world's total. The European harvest was estimated at 520,000,000 bu.—less than the 1946 crop but above the prewar average. (J. C. Ms.)

Saar.

Following the separation of the Saar from the rest of Germany in Oct. 1946, gradual preparation was made for economic union with France, to which Britain and the U.S., but not the U.S.S.R., agreed in principle during the Moscow conference of March and April 1947. In Dec. 1946, its territory had been extended northward and westward so as to include the whole of the German valley of the Saar and give it a common frontier with Luxembourg. This brought the frontier to the gates of Trier and increased its area from 743 sq.mi. to 1,106 sq.mi., and its population from approximately 788,000 to 880,000. This step aroused protests from France's allies and in February they were informed that it was provisional. Georges Bidault reaffirmed this in Moscow in April. The frontier was revised in June 1947, the area immediately adjacent to Trier being restored to Germany, but a narrow common frontier with Luxembourg being retained. The area within this frontier was 981 sq.mi. and the population 852,000. At the same time a Saar mark was introduced in the place of the reichsmark.

In May a commission of Saarlanders, proportionate to party strength in the municipal elections, was appointed to draft a constitution: it consisted of ten members of the Christian People's party, five Social Democrats, two Communists, two Democrats and one jurist as consultant. Elections for the Landtag took place on Oct. 5. It met for the first time on Oct. 14. The election results were as follows: Christian People's party 230,063 votes and 28 seats; Social Democrats 147,261 votes and 17 seats; Communist party 37,929 votes and 2 seats; Democrats 34,253 votes and 3 seats.

The constitution which the Landtag had to examine provided



PLACARD advocating union of the Saar with France being posted on a building in the Saar basin early in 1947. Popular sentiment, voiced indirectly through the elections of Oct. 5, was overwhelmingly in favour of economic fusion with France

for a parliamentary government under a French high commissioner. The French took steps to provide the Saar with a university of its own at Homburg, where a medical faculty was opened in 1947. The mines were under direct French management and reached 80% of prewar production in Sept. 1947. Seventy thousand tons of steel were produced in the same month. The Saar was occupied by the French gendarmerie and not by the army. Gilbert Granval was governor. (D. R. Gi.)

Safety: *see* Accidents.
St. Christopher: *see* Leeward Islands.
St. Croix: *see* Virgin Islands.
St. Helena and Ascension Islands: *see* British Empire.
St. John: *see* Virgin Islands.
St. Kitts-Nevis: *see* Leeward Islands.

St. Louis. Eighth largest city of the United States, St. Louis, Mo., had a population of 816,048 by the federal census of 1940, with an additional 541,567 persons living within its greater metropolitan area. A census bureau report, at mid-year, 1947, indicated a 13% increase (177,000) in the metropolitan area after 1940. Mayor in 1947: Aloys P. Kauffmann.

The municipal government was beset with financial troubles in 1947, growing out of rising costs. In 12 months ending April 1947, an operating surplus shrank from $3,145,275.29 to $42,270.08. A deficit of around $2,000,000 was anticipated for the close of the 1947–48 fiscal year on April 12, 1948.

To meet the soaring cost of government, the city curtailed some services, dropped 700 employees (at a saving of $1,500,000 in a half year) and sought new sources of revenue. Five tax measures, expected to yield $1,700,000 annually, were passed. They increased the cigarette tax from 2 cents to 3 cents, levied 5% taxes on other tobacco products, placed a 5% admission tax on theatres and sports events. Because defectively drawn, the tobacco tax was vetoed for redrafting.

Meanwhile, an ordinance was passed raising the salaries of city employees by $2,136,000 annually.

Missouri supreme court decisions affected city finances. A city income tax was ruled invalid, eliminating $2,500,000 yearly revenue and requiring refund of $2,000,000 already collected. But the city's imposition of vehicular tolls on the formerly free MacArthur bridge spanning the Mississippi river was upheld. That saved $900,000 per year revenue.

The Republicans and Democrats split 14 aldermanic seats at stake in an election, April 1, 1947. The G.O.P. won the board of aldermen presidency, and retained its dominance gained in 1941 after eight years of Democratic supremacy.

A two weeks' bus and streetcar strike in June 1947 crippled the city and cost the community an estimated $25,000,000, of which $13,200,000 represented lost retail store sales.

The tax rate (city, school and state) for the 1947–48 fiscal year was $2.74 on $100 valuation. Other fiscal figures were: assessed valuation of real and personal property $1,555,147,990; bonded debt $43,933,000; receipts (for municipal operation only) during the 1946–47 fiscal year $27,195,548; expenditures during the same period $30,640,545. The budget for the 1947–48 fiscal year was $32,777,749, with receipts expected to be about $2,000,000 less than that. (E. L. R.)

St. Lucia: *see* Windward Islands.
St. Pierre and Miquelon: *see* French Overseas Territories.
St. Thomas: *see* Virgin Islands.
St. Vincent: *see* Windward Islands.
Sales, Retail and Wholesale: *see* Business Review.

Salt. The production of salt is so widely scattered that it is impossible to collect complete world data, but the known output in 1937 was around 33,000,000 short tons. Food uses are world-wide, but it is in the industrial uses that the larger portion of the output is consumed. The United States, Germany, Great Britain and France have accounted for almost two-thirds of the world production and consumption.

United States.—The salient data on the production and consumption of salt in the United States are as follows, in thousands of short tons:

	1946	1945	1944	1943	1942
Production	15,132	15,394	15,717	15,214	13,693
Evaporated	3,250	3,183	3,943	3,994	3,518
In brine	8,471	8,706	8,326	7,961	7,373
Rock salt	3,412	3,506	3,448	3,259	2,802
Consumption					
Soda ash	6,958	7,087	7,340	7,158	6,671
Other chemicals	3,097	3,249	3,568	3,351	2,683
Food production*	824	790	830	921	902
Food preservation†	1,610	1,656	1,638	1,624	1,462
Table and household	708	682	603	666	685
Health, comfort, safety‡	746	694	578	671	586
Other uses	1,191	1,237	1,162	824	703

*Agriculture and livestock feeding. †Meat packing, fish curing, butter, cheese, canning, preserving and other food processing, and refrigeration. ‡Water softening and purification, sprinkling highways and railroad right of ways, dust and ice control.

While salt production declined slightly from the war peak, the 1946 total was greater than in any year preceding 1944.

Canada.—Salt production dropped from 673,076 short tons in 1945 to 537,985 tons in 1946, but picked up to 731,500 tons in 1947. (G. A. Ro.)

Salvador, El. A republic on the west coast of Central America, the only one without a Caribbean littoral. It is the smallest but the most densely populated Central American state. Area: 13,176 sq.mi.; pop. (off. est. June 30, 1946) 1,997,169. The capital is San Salvador (1944 pop. est., 110,435). Other cities are Ahuachapán (13,765), Cojutepeque (15,317), Nueva San Salvador, formerly Santa Tecla (24,239), San Miguel (18,676), San Vicente (13,637), Santa Ana (47,631) and Sonsonate (17,540). Language: Spanish; religion, Roman Catholic. President in 1947: Gen. Salvador Castañeda Castro.

History.—The political situation continued tense in 1947. Plots designed to overthrow the government were discovered and crushed in March and June, and constitutional liberties (suspended in Sept. 1946) were not fully restored during the year. Few strikes occurred, and the government maintained a hands-off policy in industrial disputes while working toward completion of a new labour code.

Agriculture experienced a profitable year, but industry (especially textile manufacturing) was seriously hampered by an electrical power shortage arising from a failing water supply. About 74% of the country's electrical power was dependent upon hydroelectric plants. A continued favourable balance of trade provided the country with a surplus of foreign-exchange credits. In spite of shortages of construction materials, electrical equipment and machinery, the capital city experienced a record building boom. During the first six months, a total of 812 building permits (valued at 7,000,000 colones) were issued as compared with a total of 449 permits for all of 1946.

On the international scene, El Salvador refused to accord recognition to the new government in Nicaragua, but continued to maintain cordial relations with the Franco regime in Spain. The drafting of a constitutional basis for a new union of the Central American republics continued at San Salvador during the year.

Education.—Primary schools in 1945 numbered 1,519, with approximately 100,000 students and 3,700 teachers. In 1947 the first free public high schools in the country were opened, in the national and six provincial capitals. Intermediate schools numbered about 50 in 1944, with 4,207 students. In 1946 the national university had 935 students and 108 professors. The federal appropriations for education in 1947 amounted to 2,903,040 colones. The country had 35 motion-picture theatres with a total seating capacity of 32,700 as of Jan. 1, 1947.

Finance.—The monetary unit is the colón, valued at 40 cents U.S. on Sept. 15, 1947. The 1947 budget, providing expenditures of 46,524,262.51 colones (approx. 41,500,000 colones in 1946), was increased in September by an additional 6,500,000 colones. The foreign debt at the beginning of 1946 amounted to $18,300,000, including unpaid interest. In 1947 El Salvador continued to enjoy large gold and foreign-exchange balances in contrast to dollar shortages in the other Latin American countries. As of June 30, bank holdings in foreign exchange amounted to 52,542,259.90 colones ($21,016,903.97).

Trade and Resources.—Exports in 1946 totalled $26,200,000 ($21,331,631 in 1945) and imports were valued at $21,100,000 ($13,534,230 in 1945). During the first four months of 1947, exports were up to $25,900,000 and imports to $12,100,000. Coffee (805,190 bags of 132 lb. each in 1946) was the chief export commodity. The exportable production from the 1947–48 crop was estimated at 1,035,000 bags (960,000 bags for 1946–47). Sugar production provided an exportable surplus estimated at 20,286,000 lb. for 1947. The 1946–47 cotton crop (nearly double the 1945–46 yield) was 9,517,354 lb. Early estimates placed the rice yield for 1947–48 at 1,180,000 bu. (799,000 bu. in 1945–46). In 1945 there were approximately 706,200 cattle, 25,000 sheep and 32,000 goats in the country.

Communications.—Two railroads were in operation with an estimated 385 mi. of track. All-weather highways totalled 1,436 mi. (150 mi. paved) and unimproved roads 2,300 mi. The country was served by one national and two foreign air services. There were 4,411 telephones and about 11,000 radio sets.

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Salvation Army. The Salvation Army is a religious and charitable organization operating in 1947 in 97 countries and territories throughout the world, preaching the Gospel of Christ in 102 languages and dialects. Its 17,915 corps (local organizations) included 27,811 officers and 104,324 local officers (laymen), in addition to its many "soldiers" and adherents.

The social service work, including children's homes and hospitals, maternity homes and hospitals, family welfare bureaus, industrial institutions, boys' clubs, summer camps for needy mothers and children, missing persons bureaus, and many other activities, is the Salvation Army's practical manifestation of "Christianity in Action."

The International Salvation Army was commanded in 1947 by General Albert Orsborn, the sixth general, elected on June 21, 1946, with headquarters in London. In the United States, Commissioner Ernest I. Pugmire was the national commander with headquarters in New York city.

During World War II, the activities of the International Salvation Army extended around the world. From every corner of the globe came Salvationists to serve the armed forces. Operating on 26 fighting fronts, these services included 3,000 Red Shield canteens and huts and 1,000 mobile canteens, many of which landed with the invasion troops.

Close behind the invasion forces, Salvation Army relief teams moved into the devasted countries, providing aid to thousands of war victims in Europe. Centres for the distribution of food and clothing were organized; hospitals, clinics and children's convalescent homes were established. Many of these were still being continued in 1947.

In the United States, the Salvation Army mobilized its forces to help returned veterans adjust themselves to civilian life, giving spiritual and material aid in solving family difficulties and in the rehabilitation of the mentally ill.

In 1947, the Salvation Army began a world-wide intensified spiritual offensive titled, "The Fighting Faith Crusade," which was to be continued through 1948. One of the most vital features of the Salvation Army's program is the intensified work among youth, which includes the opening of new playgrounds, youth centres, summer camps and varied character-building activities.

Recognized as a semiofficial adjunct of United States penal system, the Salvation Army operates an extensive program for the rehabilitation of prisoners. Untiring effort is devoted to understanding each individual, regardless of race, creed or previous record. Religious meetings, song services and visitation are part of the Salvation Army's program in practically every federal prison, state penal and correctional institution in the United States. Under the guidance of Salvation Army officers, Brighter-Day leagues are formed behind the gray walls.

Salvation Army missionary work is financed by an annual Self-Denial fund. During Self-Denial week Salvationists do without something usually regarded as a necessity and contribute such amounts to the missionary funds which help to support the organization's work in India, China or Africa. (*See* also CHURCH MEMBERSHIP.) (E. I. P.)

Samoa, American. The Samoan Islands extend from 13° 26′ to 14° 22′ S. lat. and from 168° 10′ to 172° 48′ W. long., and are about 2,700 mi. east of Australia and 2,200 mi. south of the Hawaiian Islands. American Samoa consists of the inhabited islands of Tutuila, Tau, Olosega, Ofu and Aunuu, and the uninhabited coral atoll, Rose Island. Swains Island, an inhabited coral atoll, 210 mi. northwest of Tutuila, was made a part of American Samoa in 1925. Total population of American Samoa as of July 1, 1946, was 17,077; total area is 73.1 sq.mi.

A tripartite treaty signed by the U.S., Great Britain and Germany in 1899 divided the Samoan Islands into two possessions with the U.S. receiving what is now American Samoa and Germany the rest. American Samoa is governed by a naval officer appointed by the president. A legislature, the *Fono,* represents all districts and advises the governor. The judiciary consists of a high court, district courts and village courts. Each of the three administrative districts has a native governor who appoints county chiefs who appoint village chiefs. Pago Pago, on the island of Tutuila, is the capital and Samoa's best harbour.

In 1946 there were 46 public schools and 7 private schools in American Samoa with 4,068 students and 130 teachers. About 94% of the population was literate, according to the 1940 census.

American Samoa has few natural resources of economic importance. The main products are copra and mats woven from local grasses. About 1,000 tons of copra are exported annually. About 50 tons of taro, 65 tons of bananas, 25,000 coconuts, 25,000 oranges and 15,000 papayas are produced annually. During the fiscal year 1947–48, about $225,000 was appropriated for the island government. The possession's annual pure

income is estimated at $635,000.

BIBLIOGRAPHY.—U.S. Navy, *American Samoa* (June 1947); *Annual Reports* of the Governor of Samoa to the Secretary of the Navy.

(S. NR.)

Samoa, Western: *see* NEW ZEALAND, DOMINION OF; PACIFIC ISLANDS UNDER TRUSTEESHIP; TRUSTEE TERRITORIES.

Sand and Gravel. The production of sand and gravel in the United States, subdivided into the major types of use, is presented in the following table, in thousands of short tons.

	1946	1945	1944	1943	1942
Sand	96,440	71,726	68,978	82,053	107,371
Building	49,132	31,508	27,213	34,098	49,518
Paving	28,932	22,313	21,479	28,024	38,396
Moulding	6,974	7,191	8,983	8,295	8,256
Glass	4,849	4,682	4,443	3,972	3,622
Ballast, engine	3,512	3,855	4,065	4,182	4,529
Abrasive	907	643	898	838	807
Other uses	1,955	1,535	1,898	2,015	2,243
Gravel	157,691	123,798	125,805	152,011	196,975
Building	43,177	30,055	28,609	35,227	54,412
Paving	100,535	71,351	73,083	94,769	115,680
Ballast	12,010	20,668	21,267	19,407	23,110
Other uses	1,970	1,734	2,846	2,607	3,773
Total	254,131	195,524	194,783	234,064	304,346

The effects of the postwar building boom are clearly shown in these figures.

Canada.—The combined output of sand and gravel in Canada rose from 29,750,703 short tons in 1945 to 39,949,994 tons in 1946 and 48,262,300 tons in 1947. (G. A. RO.)

Sandstone: *see* STONE.

Sandstroem, Alfred Emil Frederick (1886–), Swedish jurist, was born in Nyköping, Sweden. Obtaining his law degree in 1908, he rose to positions of eminence in Sweden's judicial system, serving as chief justice of the supreme court from 1931 to 1933 and from 1935 to 1943. He was also a member of several important international tribunals and was chairman of the International Red Cross and Swedish Red Cross Relief mission to Greece, 1943–46.

In the spring of 1947, Sandstroem loomed as a figure of international importance; his name had been submitted by the United States to the United Nations as candidate for Trieste governor; but Andrei Gromyko, the soviet delegate, rejected the nomination without explanation. Then on June 2, he was named head of the U.N. Special Committee on Palestine (U.N.S.C.O.P.); the Swedish jurist was considered an excellent choice for this delicate task; in addition to the important fact that he came from a neutral country was his widely-known reputation as an objective jurist.

After going to Palestine for an on-the-spot investigation of the dispute, Sandstroem's committee on Aug. 31 issued a comprehensive report recommending a free Palestine. The committee's majority favoured separate Arab and Jewish states while the minority urged establishment of a federal Palestine under a central government.

San Francisco. Mayor Elmer E. Robinson took office Jan. 8, 1948. The resident population of San Francisco, Calif., on Jan. 1, 1948, was estimated at 807,700. The U.S. census reported 827,400, Aug. 1, 1945. Preliminary reports for 1947 revealed 19,541 births in San Francisco and 9,557 deaths.

San Francisco general business activity during 1947 was expected to exceed that of the preceding year. Some specific factors showing upward trends during the first 11 months of 1947 as compared with the same period of 1946 were: general business activity was up 5.9%; financial transactions (bank debits for individual accounts) 9.1%; retail department store sales 1.7%; independent store sales (for first 10 months) 7%; building permits 3.1% in number and 1.1% in value; electrical energy sales 6.0%; industrial and commercial gas sales 5.2%; and airport plane traffic 24.9% and passenger traffic 10.4%. The number of ship arrivals during the 11 months was almost one-third greater than a year before, exports one-half greater, and imports four-fifths greater. Activities receding from the exceptional levels of 1946 included real estate, stock exchange transactions, freight car movements and placement of workers. The number of taxable retail sales outlets in San Francisco on June 30, 1947, totalled 24,042 or an increase of 1,199 more than the preceding year. Independent outlets accounted for 21,141 and chains 2,901 compared with 20,147 and 2,696, respectively, in 1946. Announcements of new industries and expansions for San Francisco during 1947 totalled about 200 with outlays of $17,650,000 compared with 284 with outlays of $15,000,000 in 1946. Living costs at the end of the third quarter in San Francisco were 14.9% above the same period of 1946.

San Francisco's funded debt outstanding on June 30, 1947, was $116,244,443. Estimated revenue receivable during the fiscal year 1947–48 amounted to $121,090,553. The total assessed valuation for the 1947–48 fiscal year was $1,281,812,029. The tax rate for 1947–48 fiscal year was $5.62 per $100 assessed valuation.

Progress bonds for $87,050,000 were approved by the people of San Francisco at the Nov. 1947 election to provide for basic public improvements including $22,200,000 for rehabilitation of the municipal railway system; $22,850,000 for street improvements, including special provision for several major through streets and street extensions; $5,000,000 to provide off-street parking facilities to relieve congestion and expedite traffic; $12,000,000 to pay the cost of improving and enlarging public playgrounds and recreation centres for the city and county of San Francisco and $25,000,000 to pay the cost of construction of a second pipe line across the San Joaquin valley to augment the existing water supply. A $55,000,000 San Francisco world trade centre was authorized by the California state legislature.

(R. B. KR.)

San Marino. An independent republic in northern Italy, 14 mi. southwest of Rimini by road. Area: 38 sq.mi.; pop. (Sept. 1939) 14,547. Chief town: San Marino. Executive power is exercised by regents, two of whom are appointed every six months from the popularly elected grand council of 60 members. Wine, cattle and building stone from the Mount Titano quarries are the chief exports.

History.—In Jan. 1947 the U.S. Claims commission investigated San Marino's claims against the Allies for bomb damage. By agreement with Italy (April 26), San Marino's claims were forwarded by Italy to Washington and London—they were estimated unofficially to be in the neighbourhood of £2,500,000, which included damage arising from the occupation by the 8th army from Sept. 21 to Oct. 20, 1944, as well as the air raid of June 26, 1944. (J. RA.)

Santo Domingo: *see* DOMINICAN REPUBLIC.

São Tomé: *see* PORTUGUESE COLONIAL EMPIRE.

Sarawak: *see* NORTH BORNEO.

Saskatchewan. Central of the three prairie provinces of Canada, Saskatchewan was created by parliament in 1905. Area: 251,700 sq.mi., of which 13,725 are lakes; pop. (1941) 895,922; (1947 est.) 842,000. Of the 1941 population, 600,846 were rural dwellers, and 477,563 were male. Chief cities: Regina, provincial capital (58,245); Saskatoon

(43,027); Moose Jaw (20,753); Prince Albert (12,508).

History.—The Co-operative Commonwealth Federation (Socialist) government passed 118 laws at the 1947 sitting of the legislature. Included were a 44-hr. work-week bill for urban areas; provincial price control, particularly rentals; permission for municipalities to operate bakeries, dairies, service stations and similar facilities. A bill of rights erased racial, religious, and colour discrimination. Saskatchewan civil servants were permitted to take part in the political affairs (in 1947 there were 1,800 more civil servants than in 1944, when the C.C.F. took office). The 1947 budget of $45,591,100 was $6,000,000 above the 1946 budget. The supreme court of Canada declared *ultra vires* the Saskatchewan Farm Security act, providing for reduced interest in farmer's debts during poor crop years. The Saskatchewan Court of King's Bench declared five labour acts *ultra vires* where they affected employees of railways. The 18 socially-owned projects made a net profit of $329,500 for the 6 months ending Sept. 30, 1946 ($228,000 net profit for the year ending March 31, 1946). The provincial compulsory hospitalization scheme cost about $1,000,000 more than estimated, although 96% of taxpayers made their 1947 contributions.

Education.—Enrolment in educational institutions for the 1944–45 school year was 203,166. To facilitate education, the government produced mantel-type radios and sold them to schools at cost.

Transportation.—Highway expenditures in 1947 totalled $4,316,751, a record figure; 239 mi. were hard-surface, another record figure. Scheduled flights to all settlements of importance in the north were started by the crown-owned Saskatchewan Air Service.

Agriculture.—The wheat crop in 1947 was estimated at 173,000,000 bu. (1946: 208,000,000 bu.); oats 80,000,000 bu. (1946: 117,000,000 bu.); barley 45,000,000 bu. (1946: 46,000,000 bu.); rye 6,780,000 bu. (1946: 3,400,000 bu.); flax 3,500,000 bu. Total number of livestock (horses, cattle, sheep, swine) in 1946 was 3,847,000 (1944: 4,835,000). Cash farm income from grain and field crops, produce, livestock and livestock products was $127,931,000 for first 6 months of 1947 ($123,384,000 in same 1946 period). Farmers received $14,000,000 under the Prairie Farm Assistance act during 1947. Combine crews working in the U.S. in the 1947 harvest season earned $3,000,000. During 1947 Saskatchewan farmers retired $99,367,000 of mortgage obligations.

Production.—The gross value of 1945 production was $575,140,633. The net value was $364,706,923, which was 5.99% of Canada's total. The per capita production was $431.61.

Minerals.—With 67 oil wells in production, 10 months' flow produced 399,071 bbl., compared with 136,874 bbl. for all of 1946. Mineral output for 1947 was estimated at $25,540,000 (1946: $20,783,813; 1945: $18,164,036). Discovery of potash, near Unity, first Canadian source, was considered Canada's most important mineral find in 20 years.

(C. Cy.)

Saudi Arabia: *see* ARABIA.

Savings and Loan Insurance Corporation, Federal: *see* HOUSING.

Savings Banks: *see* BANKING.

Schuman, Robert (1886–), French statesman, was born on June 29 at Luxembourg, of Lorraine stock. Admitted to the bar in Metz before World War I, he was elected deputy of the recovered *département* of Moselle in 1919, and was afterward continuously re-elected. In the chamber of deputies he was a member of the mildly conservative Republican Democratic union, but in 1932 he joined the (Catholic) Democratic Popular party. On March 21, 1940, he was appointed undersecretary of state in Paul Reynaud's cabinet with the task of looking after the refugees from Alsace-Lorraine, a post which he kept after the armistice. When the Germans re-annexed the three recovered *départements* and in Sept. 1940 started the expulsion of Lorrainers from the Moselle, Schuman was arrested by the gestapo and sent to the reich in April 1941 for protesting, but he escaped in Aug. 1942 and went into hiding in France. Again elected deputy of the Moselle in Oct. 1945, and later re-elected, he joined the M.R.P. (*Mouvement Républicain Populaire*). He was minister of finance in the cabinets formed by Georges Bidault (June–Nov. 1946) and Paul Ramadier (Jan.–Nov. 1947). On Nov. 22, 1947, he was elected by the national assembly by 412 votes to 184 to form a new government.

Schwellenbach, Lewis Baxter (1894–), U.S. jurist and cabinet member, was born Sept. 20 in Superior, Wis. He was graduated from the University of Washington, Seattle, Wash., in 1917 with an LL.B. degree and served with the U.S. army as a private during World War I. He was admitted to the bar in 1919, became active in Democratic state politics, and in 1934 was elected to the U.S. senate. During his tenure, Sen. Schwellenbach supported the administration in both its domestic and foreign policies. He resigned from the senate in Dec. 1940 to become federal judge of Washington state, eastern district. President Harry S. Truman named him secretary of labour, May 23, 1945, and his appointment was approved by both the A.F. of L. and the C.I.O.

In 1946, Schwellenbach, who was credited with originating the fact-finding procedure for settling labour disputes, was opposed to the Case Strike Control bill. The following year, he was one of the leading advocates of the proposal to outlaw the Communist party, declaring Oct. 14, 1947, that the party merited extinction because it took orders from a foreign government. However, many union leaders felt that he was over-emphasizing the importance of the Communist issue to the detriment of labour in general. Schwellenbach also objected to the ruling of Robert N. Denham, general counsel of the National Labor Relations board, that top union officials must file financial data with the secretary of labour. On Nov. 13, he was named by Pres. Truman to the National Security Resources board.

Scotland: *see* GREAT BRITAIN & NORTHERN IRELAND, UNITED KINGDOM OF.

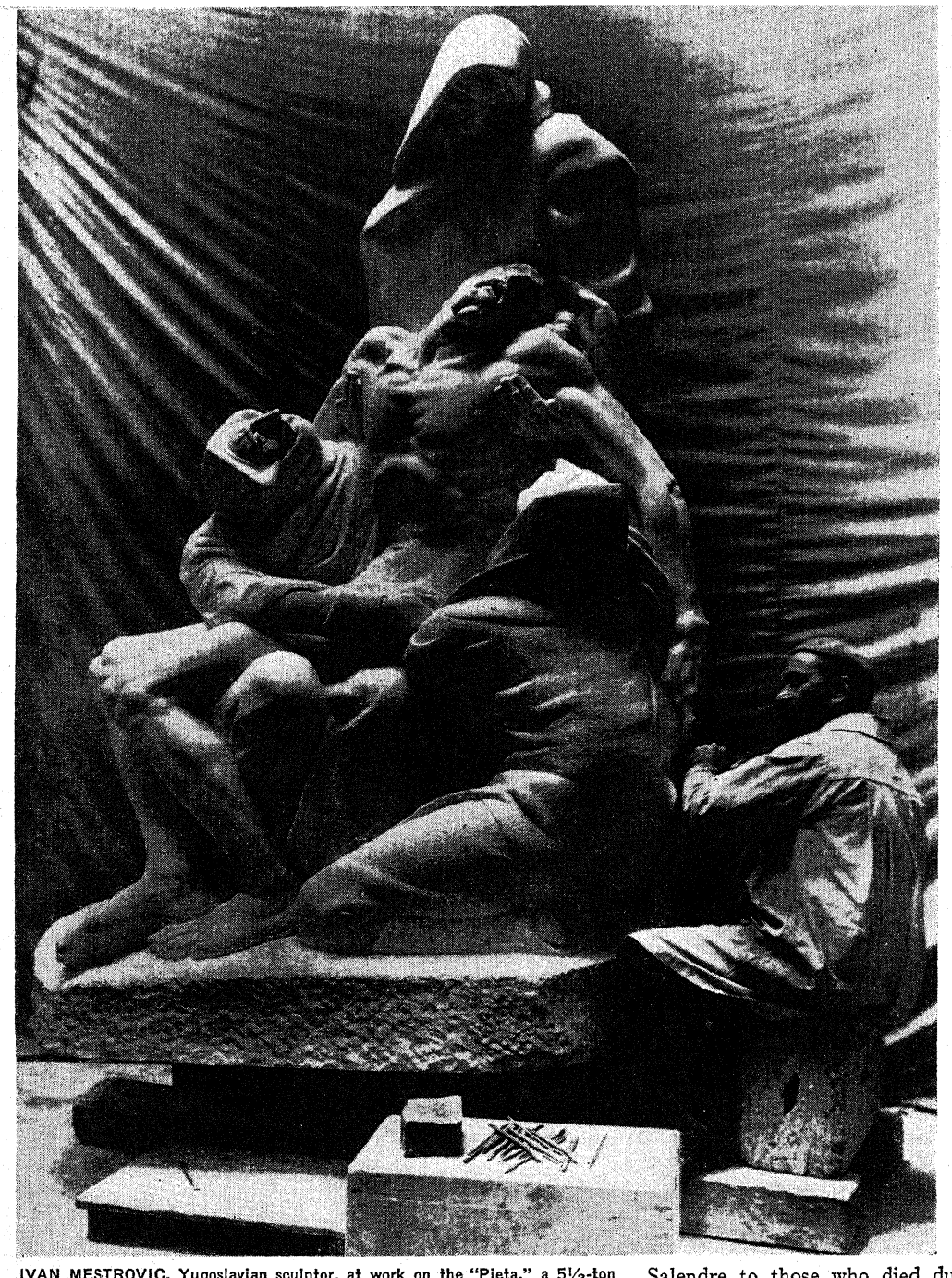
Scrap: *see* SECONDARY METALS.

Sculpture. In spite of rising costs and continued shortage of materials, much sculptural work was accomplished in 1947. Two significant developments were increased activity and renewed consideration of the proper role of sculpture in the modern world. Much discussion centred on the question of "living" as opposed to aesthetic memorial projects, and artists and architects met to consider the relationship of sculpture to modern building. A closer collaboration was advocated. New work, meanwhile, was widespread.

United States.—Public sculptures completed during 1947 were more numerous than in any year since World War II. A bronze statue of Senator William E. Borah by Bryant Baker was placed in the rotunda of the capitol in Washington, and a granite bust of Franklin D. Roosevelt by Gleb Derujinsky was unveiled in the Roosevelt library at Hyde Park, New York. A bronze bust of Bernard M. Baruch by Rudulph Evans was presented to the National War college in Washington, D.C., along with a bust of Fleet Admiral William F. Halsey by Wheeler Williams to the Naval academy at Annapolis.

Perhaps the outstanding U.S. work of 1947 was the Mormon memorial by Mahonri Young, unveiled at Salt Lake City during the summer in honour of the pioneers of 1847.

New York gave several good sculpture exhibitions, including an exhibition of Ivan Mestrović's work (*see* below). Jo Davidson had a 43-years' retrospective show of portrait busts at the American Academy and National Institute of Arts and Letters; works by William Zorach and Gaston Lachaise were exhibited in one-man shows, and the Metropolitan museum surveyed U.S. sculpture from the 19th century with the collaboration of the Whitney Museum of American Art, thus bringing together two important collections. Frederick D. R. Roth, noted animalier, had a memorial show given by the National academy in February. Younger sculptors who continued their rise in exhibitions were Maria Martins of Brazil and Herbert Ferber.



IVAN MESTROVIC, Yugoslavian sculptor, at work on the "Pieta," a 5½-ton group executed in Carrara marble which was included in a one-man exhibition of his work at the Metropolitan Museum of Art, New York city, during April–May 1947

The principal occasion for constructive discussion of sculpture in relation to modern architecture was a forum held by the Architectural League of New York, in connection with which modern works by Henry Moore, Jacques Lipchitz, Isamu Noguchi, José De Creeft and others were exhibited. The result was a wider recognition of the need for good and appropriate sculpture on buildings or memorials, replete with a sound organic understanding of the scale relationship of sculpture to architecture.

Great Britain.—On Oct. 22 King George VI unveiled the statue of his father, King George V, a work in Portland stone by Sir William Reid-Dick, who also completed the model for a memorial statue in London to Franklin D. Roosevelt. Jacob Epstein exhibited at the Leicester galleries earlier in the year, showing portraits of Winston Churchill and Jawaharlal Nehru and some lively small bronzes. J. Estcourt Clack was awarded "The Best Work of the Year" medal by the Royal Society of British Sculptors for "Daphne," a figure in yew. Other well known English sculptors were at work on large civic commissions—Charles Wheeler, W. McMillan and A. Hardiman.

Continental Europe.—Ivan Mestrović, one of the greatest European sculptors, held his first one-man exhibition since World War II at the Metropolitan museum, New York. After escaping from imprisonment in Zagreb during the war, he worked in Switzerland, then in 1946–47 in Rome. Interesting work was done in Italy by Marino Mazzacurati, Pericle Fazzini and Leoncillo Leonardi. In Norway, younger sculptors including Gustav Janson and Joseph Grimeland came to the fore, while Anna Grimalden was commissioned for work on the new Oslo town hall. The standard of sculpture in Sweden was high, and among Danish sculptors Mogens Boggild, doing work for the new Radio House, and Jorgen Gudmundsen-Holmgreen, who designed a bronze group for the Jutland town of Horsens were active in 1947. The Netherlands, following the Sculptors' congress in 1946, made its most important progress since the war.

Of all countries in Europe, France still offered the greatest encouragement to sculptors; the state regularly commissioned works, and architects were conscious of the value of sculpture in their planning. Work in progress or newly completed included a statue of Vincent d'Indy by Marcel Gimond, a monument by Georges Salendre to those who died during the liberation in 1944, a figure by Henri Laurens commissioned by the state, and "Homo Sapiens" by Ossip Zadkine. An exhibition of French sculpture was held in Prague, ranging from Rodin and Maillol to contemporary sculptors. (*See* also ART EXHIBITIONS.) (C. BU.)

SEC: *see* SECURITIES AND EXCHANGE COMMISSION.

Secondary Education: *see* EDUCATION.

Secondary Metals.

In connection with the data on secondary recoveries in Table I on page 663, it should be pointed out that in most cases considerable proportions of the total recovered comes from fabrication scrap accumulated in the course of manufacture of finished products; it is only metal brought back into use from old scrap that adds to the useful supply of new metal.

Receipts of nonferrous scrap reported by dealers rose from 1,034,873 short tons in 1945 to 1,053,785 tons in 1946. Shipments by dealers to consumers increased in about the same proportion, from 1,015,378 tons to 1,066,995 tons. Dealers' stocks were 174,677 tons at the beginning of 1946, were at a low of 158,855 tons in March and a high of 185,622 tons in May, end-

Table I.—*Secondary Nonferrous Metals Recovered in the U.S.*

(In thousands of short tons or fine ounces)

	1941	1942	1943	1944	1945	1946
Copper—tons						
As metal	135.9	114.6	137.9	102.1	112.9	136.9
In alloys	580.7	795.6	935.1	835.4	875.0	647.4
In compounds	9.8	17.5	13.0	13.4	18.7	19.2
Total	726.4	927.8	1,086.0	950.9	1,006.5	803.5
Percentage*	57	46	39	48	56	51
Lead—tons						
As metal	75.3	68.6	58.3	55.0	61.1	73.7
In alloys	322.1	254.4	283.8	276.4	301.9	319.1
Total	397.4	323.0	342.1	331.4	363.0	392.8
Percentage*	96	79	83	88	86	88
Zinc—tons						
As metal	89.7	81.4	78.9	79.5	83.9	81.4
In alloys	143.2	215.7	257.9	229.2	234.6	174.2
In compounds	48.5	33.4	31.6	36.7	41.9	45.0
Total	284.0	330.5	368.5	345.5	360.4	300.7
Percentage*	39	24	23	33	34	
Tin—tons						
As metal	5.9	5.8	5.2	4.2	3.7	2.9
In alloys	35.0	31.8	32.3	27.9	30.9	24.3
In compounds	1.1	0.3	0.3	0.5	0.5	0.4
Total	42.0	37.9	37.8	32.6	35.1	27.7
Percentage*	70			66	68	63
Aluminum—tons						
As metal	8.3	14.1	5.9	2.3	2.1	2.1
In alloys	97.6	182.7	306.8	321.7	295.4	275.4
Total	106.9	196.5	314.0	325.6	298.4	278.1
Percentage*	41	21	11	7	9	33
Magnesium—tons						
Total (in alloys)	1.7	6.2	11.4	14.2	9.2	5.1
Percentage*	1	1	1	1	8	24
Nickel—tons						
Total	5.3	4.1	6.9	4.3	6.5	8.2
Percentage*	40	42	27	51	34	32
Antimony—tons						
Total	21.6	18.2	15.5	15.9	17.1	19.1
Percentage*	99+	99+	99+	98	88	84
Platinum—ounces	37.5	56.2	68.6	85.9	58.9	40.4
O.P.M.†—ounces	14.1	20.5	33.0	33.5	37.2	32.3
Gold—ounces	8,850	8,136	3,006	7,337	8,855	
Silver—ounces	20,361	30,021	44,113	56,189	58,361	

*Percentage of the total secondary metal recovered from *old* materials, the remainder having come from the reworking of new plant scrap.
†Other platinum group metals.

ing at 161,477 tons.

Iron and Steel Scrap.—Data on consumption and consumers' stocks of iron and steel scrap are given in the following table, in thousands of short tons.

Table II.—*Data on Iron and Steel Scrap in the U. S., 1939–46*

	Steel Production	Scrap Consumption Purchased	Scrap Consumption Plant	Scrap Stocks Purchased	Scrap Stocks Plant
1939	52,799	76,705	19,622	3,373	1,937
1940	66,983	19,482	25,048	3,688	1,784
1941	82,839	25,312	33,904	2,559	1,167
1942	86,032	25,932	33,068	4,710	1,606
1943	88,837	26,614	35,037	4,204	1,668
1944	89,642	25,923	35,426	2,984	1,435
1945	79,702	25,230	30,961	2,705	1,218
1946	66,603	22,987	25,768	1,876	1,158

The scrap supply had been getting shorter from 1942, and in 1946 reached about an irreducible minimum for the maintenance of normal production of steel. (G. A. Ro.)

Secret Service, U.S.

The security work of the secret service, in respect to its protection of the president of the United States and members of his family, was intensified with the opening of the White House to the public on Nov. 14, 1946. Through Oct. 31, 1947, 450,000 visitors were shown through the executive mansion. Considerable planning was necessary incident to the president's trips to Mexico, South America and Canada. In one case secret service agents in Washington arrested a man who called at the White House and was discovered to be a fugitive from a New Jersey hospital for the insane. He was returned to the institution but escaped on Feb. 24, 1947, and was finally discovered, captured and recommitted.

The uniformed force of the secret service protected a total of $197,910,704,023.53 in currency and coin, stamps, bonds and other government securities in transit. Special details safeguarded production of Allied military certificates and of Siamese currency at Boston, Mass., and production of about 15,000,000 armed forces terminal-leave bonds.

Agents captured 13 counterfeit note plants during the fiscal year 1947. Counterfeiting of paper money was pushed toward prewar proportions by an influx of counterfeit U.S. money from Europe. In September U.S. secret service agents and French police captured 11 counterfeiters near Eguilles, France, and seized fake United States money representing $2,145,000, together with the plant where it was made. Of a total of $246,176 in counterfeit bills seized in the United States during the fiscal year, $59,580 represented bills made abroad. Counterfeit coins seized during the year totalled $9,214.79. There were 92 arrests and 69 convictions for violation of the counterfeiting laws, an increase of 84% over 1946.

Forgeries of cheques and savings bonds continued to grow. There were 1,920 persons arrested for cheque forgeries during the fiscal year, with 1,824 convictions. The secret service investigated 28,460 forged treasury cheques representing $2,049,852.98, of which 60.9% were solved cases.

The neglect of owners of savings bonds to safeguard their securities properly was primarily responsible for the increase in bond thefts and forgeries. Agents completed investigations of 15,709 forged bonds with a total maturity value of $1,834,623.19, of which 72% were solved cases. There were 306 arrests and 273 convictions for bond forgery.

Fines in criminal cases aggregated $59,084.71, and jail sentences totalled about 2,558 years. Additional sentences of 2,786 years were suspended or probated. The secret service completed 47,803 criminal cases. Noncriminal cases investigated totalled 2,399, making a total of 50,202 investigations completed for the fiscal year. (J. J. My.)

Securities: *see* BUSINESS REVIEW; STOCKS AND BONDS.

Securities and Exchange Commission.

This bipartisan, quasi-judicial agency of the U.S. government was composed of the following members on Oct. 1, 1947: James J. Caffrey, chairman, and Robert K. McConnaughey, Richard B. McEntire, Edmond M. Hanrahan and Harry A. McDonald, commissioners. With headquarters in Washington, D.C., the commission maintains regional offices in Atlanta, Baltimore, Boston, Chicago, Cleveland, Denver, Fort Worth, New York, San Francisco and Seattle.

Securities Act of 1933.—Securities registered with the commission under this act during the 1947 fiscal year aggregated $6,700,000,000, bringing the total of securities registered to $42,400,000,000.

The objective of securities registration (to which requirement there are certain limited exceptions) is to provide accurate and adequate disclosure of significant financial and other information concerning the issuing company and the securities it offers for public sale, so that, in determining whether to purchase the securities, investors may be guided by the factual disclosures thus provided. Assuming proper disclosure, the commission has no power to withhold from public sale securities which may be lacking in merit. Obviously, therefore, registration is not to be construed as an indication that the securities are a riskless medium of investment or speculation. Nor can the accuracy of reported facts be guaranteed; but the penalties which attach to the filing of false information, together with the investors' right to recover losses if falsity is established, are conducive to correct factual disclosures.

The prospectus or selling circular must contain a summary of the pertinent information contained in the registration statement filed with the commission, and must be delivered to purchasers or persons receiving offers through the mails. In SEC-industry conferences commenced during the year, suggested

Securities act amendments were being considered which, among other things, were planned to afford investors a better opportunity to consider the prospectus before being committed to the purchase of registered securities.

The commission's enforcement activities against securities violations are discussed below.

Securities Exchange Act of 1934.—Similar factual disclosures, though not so comprehensive, are provided under this act in respect of 2,215 issuing companies having 3,560 security issues listed and registered at the year-end upon the 19 national securities exchanges. Exchange trading during the year aggregated $14,800,000,000, most of which involved the 3,560 issues. The law also provides for disclosure of pertinent facts in respect of matters of corporate affair upon which proxies are solicited from holders of listed securities. In addition, there are requirements for reporting the stockholdings and transactions of "insiders," and provisions permitting recovery by the corporation of their short-term trading profits, which tend to curb misuse of inside information.

Provisions of the act and regulations of the commission thereunder prescribe certain minimum standards of business conduct in the securities markets, both exchange and over-the-counter, which operate to establish just and equitable principles of trade and to curb manipulation, misrepresentation and other abusive practices. These regulations, designed to protect the investing public against such practices, are implemented by the commission's surveillance of securities trading practices, its investigation of complaints and other evidences of malpractices, and its enforcement of statutory penalties against fraudulent operators. The law requires as an incident to the commission's powers of surveillance that over-the-counter brokers and dealers be registered. They numbered 4,085 at the year-end. Denial or revocation of complaints and other evidences of malpractices, and its membership in an exchange or the registered association of over-the-counter brokers and dealers, which operates as a bar to the conduct of a securities business in interstate commerce, may be ordered by the commission if, after hearing, the securities laws are found to have been violated. Any such order is subject to review by U.S. circuit courts of appeal. Persons or firms against whom such action had been taken numbered 312 as of June 30, 1947. Other sanctions include civil injunction actions and criminal prosecutions, discussed below.

Public Utility Holding Company Act of 1935.—This regulatory measure, applicable to holding company systems of electric and gas utility companies, requires various readjustments by system companies to correct the incongruous results of past malpractices and abuses which were declared by congress to be inimical to the interests of investors, consumers and the public, and which gave rise to enactment of the law. The act specifies that holding company systems shall be confined in their operations to economically integrated and co-ordinated utility properties (including under certain conditions incidental systems and businesses); that over-capitalized and complex systems and corporate structures be simplified; and that voting power among security holders be redistributed on a fair and equitable basis. It also provides for the regulation of the financial and related practices of system companies in order to avoid the recurrence of past abuses.

Approval during the fiscal year of nine additional plans for compliance with the integration and simplification requirements of the act evidenced steady and continued progress in carrying out those objectives. Numerous other cases of a similar nature were carried to advanced stages. At the year-end, in excess of $8,000,000,000 of properties whose control by particular holding companies was proscribed by the act had been eliminated from their systems, and an additional $2,500,000,000 was the subject of orders requiring divestment. Comparable achievements were reflected in the field of corporate simplification and equitable redistribution of voting power among security holders. The issuance and sale of securities in the aggregate amount of $10,800,000,000 had been passed upon by the commission as meeting the standards prescribed in the act by congress.

Other Acts.—During the fiscal year, indentures covering $2,600,000,000 of debt securities were qualified as meeting the prescribed standards of the Trust Indenture Act of 1939, bringing the total to $11,800,000,000. At the year-end, 352 investment companies with assets approximating $3,500,000,000 were registered under the Investment Company Act of 1940, which prescribes standards for the conduct of their businesses. Under the Investment Advisers Act of 1940, there were registered 952 firms and persons engaged in the business of advising others with respect to their securities transactions. The commission had participated as adviser to federal courts in 269 cases involving the reorganization under chapter X of the Bankruptcy act of 327 debtor corporations.

Enforcement Activities.—The commission has the duty to investigate complaints or other evidences of securities violations, and may subpoena witnesses, books and records to develop facts bearing thereon. If apparent violations are thus established, the commission may seek federal court orders of injunction to stop the activities complained of, or may refer the facts to the attorney general for prosecution if fraudulent or willful misconduct is apparent. Persons or firms enjoined to the end of the fiscal year numbered 1,166, while convictions numbered 1,222. (*See* also STOCKS AND BONDS.) (O. L. Ds.)

Seeing Eye, The.

The Seeing Eye, Inc., was founded as a national philanthropy in 1929. It derives its support from contributions of members, who in 1947 numbered almost 25,000. In 1947, 144 blind men and women left the school with their dog guides after having spent one month learning to use them. Ninety-six of them received their first dogs and 48 their second or third dog. The school continued to supply eligible World War II veterans, blinded in service, with guide dogs without cost to them or to the government. A total of more than 1,400 dogs had been trained for blind people who had learned how to use them at the school. Seeing Eye graduates were in all 48 states, the District of Columbia, Canada, Puerto Rico and Hawaii. They were engaged in more than 100 different occupations. Modern kennels, to which the dogs were moved in 1946, proved efficient and labour-saving, allowing apprentices and instructors more time for training the dogs. The Seeing Eye is located in Morristown, N.J., and has no branches. Henry A. Colgate is president and chairman of the board of trustees. (H. A. CE.)

Seismology.

Earthquake activity in 1947 was generally of a normal character. Seismological research in the United States received considerable impetus through a co-operative program sponsored by the Research and Development board in Washington, D.C.

The greatest earthquake casualties of the year were reported from the Khurasan province of eastern Iran on Sept. 23, when 5 villages were destroyed and 400 lives were lost. On Nov. 1, 233 persons died in a widespread shock in the San Ramón area of central Peru. Twelve villages were reported levelled in the Isca Sabino and Santa Dello area of southern Italy on May 11 and 12. Shocks of damaging intensity occurred in El Salvador on Jan. 24, Gisborne, New Zealand, on March 26, and central Alaska on Oct. 15. In the U.S. the strongest shocks centred in sparsely settled areas in southern California and southwestern Montana. Many adjoining states felt a slightly damaging shock

originating in southern Michigan, while disturbances of more local character shook the San Francisco, Milwaukee and St. Louis areas.

The Finne Ronne Antarctic expedition established a temporary seismograph station in Palmerland to conduct seismological and meteorological investigations. Because of continuing success the navy's project for tracking hurricanes in the West Indies from seismographic data was extended to the western Pacific area. In the U.S. modern instruments were installed at the City college of New York and at the bureau of reclamation's dam project at Hungry Horse in northwestern Montana. The University of Washington, Seattle, Wash., made plans to establish three seismological stations in the Puget Sound area where two strong shocks occurred in 1946.

Seismological methods were employed to explore the suboceanic structure of a portion of the sunken mid-Atlantic ridge. Similarly the nature of subcontinental structure was further revealed by the controlled detonation of large quantities of explosives in the Snake River valley of Idaho and in the Helgoland blast of April 18.

The application of electronic principles in building visible recording seismographs of high magnification was advanced considerably, but such equipment generally required servicing by an electronics expert. (*See* COAST AND GEODETIC SURVEY, U.S.; DISASTERS.) (F. NN.)

Selective Service. The U.S. Selective Training and Service act of 1940, responsible for the induction of about 16,000,000 men into the armed forces, expired at midnight, March 31, 1947, after congress failed to take action extending the measure. Congress, in permitting the expiration, was following the recommendation of President Harry S. Truman, who declared in his congressional message of March 3 that re-enactment would be requested if sufficient volunteers could not be obtained to meet the needs of national defense.

On the same day that the act expired, congress enacted and the president signed legislation creating the Office of Selective Service Records and providing for the transfer of all property, records, as well as personnel, to the new agency. Maj. Gen. Lewis B. Hershey was appointed director by the president and immediately confirmed by congress. Gen. Hershey had long been identified with Selective Service planning and administration.

Liquidation of the Selective Service system started April 1 and plans were ready to reduce compensated civilian personnel, which reached a peak of approximately 25,000 during wartime and which numbered 7,500 on March 31, to approximately 1,200 on Nov. 1, 1947, when liquidation was virtually complete, although the act set March 31, 1948, as the deadline for the liquidation.

The act provided for federal record depots, and one was established in each state and territory, New York city and the District of Columbia, making a total of 54, to preserve, maintain and service the Selective Service records. These records contained data concerning 44,000,000 men, which, in the words of the senate committee which recommended passage of the act, "are of much value to the several governmental and State agencies who have a legal right to the information."

The veterans personnel division of the Selective Service system was created by the original act of 1940 to protect the job rights of registrants inducted for military training and service and was continued throughout all amendments of the act until those functions were delegated to the U.S. department of labour by the 1947 law.

Two other important sections of the act creating the Office of Selective Service Records provided for: (1) the continuation of the confidential nature of Selective Service records with a provision for penalties for violation of those confidences; (2) authorizing the director to prescribe the necessary rules and regulations to carry out the provisions of the act.



U.S. VETERANS waiting to cash terminal leave bonds at a New York city bank, Sept. 2, 1947, the day on which the bonds became convertible

With certain specified exceptions, all information in a registrant's file was ruled to be confidential by regulations issued by the director. The exceptions included: (1) The registrant or any person having written authority from the registrant. (2) The legal representative of a deceased registrant upon presentation of letters testamentary. (3) All personnel of the Office of Selective Service Records while engaged in the administration of the Selective Service Records law. (4) United States attorneys and their duly authorized representatives, including agents of the Federal Bureau of Investigation. (5) Personnel of the counter intelligence corps, United States army, but only when proper identification and credentials are presented. (6) Such other agency, official or employee, or class or group of officials or employees, of the United States or any state or subdivision thereof, but only when and to the extent authorized in writing by the director, or when listed by the director in a list of federal officials authorized to obtain information.

The training division of the Office of Selective Service Records is charged with the execution of that part of the law which requires the preservation of the knowledge and methods of Selective Service.

The degree of success achieved by Selective Service in World War II is related closely to the planning and training accomplished in the years between World Wars I and II. Where the planning and training were good, the operation was good. In fields where problems were not foreseen, difficulties arose, with serious effects upon operations, because benefit of planning was absent.

The objective of the training division is to train members of Selective Service sections of state national guard staffs, reserve officers of the several components of the armed forces, and others who may participate, in the principles and methods of use of manpower in national emergencies. (L. B. H.)

Great Britain.—Final demobilization of the vast British armies of World War II took place in 1947. By the end of 1946 approximately 4,300,000 men and women had already been released. The process was continued in 1947, and by Jan. 1948 virtually all who served in the war and had not volunteered for further service had returned to civil life.

In the king's speech at the opening of the parliamentary session on Nov. 12, 1946, it was announced that national service would be formally introduced for the postwar armed forces, instead of being as before a legacy of the wartime regulations and organization. A territorial army on a new pattern came into being on Jan. 1, 1947. It was to be composed in part of volunteers, for whom recruiting would begin in 1947, and in part of conscripts, denominated "national service men," who would pass into its ranks from the regular forces after serving in them for a period of 18 months. The same regulations were to apply to the reserve services of the royal navy and royal air force. Thus the whole of the country's manhood would serve with the regular forces for 18 months and then be liable to 5½ years' compulsory part-time service in the reserves. The normal calling-up age was to be 18 years, but provision was made in certain circumstances for calling up to take place at the age of 17½; for young men taking up professions such as those of doctor and dentist, it could be deferred until the age of 25. Underground miners were not subject to the call up for service, and no woman would be compulsorily enrolled in the women's services, although these were to be maintained on a small scale. The peacetime service of 18 months was to come into operation in 1949, but as the first of the national service men would not have passed through it until 1950, no conscript element would reach the territorial army and the equivalent naval and air force services until that year.

When, however, the National Service bill came up for its second reading in March, it was strongly opposed by a section of the government's supporters. Recorded against it were 87 votes. Before the adjournment of the house of commons for Easter, a government amendment was put down to reduce the period of 18 months' compulsory service to one year. This was carried in May, but the incident was a blow to the government's prestige, especially to that of the new minister of defense, A. V. Alexander, who, having argued at length that 18 months was necessary, had now to show that one year would suffice.

None of the changes outlined above exercised any effect upon the strength of the armed forces in 1947. Changes were, however, introduced in another way. It had been laid down in the demobilization scheme that the total strength of the armed forces would be reduced to 1,087,000 by March 1948. On Aug. 6, 1947, in reviewing measures to meet the economic crisis, the prime minister announced that demobilization was being accelerated so as to reduce this number to 1,007,000. Finally, on Oct. 21 he stated that 150,000 more were to be hastened out of the services, bringing the figure down to 937,000. This rush out of the services brought in its train dangerous results which caused widespread anxiety, especially with regard to the navy. The home fleet was reduced to a very low ebb late in the year in order to supply crews for ships on distant stations. It was explained, however, that this dislocation would be but temporary.

The handicaps to efficiency produced by the legislation and decisions of the year did not seem to affect the strength of the armed forces, which continued high. The difficulty lay in the fact that one year's service was insufficient to train men for the more skilled trades, certainly to get any value from them in those trades. This deficiency would have to be met by voluntary recruitment for longer periods, and so far voluntary recruitment, while substantial, had not been big enough to fill the gap.

(C. B. F.)

Selenium. Production of selenium in the United States declined from 542,099 lb. in 1945 to 291,103 lb. in 1946, because of curtailed operations in the copper refineries which recover it as a byproduct. In Canada output increased from 397,187 lb. in 1945 to 521,867 lb. in 1946, dropping back to 375,000 lb. in 1947. (G. A. Ro.)

Senate: *see* CONGRESS, UNITED STATES; ELECTIONS.
Senegal: *see* FRENCH OVERSEAS TERRITORIES.
Serbia: *see* YUGOSLAVIA.
Serum Therapy: *see* MEDICINE.

Seventh-day Adventists. The year 1947 was one of reorganization and rehabilitation for this religious body so far as its overseas activities were concerned. Before World War II ended several million dollars had been raised by the North American members for restoration of physical properties abroad. This money was heavily drawn upon in 1947 for rebuilding hospitals, schools and other institutions in Europe, in the far east and in other war stricken areas. The program was not confined to restoration; new institutions have been either erected or provided for.

In the United States an expansion program was developing. Buildings either under construction or in the blueprint stage totalled in excess of $20,000,000. These were largely schools and medical institutions.

The budget voted for 1948 to all divisions of the world field was $14,497,506. This was about $500,000 more than for 1947, the highest in the history of the church. This sum did not include the funds used to pay salaries of ministers or other denominational employees in the United States and Canada or to maintain church properties in these two countries.

The annual autumn council, held in Grand Rapids, Mich., Nov. 11–20, voted among other matters, the following: to reallocate and to consolidate certain publications, with a view to efficiency and economy of production and circulation; to create an international temperance association; to launch a temperance journal for the United States and Canada; to present to a select list of public and institutional libraries certain books dealing with the history and beliefs of the church; to raise the mission offering goal for each member in America from 60 to 70 cents per week per member; to launch a much enlarged evangelistic program, particularly in the major cities of America.

The "Voice of Prophecy" radio network program conducted by the church made large growth overseas. To the two stations operating in China, five more were added. Beginning in 1948 there were to be European broadcasts in French, Italian, Danish and German.

In September a Youth's congress was held in San Francisco, Calif., to which several thousand youths from all parts of the United States, Canada and near-by islands came.

On Sept. 30, 1947, membership in the U.S. and Canada was 226,285; overseas, 379,847; grand total, 606,132. Church receipts in U.S. and Canada for 1947 were in excess of $29,000,000, or a per capita gift of $126.91. This total was apart from famine relief offerings. Enrolment in denominational schools in U.S. and Canada, as of Sept. 30, 1947, was in excess of 40,000. (*See* also CHURCH MEMBERSHIP.)

(F. D. N.)

Sewage: *see* PUBLIC HEALTH ENGINEERING.
Seychelles: *see* BRITISH EAST AFRICA.
Sharpening Stones: *see* ABRASIVES.

Sheep. During 1947 the U.S. sheep industry continued the decline it had experienced since 1942, at about the same rate. The estimated number was 38,571,000 head on farms Jan. 1, 1947, compared with 42,436,000 a year earlier and an average of 51,909,000 head during the decade 1936–45. The number of stock sheep in Jan. 1947, 26,100,000 head, was the smallest since the beginning of record in 1867. There had been a significant decrease in the number of farms keeping sheep, about 22% or 128,000 farms, between 1940 and 1945.

As a whole the industry was down to the level of 1923, when numbers had decreased following World War I. The decline was greatest in the north Atlantic states, Ohio and West Virginia; increases were reported in Missouri, Kentucky and Texas, while smaller increases were reported for the mountain states and California. The competition of cattle for pasturage forced sheep off the ranges; sheep raising had competed best when prices were relatively low for both cattle and sheep. The loss of competent herders during World War II started the liquidation.

The 1947 lamb crop of 22,400,000 head was the smallest in 22 years and 2,300,000 less than the 1946 crop. Heavy marketing of ewes of breeding age presaged further declines in the number of lambs.

The number of sheep and lambs in feed lots during the winter of 1946–47 was estimated at 6,029,000 head, compared with 6,837,000 head a year earlier. Because of the smaller feeding operations and the smaller lamb crop, the slaughter of lambs throughout 1947 ranged below 1946 and the ten-year average.

Prices to producers in Jan. 1947, averaged $7.63 per cwt. for sheep and $19 per cwt. for lambs. By June sheep prices had advanced to $8.40 and lambs to $21.10, a level that continued to December. These prices were about three times the prewar average of 1935–39.

The price of wool (*q.v.*) was steady at about 40 cents per pound through 1947. Large stocks accumulated during World War II were being sold slowly.

World sheep and wool production was beginning to decline in 1947 in several countries other than the U.S. Sheep numbers in the United Kingdom dropped 17% below 1946. Canada also reported fewer head. Australia and New Zealand, however, were holding to the high record numbers. Raising in South Africa suffered from droughts but was expected to recover rapidly. Sheep numbers in Argentina and other South American countries also declined. (*See* also LIVESTOCK; MEAT; WOOL.)

(J. C. Ms.)

Shinwell, Emanuel (1884–), British politician, was born in London on Oct. 18. From 1922–24 and again from 1928–31 he represented Linlithgow in the house of commons, and was financial secretary to the war office in 1929–30. From 1935 he represented the Seaham division of Durham, winning his seat from Ramsay MacDonald by one of the largest Labour majorities of the election held that year.

When the Labour party came into power in 1945 he was appointed minister of fuel and power with a seat in the cabinet; earlier in his career, in 1924 and 1930–31, he had been parliamentary secretary to the department of mines. During his appointment the nationalization of coal mines, of which he was an ardent advocate, was carried through. In Oct. 1947 he became secretary of state for war; his place as minister of fuel and power was taken by Hugh Gaitskell. At the Labour party conference held in Margate in May, he was elected chairman of the party in succession to Philip Noel-Baker (*q.v.*).

Shipbuilding. The world tonnage of merchant ships of 1,000 gross tons or more, as of June 30, 1947, was distributed as follows:

	Number of vessels	Gross tonnage		Number of vessels	Gross tonnage
United States	4,202	30,901,400	Italy	237	1,401,400
United Kingdom	2,464	15,176,000	Russia	417	1,306,300
Norway	699	3,435,300	Greece	232	1,236,800
Netherlands	393	2,224,400	Other countries	2,557	9,251,700
France	352	1,963,500			
Panamá	337	1,954,900	Total	12,370	70,420,800
Sweden	480	1,569,100			

The total of 70,420,800 gross tons of vessels in the world fleet on June 30, 1947, may be compared with 58,270,374 gross tons on Sept. 1, 1939.

For the quarter ended Sept. 30, 1947, Lloyd's Register of Shipping reported 1,202 merchant vessels of 3,968,893 gross tons under construction in the world, of which only 55 of 177,669 gross tons were under construction in the United States. On Jan. 1, 1947, there were 63 seagoing merchant vessels of 395,000 gross tons under construction in the United States of which 30 vessels were for foreign account. During the calendar year 1947, 12 vessels and dredges were contracted for totalling 53,700 gross tons. By Dec. 31, 1947, the total number under contract had been reduced to 28 totalling 158,300 gross tons. These figures were in addition to miscellaneous small craft consisting of car floats, barges, tugs and fishing vessels which did not contribute greatly to the shipbuilding industry as a whole.

Ship repair yards were reasonably active during the calendar year 1947, largely because of numerous reconversion contracts applicable to wartime ships. This work was expected to decline during the first half of 1948 and virtually to be completed by the middle of 1948.

The number of vessels in the reserve fleets of the maritime commission declined during the middle of 1947, partly because of the withdrawal of tankers for service and the sale of ships, but it again increased during the latter part of the year as a result of the decline in the volume of relief cargoes as well as in the rates appertaining thereto. Many of the emergency types of ships which had been under charter were returned to the maritime commission for this reason.

A substantial number of damaged vessels was still being sold for scrapping, thus eliminating such vessels from further consideration.

The industry passed through a disastrous strike which affected the majority of the yards from June to September. Employment in private shipyards declined from approximately 152,900 in Jan. 1947 to 98,300 in Oct. 1947. The average hourly earnings increased from $1.273 for Jan. 1946 to $1.462 for Sept. 1947.

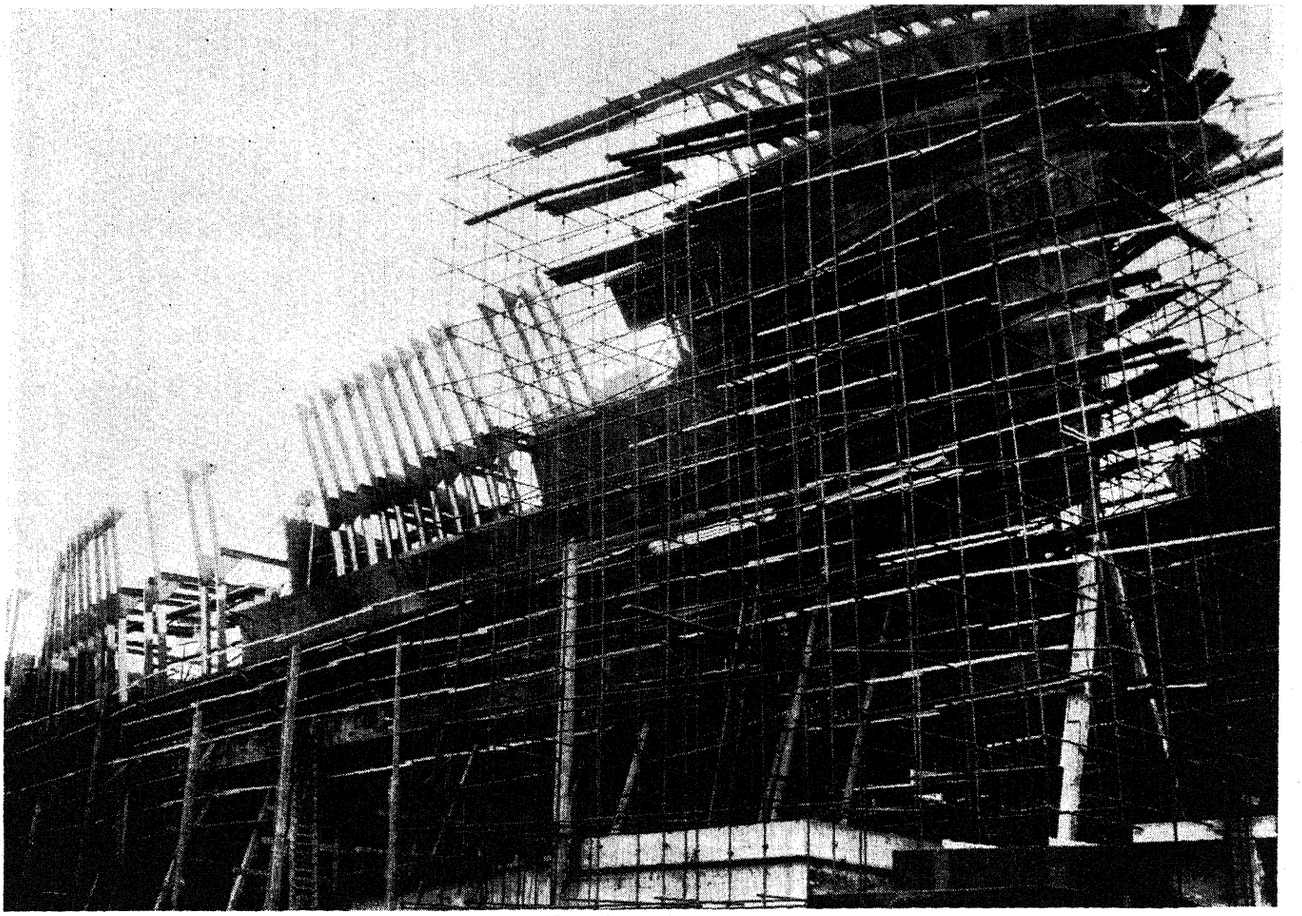
The outlook for the industry, as of Jan. 1, 1948, was not bright. Although the president's committee on the merchant marine, appointed in March 1947, had made its report and recommendations to the president, endorsing the construction of a group of passenger-carrying vessels as well as other tonnage, no definite action had been taken to carry out any of these recommendations. (*See* also SHIPPING, MERCHANT MARINE.)

(H. G. S.)

Other Countries.—In practically every European country the year 1947 saw the shipbuilding industry employed to the limit of its ability, although in many cases that was greatly reduced by World War II. Every effort was made to restore the facilities but the task was a heavy one and the result varied.

In Great Britain and Northern Ireland the damage done was not to be compared with that in some other belligerent countries and at the beginning of the year the yards had 454 ships of 1,937,062 gross tons under construction, 121 of these, of 478,124 gross tons, being on foreign account. The great majority of the ships building for British owners were liners or other special types; few tramps had been ordered for fear of the effects of the sale of the British and U.S. government fleets and the uncertain prospects of the tramping business. Because of delayed deliveries, the official returns of ships under construction tended to increase while the number laid down declined.

As in the countries of continental Europe, opportunity was taken of delayed maintenance and war-damage repairs to modernize the layout and improve the equipment of many British yards; frequently, a reduction in the number of building slips resulted in greater efficiency and a higher potential speed of working; and facilities were provided for changing methods, especially to increase fabrication and welding.



SCAFFOLDING on a 10,000-ton turbine ship being built in 1947 at the government-owned Tosi yards in Taranto, a shipbuilding centre on the southern coast of Italy

As was inevitable after a war, the industry's principal difficulties in most countries were with labour. As labour accounted for about 75% of the whole cost of a British-built ship, the effect of general unrest and the disorganization in changing over from war to peace was serious. The withdrawal of the Essential Works order made less difference than had been expected and comparatively little directed male labour left the industry, although many women, who had done excellent work in wartime, took the first opportunity of returning to their homes. Some of them returned, particularly for welding work, in the summer.

A great difficulty was the reduction of the week's work from 47 hr. to 44 hr. Assurances were given that it would not affect output and many men loyally co-operated, although there was friction over the demand that it should be worked in five days instead of five-and-a-half. Finally unions and employers agreed that five-and-a-half days should be worked from November to February and five during the remaining months, but it was not always easy to get the agreement honoured.

Changes in shipbuilding methods increased difficulties, causing friction as to which union should cover the new work to which the old rules for the demarcation of labour did not apply. This led to a number of sectional strikes against the advice of the unions.

In most countries it was hard to obtain material; in Britain the trouble increased with the coal shortage, which impeded production. Plastics were increasingly used in place of steel and wood. Subcontractors also found it impossible to make deliveries in the scheduled time—in one case a ship costing £400,000 was held up for some months for 3 essential electric motors whose total cost was less than £100. The result was that numerous ships were launched and then remained for weeks or months in the fitting-out berth; the builders were naturally unable to guarantee a time of delivery, and this caused more than one contract to be cancelled.

The price of new ships rose steadily during the year. It was double the prewar standard for the simplest specifications; for special designs it was much more and British prices per ton were higher than those of any of their European competitors except Belgium. That was considered to be serious, in view of the number of foreign contracts in British yards, for it was fully realized that the business was principally the result of unusual circumstances and that price would be the ruling factor as soon as continental European yards were able to undertake the work and frozen credits in sterling were exhausted. For repair work, which principally affected British owners, the cost was reckoned at about three times the 1938 level and delays were even worse. The government's 1947 target for the completion of 1,250,000 tons, less than the normal capacity of the yards, was not attained.

In most other countries the industry had similar difficulties. Sweden, with modernized yards, was able to quote low prices for excellent ships until most of the firms had three years' work in hand and were suffering from shortage of material. The Norwegian government took steps to develop the shipbuilding industry and made a number of loans for modernization and expansion. The U.S.S.R. vigorously restored the facilities destroyed by the Germans and established new ones, but no details were released.

The Dutch, French and Belgian industries, assisted by their governments, made excellent progress in repairing the damage done, against great obstacles. All new French construction was on government account but in the Netherlands the companies were, as far as possible, allowed to make their own arrangements. The Spanish government's large program made slow progress but the Italian recovery was remarkable, orders being secured from the Argentine, Norway, Sweden, Egypt, Denmark, Turkey, the Netherlands and Rumania. The United States granted Italy credit for a large sum to buy machinery and equipment, but the handicap of restricted steel supplies remained and,

as the year progressed, both price and time under construction increased and many contracts had to be modified.

In the British commonwealth conditions during the year varied. In India the establishment of a big shipbuilding industry on both the east and west coasts was part of the new Indian government's scheme for shipping expansion; to begin with, a great deal of the machinery would come from Britain. Canadian shipyards secured a large number of orders from foreign countries, principally for classes of sister ships, but efforts to keep the Australian industry alive, after it had done good war work, were handicapped by costs which were reckoned to be the highest in the world. (*See* also BUSINESS REVIEW.) (F. C. Bo.)

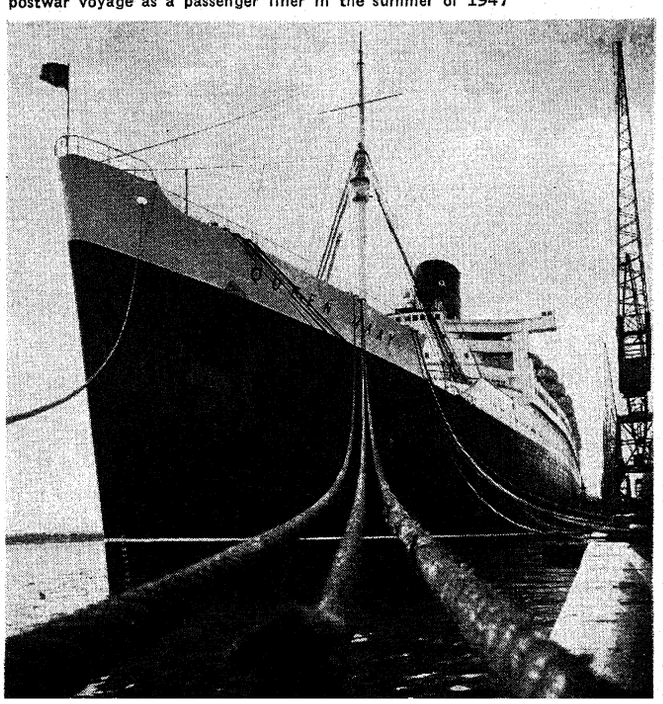
Shipping, Merchant Marine. U.S. merchant ships in foreign trade were active during 1947. Heavy demands for coal and grain and other relief cargoes kept the fleet at a high operating level. Most of this trade was carried on under private operation, for the release of shipping from wartime government control proceeded rapidly. Of the 900 ships under requisition by the government on V-J day, almost all had been returned to their owners by the end of 1947. Of 4,000 ships available for sale under the Merchant Ship Sales act of 1946, 1,555 had been sold by Sept. 30, 1947, 481 to 123 operators of the United States and 1,074 to governments and citizens of 30 other nations. The return from these sales was more than $1,400,000,000. All available government-owned tankers had been sold by December in answer to an unprecedented demand for oil transport.

Ships which had not been sold or which were old, damaged or otherwise undesirable for operation were laid up in reserve fleets. On Sept. 30 the number of vessels in these fleets numbered 1,237.

In addition to vessels sold, the government chartered many of its ships to United States operators. The number under charter varied from month to month, reaching a peak of 1,510 in June 1947, and declining to 1,082 on Nov. 15, 1947. The government itself operated a few vessels under general agency agreements to meet essential domestic needs, to provide emergency transportation for displaced persons and to provide additional tanker service.

A number of factors darkened the shipping outlook toward the end of the year. The percentage of United States cargoes carried in U.S. flag ships had steadily declined from more than 60% early in the year to 50% in the fall. Costs were rising and freight rates were falling. Although the continuing need for European relief promised heavy exports for several years, competition from foreign flag ships was growing; and the need to conserve dollars was leading other nations to increase their efforts to provide their own shipping services.

THE "QUEEN MARY," reconditioned for commercial duty after serving as a troopship in World War II, is shown at an English dock just before her first postwar voyage as a passenger liner in the summer of 1947



Domestic shipping was in a much less favourable position than overseas shipping during the year. This fleet, important to national defense because of its availability in home waters, was unable to return readily to peacetime service because freight rates, held down by low rates of competing land carriers, could not offset the sharp rise in costs. For a time the government operated ships in domestic trade at a loss in order to provide essential service and relieve the overburdened land carriers. On June 30, 1947, the government withdrew from the last of these services.

Charter rates were lowered for ships in domestic service, and a few operators ventured to return to these trades. At the end of the year the fundamental question of the rail-water rate structure, which had been referred to the Interstate Commerce commission for review, was still unsettled.

Shipbuilding too was at a low level. On Nov. 1, 1947, there were only 32 new oceangoing merchant vessels under construction in U.S. shipyards, and contracts on hand at the end of the year would all be completed within six months. Repair and reconversion work was also rapidly being cleaned up. Shipyards were facing the dispersal of their skilled working forces. Plans for filling in gaps in the fleet and for replacing vessels as they became obsolete were worked out by the maritime commission, the president's advisory committee on the merchant marine and other groups, but lack of materials and appropriations had prevented carrying out these plans up to the year's end.

Operating-differential subsidies, which had been suspended during World War II, were reinstated on Jan. 1, 1947. Studies were being made of shipping and shipbuilding costs in other maritime nations to determine the fair basis for parity payments to U.S. shipbuilders and operators to enable them to meet lower cost competition on shipping routes essential to the U.S. trade and defense. (W. W. SH.)

Other Countries.—Throughout 1947 a shortage of tonnage felt by every country was made worse by the number of ships still in state service, the long delays in delivering new ships and carring out repairs, the time wasted in nearly all ports and by strikes. The turnover from war to peace was exceptionally difficult after World War II and there was little prospect of improvement in the immediate future. In all countries that had been belligerent the state maintained some measure of control.

In this shortage a number of owners, particularly the regular lines, bought or time-chartered Allied war-built ships and those surrendered by the axis that were offered for sale. Most were of types unsuitable for competitive liner work and the prices were generally high, but these ships were necessary to maintain the services. Norway, France and the Netherlands, in particular, had to acquire large tramps for reconstruction though their policy aimed at regular berth work. The Norwegians reestablished several carrying services to earn foreign currency. There was a ready market for secondhand tonnage but national regulations prevented practically all but old ships changing their flags.

By new construction, salvage and purchases from the U.S.A., most European countries and also China considerably increased their fleets, the recovery of Italy being spectacular.

The shortage of passenger tonnage was serious, in view of the

desire to revive the European tourist trade and even more because of the immense demand for emigration to various parts of the British commonwealth and to South America. Emigration to the commonwealth was largely carried out under austerity conditions in ships not yet reconditioned after trooping service, and to South America in ships of the Argentine government fleet. Australia, New Zealand, Canada and South Africa in particular wished to receive large numbers of selected settlers when transport would permit it.

On the cargo side numerous difficulties involved heavy expenses and ballast voyages. One of the more serious was the continued stoppage of British coal exports, not only involving a much longer haul to consuming countries but causing a serious shortage of bunkers. Many coal-burners were converted to oil during the year, but in the autumn currency difficulties and a shortage of tankers caused a shortage of oil as well. Restrictions of imports by many countries, often at short notice, also hampered two-way transport.

A number of international conferences were held on various maritime matters but most awaited ratification. Partly as a result of the 28th maritime session (the Seamen's conference) of the International Labour office at Seattle, Wash., in June 1946, Britain, France and other countries made or were making arrangements to "decasualize" the seaman's work; but these arrangements were not all well received by the men whom they were intended to benefit.

China, India and Pakistan had great shipping ambitions which were being carried into effect by strong nationalist policies. In each case the great handicaps were the lack of officers and the age of many of the ships. (F. C. Bo.)

Shoe Industry. Consumer resistance to higher prices of shoes, which began to make itself felt at the end of 1946, gained momentum throughout the year 1947, for it was predicated on the vicious cycle of rise in costs from the hide to the finished shoe. Every item of manufacture and store expense from wages to wrapping paper rose to an all-time high.

The inevitable result of the continued rise in prices in the United States was a definite decline in the production and consumption of shoes. Shoe production for the year 1947 was estimated at 461,000,000 pairs —a far cry from the all-time high of 525,000,000 pairs in 1946. This decline in production was accounted for, in part, by curtailed manufacture of lower grade footwear and a shift in demand to the medium and higher grades, as consumers insisted on better quality for their shoe dollars.

Estimated consumption of shoes in 1947 was considerably less than in 1946; approximately 420,000,000 pairs of shoes moved into selling channels compared with a total of 510,800,000 pairs during 1946. Consumption of women's shoes was consistent and favourable, while that of children's and infants' shoes was exceptionally good.

Footwear styles remained somewhat static, in spite of the furore caused by the much publicized "new look." Here was an opportunity to change shoe styles and create a demand for additional and supplementary shoe wardrobes; but the best that was achieved was an imperceptible shift from the comfortable flats, with their open toes or heels (or both) to the higher, less stable heels and the closed look.

Leather accounts for approximately 50% of the manufacturers' price of shoes. Throughout the year 1947 the supply of calf leather, particularly in the weights suitable for women's shoes, fell short of the demand. This situation was further aggravated by the fact that imports of calfskins in 1947 were negligible as compared with former years when calfskin supplies in the United States were augmented by imports from central Europe and New Zealand. Conditions of world markets and the short supply of raw materials kept prices at relatively high levels. Argentina proved to be a competitive element, for shipments of hides from that country served to check advancing prices in the United States. For a time, Argentina placed such high prices on its hides that, despite the fact that demand in the United States was in excess of domestic supplies of raw stock, there was little purchase of Argentine hides. It was not until Argentina eased its prices in October that it became profitable for United States tanners to do business with that country.

Hides bought early in November from Argentina had begun to arrive in late December, and the hide market situation in the United States was considerably easier.

There was keen interest in the results of the Reciprocal Trade Agreement conference held in Geneva, Switzerland. Twenty-three nations participated and an agreement, concluded Oct. 30, 1947, set down rules of international trade conduct with regard to tariffs and duties that it was hoped would make for freer access to world markets. General provisions of the

Comparative Statistics of U.S. Shoemaking, 1945, 1946, 1947

Production of Shoes by Major Types (000's omitted)

		Women's	Men's	Misses' and Children's	Youths' and Boys'	Infants'	All Other	Total
1945	All Leather	120,149	65,409	42,009	14,237	30,348	21,624	293,776
	Other	75,829	2,881	12,436	1,680	4,640	52,651	150,117
								443,893
1946	All Leather	180,319	103,141	50,771	20,451	34,600	26,216	415,498
	Other	54,574	1,052	3,158	191	3,169	48,131	110,275
								525,773
1947*	All Leather	189,700	105,600	52,600	18,600	31,500	18,900	416,900
	Other	15,600	400	1,400	200	2,500	24,100	44,200
								461,100*

Estimated Consumption of Shoes by Major Types (000's omitted)

1945	All Leather	125,000	62,000	41,000	15,800	31,000	20,000	294,800
	Other	86,000	3,500	12,800	2,000	4,000	46,000	154,300
								449,100
1946	All Leather	179,000	102,000	49,800	18,800	32,800	25,000	407,400
	Other	52,000	1,000	3,200	200	3,000	44,000	103,400
								510,800
1947*	All Leather	168,000	96,500	48,500	16,000	28,200	16,000	373,200
	Other	16,000	500	1,500	200	2,600	26,000	46,800
								420,000*

Per Capita Production of Shoes by Major Types (Pairs per Capita)

1945	All Leather	2.32	1.27	3.67	1.05	2.71	0.15	2.10
	Other	1.46	0.05	1.09	0.12	0.41	0.38	1.08
								3.18
1946	All Leather	3.46	1.99	4.32	1.49	2.91	0.19	2.94
	Other	1.05	0.02	0.27	0.01	0.26	0.34	0.78
								3.72
1947*	All Leather	3.63	2.03	4.29	1.30	2.40	0.13	2.89
	Other	0.30	0.01	0.11	0.01	0.19	0.17	0.31
								3.20*

Estimated per Capita Consumption of Shoes by Major Types (Pairs per Capita)

1945	All Leather	2.40	1.20	3.57	1.14	2.77	0.14	2.11
	Other	1.65	0.07	1.13	0.14	0.36	0.33	1.10
								3.21
1946	All Leather	3.44	1.97	4.24	1.37	2.76	0.18	2.89
	Other	1.00	0.02	0.27	0.01	0.25	0.31	0.73
								3.62
1947*	All Leather	3.21	1.86	3.95	1.12	2.14	0.11	2.59
	Other	0.31	0.01	0.12	0.01	0.20	0.18	0.33
								2.92*

*Preliminary

agreement put forth, for the first time, a generally accepted code of fair treatment in commerce relations. Substantial concessions on certain classifications of footwear and leather were made by United States negotiators, who, in turn, won many concessions that were expected to prove beneficial in the long run. Other countries had been working feverishly to build up their shoe production and were rehabilitating their factories just as quickly as feasible. England was trying desperately to bolster its industry by increasing exports, and expected shipments to the United States to play a major part. Difficulties that were facing the industry were shortage of good quality upper leather and of machinery, but some of these worries were expected to be eased by priorities to producers who participated in the export program. British men's shoes had always had a favourable acceptance in the U.S. and England was anxiously angling for a small fraction of the U.S. men's shoe market. (*See* also LEATHER.) (E. G. AN.)

Shoran: *see* ELECTRONICS; RADIO.

Shows, Animal.

Horses.—The horse show as a combined sporting and social event showed signs in 1947 of recovering its prewar prominence. Both the large exhibitions in metropolitan centres and the smaller shows in suburban communities reported increased participation and attendance.

The Fourth Annual Chicago Horse show made a record in prizes, with more than 400 horses entered in 119 classes. The New York National broke all previous records for attendance, and entries were above all previous shows. Other outstanding events were the shows at Los Angeles, Calif., San Francisco, Calif., Kansas City, Mo., Wichita, Kan., Houston, Tex., Columbus, O., and the large state fairs.

A notable feature was the growth of specialized shows of relatively new types of horses. The Shelbyville, Tenn., Walking Horse show in September brought together the largest number of this type ever assembled. The Palomino was also recognized as a distinct class of increasing importance. At Springfield, Mo., the National All Golden Horse show drew 223 entries from 18 states and Canada.

Recovery of the hunt clubs from the wartime recess was reported from Virginia, Kentucky and other eastern states. At Shelbyville, Ky., the August show attracted a large entry list of both hunters and gaited animals. The Royal Winter fair at Toronto, Can., was also an important horse show. (J. C. Ms.)

Livestock.—Livestock shows and fairs recorded one of the most successful years in their history during 1947, when all of the expositions and all but several of the state fairs were again back on prewar schedules and attracted record entries and attendance.

Beginning its fourth decade, the annual National Western Live Stock show was held in Denver, Colo., during January, the first of the great sectional exhibitions on the country's show calendar. One of the few livestock shows of the country that continued throughout World War II, it had become one of the country's largest shows of purebred Hereford cattle. It was also distinguished for its large exhibits of Quarter horses.

Closely following upon the Denver show were two large Texas shows, the Houston Fat Stock show, Jan. 31 to Feb. 9, and the Southwestern Exposition and Fat Stock show at Ft. Worth.

The Ft. Worth show, oldest in the U.S., was one of the nation's strongest exhibitions of purebred Hereford cattle. As at Denver, spectacular rodeos were the chief entertainment feature.

A series of fall shows of national prominence included the American Royal in Kansas City, also one of the country's largest livestock shows. Its exhibitions of purebred Hereford, Aberdeen-Angus and Shorthorn cattle and its horse shows rank among the country's best.

The Pacific International at Portland, Ore., attracted large entries of both beef and dairy breeds.

The Aksarben exposition, a fat stock show, took place in Omaha, Neb., Sept. 27 to Oct. 5; and a new show was introduced in the east in Nov. 1947—the Eastern National Live Stock show at Timmonium, Md.

Two great California shows of the fall season were the Grand National Live Stock exposition in the new Cow palace at San Francisco, and the Great Western Live Stock show, held in Los Angeles.

The largest state fair livestock shows of the country included the Illinois, Iowa, Ohio, Missouri, Wisconsin and Minnesota state fairs in August; and the Indiana, Nebraska, Michigan, Kentucky, Kansas and Oklahoma state fairs in September.

The Wisconsin state fair was distinguished as one of the country's largest dairy cattle shows. A National Hereford show was held in 1947 in connection with the Nebraska state fair, and the National Percheron Horse show was a feature of the Ohio state fair in 1947. A National Barrow show, for all breeds of swine, was held in Austin, Minn., Sept. 18 to 20.

Two major September fairs on opposite coasts were the California state fair at Sacramento and the Eastern States exposition at Springfield, Mass. It was the first revival of the Springfield event since the war.

The continent's largest livestock show in terms of beef cattle breeds, draught and light horses, and fat swine and sheep,—the International Live Stock Exposition and Horse show in Chicago —was held in 1947 from Nov. 29 to Dec. 6. Auction sales of meat animals at the 48th annual International, for the first time exceeded $2,000,000; and the value of all livestock exhibits was estimated at between $15,000,000 and $20,000,000—the highest aggregate worth of farm animals ever assembled. Its eight-day attendance passed the 400,000 mark. Visitors attended from nearly every state and from every province of Canada as well as from several other countries.

The Calgary Exhibition and Stampede, a July fixture in Canada ranking with the dominion's major shows and entertainment events, was held July 7 to 12, 1947, and was followed by livestock exhibitions at Edmonton, Alta., Saskatoon, Sask., and Regina, Sask., the same month.

Restored after a wartime lapse was the great Canadian National exhibition at Toronto, Aug. 22 to Sept. 6, and the Royal Winter fair, also at Toronto, Nov. 18 to 26.

Only one U.S. dairy show of national calibre remained—the National Dairy Cattle congress and National Belgian Horse show, held Sept. 29 to Oct. 5, 1947, at Waterloo, Ia. Top dairy herds from many sections of the country were exhibited. It was also the year's largest showing of Belgian draught horses.

The Perth show and sale in Scotland in February continued as the largest in Britain since the cessation of the century-old Royal Show of England and the Highland of Scotland in 1939. Perth had become distinguished for its exhibitions of purebred Aberdeen-Angus and Shorthorn cattle.

South America's foremost livestock show, the long-established and widely famed Palermo in Buenos Aires, Arg., was held in Aug. 1947. It was reputed to be the world's largest show of Shorthorn cattle and featured to a lesser extent Hereford and Aberdeen-Angus cattle as well as two breeds of dairy cattle—Holstein-Friesians and Guernseys. (W. E. O.)

Dogs.—All activities centring around dogs prospered in 1947, especially the showing of purebred animals, of which 112 distinct breeds were now recognized officially.

Bench shows based on type conformation numbered 484 championship or point events; there were also 532 informal or match shows. Obedience trials granting training degrees num-

bered 197 with 19 additional tracking tests. All these figures were new records, established under the rules supervision of the American Kennel club, New York city.

The Welsh terrier female Champion Twin Ponds Belle led in wins of best-in-show all breeds. Again the largest show was New York city's Westminster Kennel club's, with 2,121 dogs present, won by the boxer, Champion Warlord of Mazelaine. Largest outdoor show, and second largest of all types, was the Morris and Essex, with 2,010 dogs. Third, and largest all-time Pacific coast show, was at Long Beach, Calif., with 1,854 entries.

Approximately 1,500 field trials for various breeds were held during 1947. National springer spaniel field champion was the liver and white Russett of Middlefield; in retrievers (all breeds), the black Labrador, Bracken's Sweep. Major bird dog win was the National Bird Dog championship, at Grand Junction, Tenn., by the pointer Saturn. Approximately 170 beagle championship field trials were held, but no national winner was selected. (W. Ju.)

Siam (Thailand). A kingdom of southern Asia between Burma and French Indo-China, extending southward into the Malay peninsula. Area: 198,247 sq.mi.; pop. (census 1937): 14,464,489, (est. March 1940) 15,718,000. Chief towns (pop. 1937): Bangkok (cap. 681,214); Chiengmai (544,001); Khonkaen (473,475); Chiengrai (443,476). Language: Siamese; religion: Buddhism. Ruler: King Phumiphon Aduldet; prime minister: Luang Pibul Songgram.

History.—On Jan. 6, 1947, an agreement was signed establishing a commission of six to adjudicate British commonwealth war damage claims against Siam. The commission consisted of one delegate each from Britain, Australia and India, and three from Siam. On May 9 it was announced that Great Britain and Siam had exchanged notes confirming and completing the peace agreement of 1946. These notes dealt with questions of enemy and Allied property and stated that Siam was to hold all Japanese and other enemy property in its territory at the disposal of the Allies, and that it would restore property, rights and interests of those countries with which it had been at war. Agreement was reached in October on the sum of £1,250,000 to be paid as compensation for losses to British commonwealth tin-mining interests during World War II.

The foreign minister Nai Direk Chainam resigned on Feb. 5, and in face of persistent criticism and charges of incompetence from the opposition, the cabinet resigned on May 28. The prime minister, Thawan Thamrong Nawasawat, formed a new cabinet which took office on June 2, and on June 6 the government received a vote of confidence. On Nov. 9 Siamese army units under Marshal Luang Pibul Songgram seized government control, ousting the Popular party. Pibul Songgram, who had been in power during the Japanese occupation, represented the "Might is Right" party; his most important change in the constitution was the setting up of an advisory council, invested with virtually all royal powers in place of a regency, to guide the 19-year-old king.

Considerable effort was made during the year to increase rice production, exports of which were estimated at about 500,000 short tons. The government inaugurated price control at the beginning of the year and, as merchants were not turning over the stocks to the government purchasing bureau, on Aug. 10 the government ordered the compulsory sale of rice stocks at the controlled price, threatening that after Aug. 18 merchants would be forced to sell at a discount of 20%. By midsummer rice was rationed in 22 of the provinces and there were local shortages.

The development of Malayan nationalist sentiment in the four southern provinces caused some concern in Bangkok. The British and United States legations in Bangkok were elevated to the status of embassies and the Siamese legations in London and Washington were similarly elevated. Diplomatic relations with the U.S.S.R. were resumed on Jan. 5. Siam joined the sterling group on Sept. 17. (J. Ra.)

Education.—In 1938–39: government schools 429, scholars 61,297; local public and municipal schools 11,072; scholars 1,484,483; universities 2, students (1937) 11,525.

Banking and Finance.—(1942) revenue $77,650,000; expenditure $95,800,000; expenditure, capital (est. 1941) $20,700,000; public debt (March 31, 1940) $25,500,000; notes in circulation (July 31, 1941) $96,000,000; reserves (July 31, 1941), gold $35,850,000; foreign assets (July 31, 1941) $56,100,000; exchange rate (average 1940) 1 baht = 35.15 U.S. cents; (Sept. 1941) 1 baht = 36.97 U.S. cents.

Trade and Communication.—Trade with Great Britain (8 months 1947): imports £946,091; exports, £237,935. Foreign trade 1940–41 (merchandise): imports $60,200,000; exports $95,000,000. Communications: roads, state highways completed (1938) 1,815 mi.; railways open to traffic (1940) 1,925 mi.; airways, length of route opened (1940) 536 mi.; motor vehicles licensed (1937–38) 11,439; wireless receiving set licences (1938) 29,834.

Agriculture and Mineral Production.—Production (in short tons): rice (1946) 4,045,000; rubber (1946–47) 45,950; tin ore, metal content (export 1940) 19,470; tobacco (1938–39) 9,240; cotton ginned (1940–41) 2,640; maize (1938–39) 6,160.

Sierra Leone: *see* British West Africa.

Silk. The problem of whether silk would return as one of the substantial textile fibres of the world was undecided in 1947.

The Supreme Commander for the Allied Powers (S.C.A.P.) announced on Dec. 15 that effective Jan. 1, 1948, the U.S. Commercial company, the government agency previously handling the sale of raw silk from the world's largest source, Japan, would be liquidated and the sale handled directly by a New York selling office of S.C.A.P. Concurrently, an announcement was made of raw silk prices effective for the entire year of 1948, representing a decrease of 40% from those prevailing during 1947.

Japanese output of raw silk in 1947 was given as 110,376 bales, or 14,700,000 lb., of which 17,273 bales, or 2,300,000 lb., were exported. The consuming markets were:

	Bales	Thousands of pounds
United States	4,094	544.5
Great Britain	7,260	965.6
Australia	2,654	353.0
India	3,000	399.0
Egypt	50	7.0
New Zealand	215	28.6

In 1940, the last full prewar year, the U.S. used 35,800,000 lb. of raw silk, or approximately 270,000 bales.

To counteract the relatively poor demand for raw silk, the U.S. military authorities in 1947 started a move toward weaving the silk in Japan and exporting the fabric. During the year, a large quantity of habutai, a native type of thin silk fabric popularly termed "China silk" before World War II, was shipped to the U.S. for use primarily in printed scarfs. So great was the demand that at the close of the year, orders for 7,000,000 yd. had been taken for shipment in the spring of 1948. In addition to the habutai, the agency also offered silk crepes and taffetas, and showed samples of silk brocades, both plain and interspersed with silver and gold threads. A special exhibit in New York, shown by the chief of textile consumer goods in the Economic Scientific section of S.C.A.P. in Tokyo, offered the brocades, embroidered habutai and crepes, as well as hand-printed dress fabrics, at prices ranging between $1.25 and $4.00 a yard, f.o.b. Japan.

In China, once the second largest supplier of raw silk, continued effort was made to encourage the silk industry, but with relatively little effect on world markets. In fact, it was announced at the close of the year that the Chinese government was drafting measures to barter Chinese raw silk for foreign rayon, the latter to be manufactured into finished products for re-export.

Italy's silk industry during 1947 was not expected to exceed one-third of prewar figures. Total exports of raw silk from Italy were estimated to be 700,000 kilos for the year (approximately 7,000 bales). In the first nine months, the total sales of raw silk were 511,500 kilos, of which 454,000 kilos were exported. As in Japan, efforts were being directed toward using the raw silk on domestic looms and selling the fabric, both domestically and abroad.

Production of silk fabrics in the U.S., Great Britain and France continued at a slow pace. In the U.S., the total 1947 production was estimated to be not more than 10,000,000 linear yards, including all silk and silk mixtures. In 1946, the total had been 9,300,000 linear yards. In 1939, the total production had been 68,700,000 linear yards, and in 1937, it had been 142,100,000 sq.yd.

In France, traditional home of the fine silk fabric, a demand existed, but manufacturers in Lyons contended that it was impossible to observe government restrictions on the use of raw silk bought with U.S. dollars and meet buyers' price limits. For every dollar's worth of raw silk purchased, the French government was said to insist that two dollars' worth of fabric be exported to offset the dollar expenditures, with the result that foreign buyers would not pay the prices asked for the fabric. Hope was expressed, at the close of 1947, that the coming year would see some lifting of these restrictions, as well as a lower price on Japanese raw silk, in order to permit development of the home market on the continent for silk fabrics. This market was thought to be more receptive to relatively high-priced fabrics than the U.S., where production of moderately priced synthetic fabrics dictated the price level. While the amounts of fabric consumed in Europe would be relatively low, compared with consumption in the U.S., the scarcity of raw materials, including rayon, would give silk a better chance there than in the more plentifully supplied American market. (*See* also RAYON AND OTHER SYNTHETIC FIBRES; TEXTILE INDUSTRY.)

(I. L. BL.)

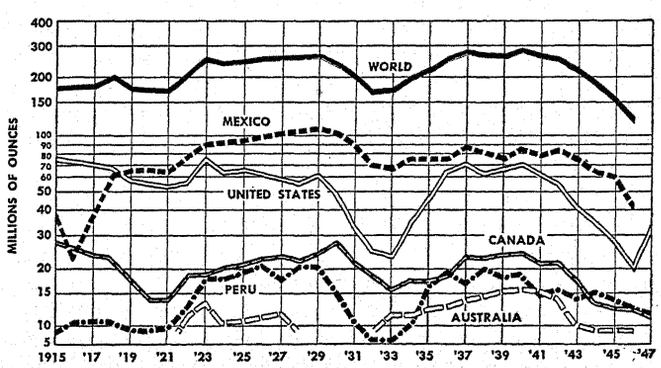
Silver. The silver output of the leading producing countries and the estimated world totals are shown in Table I.

The output of the U.S.S.R. was the only really important one that was not known, but that country, along with the large number of minor producers, accounts for about 15% of the total.

United States.—The salient features of the silver industry in the United States are shown in Table II.

Mine output dropped from 29,024,197 oz. in 1945 to 22,914,604 oz. in 1946, 70% less than the 1940 high. The 1946 drop was largely the result of strikes in base metal smelters which were large producers of silver.

The production rate improved in 1947 to 27,781,594 oz. through October, which was equivalent to a rate of 33,400,000 oz., and approached the 1944 level. All of the monthly production totals were more than the 1945 average rate, and three of them exceeded the 1944 rate.



SILVER PRODUCTION of the major producing countries and of the world, as compiled by *The Mineral Industry*

Table I.—*World Silver Production, 1941-46*

(In millions of fine ounces)

	1941	1942	1943	1944	1945	1946
United States	71.08	55.86	40.79	35.65	29.05	12.10
Canada	21.75	20.70	17.35	13.63	12.94	12.54
Newfoundland	1.66	1.11	1.26	1.16	1.08	1.11
Mexico	78.36	84.86	76.63	65.46	61.10	43.26
Honduras	3.63	3.48	3.16	3.12	3.00	2.68
Argentina	2.92	2.84	?	?	?	?
Bolivia	7.35	8.12	7.30	6.80	6.68	6.11
Chile	1.24	1.32	1.09	1.09	1.03	0.53
Peru	15.12	16.04	14.66	15.83	13.00	12.33
Belgian Congo	3.47	3.96	3.11	2.61	4.14	5.05
South Africa	1.48	1.48	1.33	1.21	1.24	1.20
Australia	15.41	14.24	10.33	9.37	8.08	9.07
Total	262	250	217	186	157	129

Table II.—*Silver Industry in the United States, 1942-46*

(In thousands of fine ounces or of dollars)

	1942	1943	1944	1945	1946
Production	54,091	41,461	34,474	29,024	22,914
Imports	$41,103	$27,903	$23,373	$27,278	$57,578
Exports	$1,999	$30,687	$126,915	$90,937	$36,455
Industrial use	131,419	162,113	176,289	184,661	126,300
Secondary recovery	30,021	44,113	56,189	58,361	36,647
Net consumption	101,399	118,000	120,100	126,300	87,000

Canada.—Primary production declined from 12,942,906 oz. in 1945 to 12,544,100 oz. in 1946, only 3% less than in 1945, but 47% less than the 1940 high. The decline continued in 1947, the output of the first three-quarters being 8,594,371 oz., 13% less than the same period of 1946. (*See* also MINERAL AND METAL PRODUCTION AND PRICES.)

(G. A. RO.)

Singapore: *see* MALAYAN UNION AND SINGAPORE.

Sinkiang (CHINESE TURKESTAN). Largest and farthest inland province of China, bounded north by the Mongolian republic; east by China; south by Tibet and India; west by Afghanistan and by the Tajik, Kirghiz and Kazakh republics of the U.S.S.R. Area (1939): 705,952 sq.mi.; pop. (est.): 3,870,954. Capital: Urumchi (Tihwa) (est. pop. 50,000). The two largest towns, Kashgar and Yarkand, with estimated populations of 80,000 and 75,000, are in the south; 84% of the total population is on the western side of the province, adjacent to the U.S.S.R. and separated from China by the major desert expanses. Chinese estimates are that 90% of the population is Turkish-speaking, the settled majority being Uighurs and the nomadic minorities Kazakhs and Kirghiz; the Chinese comprise about 5%, divided between Moslems and non-Moslems, and the remaining 5% include Mongols, Manchus, Tajiks and still smaller minorities. The prevailing religion is Islam; with Lama Buddhism among the Mongols and nominal Confucianism and Taoism among the non-Moslem Chinese. Governor (appointed June 1947): Masud Sabri.

History.—Events in Sinkiang in 1947 were marked by contending Chinese and Russian influences and by rivalry between conservative and radical nationalist factions among the non-Chinese subject peoples. The chief issue was between those who were prepared to be content with non-Chinese officials appointed and supervised by the higher Chinese authorities, and those who still demanded that the Chinese accept officials nominated by various self-constituted and pro-Russian bodies among the subject peoples.

In Feb. 1947 there were demonstrations in Tihwa (Urumchi), capital of the province, demanding unity (between the subdivisions of the province), peace (an end to civil war) and equality (between the subject peoples and the Chinese). Martial law was declared and the province became divided between the southern oases dominated by Chinese garrisons and the three northwestern districts of Ining (Ili), T'ach'eng (Chugu-

chak) and Aherht'ai (Altai), all dominated by insurgents but reflecting different degrees of pro-Russian sentiment and organization, and some degree of friction between settled communities and pastoral nomads.

In May a meeting of people's representatives was scheduled, under Chinese auspices, to implement agreements made in 1946 outlining a compromise structure of government granting increased but not decisive representation to the subject peoples. The more radical and pro-Russian groups, finding themselves in a minority, withdrew. A leader of the nomad Kazakhs, named Usman, then split off from the other insurgent leaders and began marauding operations along the Altai frontier between Sinkiang and Outer Mongolia (Mongolian People's republic), which led to clashes in the summer months between Chinese and Mongol troops at a point called Peitashan (Baitik Bogda).

In June the Chinese appointed as chairman (governor) of the province an Uighur, representative of the largest population group, named Masud Sabri (Masaowute), with Gen. Chang Chih-chung as resident representative of the Chinese higher authority. In July and August there were risings at Turfan and Kashgar, the two largest oases, which were put down. The situation then remained relatively unchanged, but uneasy, until the end of the year, with the insurgents, under a number of Russian-educated leaders, in command of the Ining region, under a regime which intermittently called itself the Eastern Turkestan republic. (O. LE.)

Skating: *see* ICE SKATING.

Skiing. Competitors from Norway, Switzerland and Canada generally dominated United States ski championships in 1947.

Norwegians placed one-two in the national jumping event at Ishpeming, Mich. Arnholdt Kongsgaard won the jumping title with leaps of 239 ft. and 240 ft. His countryman, Ragnar Baklid, was second. Karl Molitor, of Switzerland, scored a triple in the national downhill, slalom and combined at Ogden, Utah.

In other men's national competition, Wendell Broomhall, 27-year-old Rumford, Me., milkman, won the cross-country title and Ralph Townsend, a student at the University of New Hampshire (Durham), captured the national classic combined cross-country and jump.

Rhoda Wurtele, Montreal, Ont., won the national women's downhill and combined championships but gave way to Olivia Ausoni of Switzerland in the national slalom. Eddy Rominger, also of Switzerland, captured the national men's slalom.

As for distance and cross-country skiing, Sweden dominated. Nils Karlsson of Sweden won the European 31-mi. marathon and 11-mi. cross-country events. Sweden's Sven Israelsson won the combined jump and cross-country in the Holmenkollen, Norway, meet. Laurie Huuke, 42-year-old Finn, from Sudsbury, Ont., won the Canadian cross-country.

In sectional jumping events, Arthur Devlin of Lake Placid, N.Y., dominated by annexing the Torger Tokle memorial and the Norge jumps. He set a record leap of 203 ft. at the 41st Norge event—at Fox River Grove, Ill. Erik Lindstrom, four-time Swedish jumping champion, won the Beloit, Wis., meet, while Vincent Kasky of Greenfield, Mass., gained the Roosevelt title.

Lindstrom also won the central U.S. title at St. Paul, Minn.

Led by the Wurtele twins, Canada overshadowed the United States in women's team competition. Rhona Wurtele won the eastern amateur downhill and combined, while her sister Rhoda captured the slalom. Georgette Thiolliere won the European women's title and went on to dominate the Harriman cup trials at Sun Valley, Ida.

As a climax of national ski competition, the U.S. Olympic team was named. Members were: Ralph and Walter Bietila, Sverre Fredheim, Joe Perrault, Arthur Devlin and Gordon Wren. (M. P. W.)

Skin Diseases: *see* DERMATOLOGY.

Slate. Sales of the various forms of slate in the United States were as follows, in thousands of short tons:

	1946	1945	1944	1943	1942
Roofing	56.2	38.2	32.8	35.4	71.4
Millstock	12.2	11.5	12.4	16.0	18.7
Flagstones	27.9	20.0	15.8	22.0	16.9
Total	96.3	69.7	61.0	73.3	107.0
Granules	513.8	374.8	309.2	292.3	356.5
Flour	149.7	107.4	107.7	103.2	127.2
Total	663.5	482.2	416.9	395.5	483.7
Grand total	759.8	551.9	477.9	468.8	590.7

The postwar building boom enabled the slate industry to make a new record high in 1946, for the first time after 1924. (G. A. Ro.)

Slovakia: *see* CZECHOSLOVAKIA.

Smith, Walter Bedell (1895–), U.S. Army officer, was born on Oct. 5 in Indianapolis, Ind. After the U.S. entered World War I, he joined the army. He served overseas in 1918 and later returned to Washington for duty in military intelligence. Smith was with the war department general staff (1939–42), was promoted to the rank of brigadier general in 1942 and was made U.S. secretary of the combined chiefs of staff.

During the African invasion, Smith became chief of staff to Gen. Dwight D. Eisenhower and remained with him throughout World War II. In Oct. 1945, he was made a major general (permanent).

On Feb. 14, 1946, Pres. Harry S. Truman named him ambassador to the Soviet Union. In an effort to improve soviet-U.S. relations, Smith urged Foreign Minister Vyacheslav Molotov to give consideration to nine U.S. proposals for cultural exchanges with Russia; the Russians rejected one proposal but failed to answer the eight others.

Smith formally protested against a soviet article criticizing Pres. Truman, declaring Sept. 23, 1947, that the article was a "personal insult" to Truman. Molotov, however, denied that his government had any responsibility for articles appearing in the Russian press, thus rejecting the protest.

Smith College. At Smith college for women in Northampton, Mass., a new curriculum, instituting a unified education with stress upon general culture, went into effect in 1947 with the class of 1951. Interdepartmental courses in the social and natural sciences were established and one in the humanities is to follow in 1948.

During 1947 the college had four groups of students studying in other countries: one in France with 34 students, one in Geneva, Switz., with 37 students, one in Mexico with 14 students and one in Italy with 12 students. The exchange of students with the University of Toronto continued. The intensive method of instruction is carried on generally in the language departments.

The graduate school had an enrolment of 147 students. The Smith college school for social work held its ten-week summer session on the campus with an enrolment of 148 students. The Smith college genetics experiment station, under the direction of Dr. Albert Francis Blakeslee, continued in its sixth year. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (E. Low.)

Smithsonian Institution. This institution was founded in Washington, D.C., in 1846 through the bequest of James Smithson, an English scientist, "for the increase and diffusion of knowledge among men." The governing body is the board of regents, comprising the vice-president of the United States, the chief justice, three senators, three representatives and six eminent private citizens. The executive officer is the secretary. Dr. Alexander Wetmore was the secretary in 1947. The institution administers ten government bureaus—the National museum, the National Collection of Fine Arts, the Bureau of American Ethnology, the International Exchange service, the National Zoological park, the Astrophysical observatory, the Freer Gallery of Art, the National Gallery of Art (with separate board of trustees), the National Air museum and the Canal Zone biological area. The purposes of the institution are carried out by research, exploration and publication.

With the beginning of the institution's second century came a gradual resumption of its normal activities in research and exploration that during World War II had been largely suspended. The year saw the newly created National Air museum still in the formative stages. Visitors to the Smithsonian group of buildings totalled 2,353,377 for the fiscal year 1947.

The National museum accessioned approximately 757,000 new specimens during 1947—about twice as many as during the previous year—many of these resulting from Smithsonian field expeditions. Anthropological field parties worked in the West Indies, in Guatemala and in the Missouri basin; biological expeditions visited India, Bikini, St. Vincent in the British West Indies, Colombia, Guatemala and Panamá; geological field work was entirely in the United States—in Arkansas, Oklahoma, Texas, New Mexico, Nevada, Utah, Wyoming, Virginia and Tennessee.

The Bureau of American Ethnology conducted an archaeological survey, in co-operation with the National Geographic society, of the Pacific coast of the state of Chiapas, Mexico, locating one site that might prove to contain the earliest remains yet known from southern Mexico and Central America. Another bureau project was a survey of the prehistoric settlement patterns of the Virú valley in northern Peru, as a part of a co-operative study of this area. The Institute of Social Anthropology continued its co-operative work in teaching and field work in Colombia, Mexico and Peru. The river basin surveys, organized as a unit of the bureau in 1945 to locate the archaeological sites that would be flooded by construction of dams by the bureau of reclamation and the army engineers, conducted field work in the Missouri basin, Georgia, Virginia-North Carolina, Texas, California and the Columbia-Snake basin.

The International Exchange service handled during 1947 a total of 703,798 packages of scientific, governmental and literary publications, weighing 773,975 lb. A large proportion of the war accumulation was shipped out during the year, and current consignments were forwarded again to all countries except Rumania.

The Astrophysical observatory continued its intensive study of the solar radiation, establishing a new observing station in Miami, Fla. Measurements of sun and sky radiation at Camp Lee, Va., were continued in connection with war department studies of fabric deterioration. The observatory's division of radiation and organisms concentrated its research activities on studies of photosynthesis and of plant growth and development as influenced by light.

The Smithsonian library accessioned 9,644 volumes, bringing its total holdings to 933,997. The institution issued during the fiscal year 1947 a total of 69 publications in its various series; worthy of special mention are H. Helen and Frances L. Clayton's *World Weather Records, 1931–1940,* Robert Ridgway and Herbert Friedmann's *Birds of North and Middle America* (part 10), Elmer D. Merrill and E. H. Walker's *A Botanical Bibliography of the Islands of the Pacific* and a scholarly *Descriptive and Illustrative Catalog of Chinese Bronzes,* compiled by the staff of the Freer Gallery of Art. (A. WT.)

Snyder, John Wesley (1896–), U.S. government official, was born June 21 at Jonesboro, Ark. He attended Vanderbilt university, Nashville, Tenn., 1914–15, and in 1917 he joined the army and was promoted to artillery captain. While in France, he met Capt. Harry S. Truman and after the war the two became friends. Following the armistice, Snyder entered the banking profession. Snyder, who held several important posts in government agencies from 1930 to 1943, left the government in early 1943 to return to private banking, but was called back by Pres. Truman in April 1945 to become federal loan administrator. Three months later, he was named director of the Office of War Mobilization and Reconversion and in June 1946, he was appointed secretary of the treasury.

In 1947, Snyder opposed the Knutson tax-reduction proposals, asserting that federal spending could not be lowered enough to permit a "proper" payment on the public debt. His views on the tax question were clarified Oct. 29 when he declared that the administration should not contemplate a tax-reduction program until congress decided how much it would spend under the Marshall plan for European recovery. Although there were earlier reports that Snyder was not in agreement with the Marshall plan, he hastened to deny this publicly June 25.

On Nov. 13, Snyder was appointed by Truman to the National Security Resources board.

Soap, Perfumery and Cosmetics. The best estimates within the industry were that total sales of cosmetics and perfumes in the United States during 1947 would run 8%–10% less than the sales during 1946 of approximately $700,000,000. Any such figure would still be far more than the pre-World War II level. However, the producers of men's toiletries, which enjoyed a spectacular increase in volume during the war years, found their business, which had levelled off in 1946, declining in 1947. On the other hand, certain new specialties enjoyed phenomenal growth in 1947. Notable among these were such hair preparations as those for home permanent waving, which it was estimated would total $50,000,000–$60,000,000 for the year, or at least double 1946. Hence, while the over-all decline might prove to be only 8%–10%, the decline in standard, established lines would be greater.

It is especially noteworthy that in a year of generally rising and inflationary prices, producers' prices of such standard items as face powder, lipstick, creams and manicure preparations were in 1947 at the same level that they were 15 years before. No better testimony to the intensely competitive character of these industries could be given; especially since during the same era costs had not stood still. The situation had, in short, nearly arrived at the economists' undesirable and incommensurable goal, where the only profit left was the wages of labour. Despite the fact that sales in 1947 nearly doubled those of 1938, conditions within the industries during 1947 were far from healthy or happy.

Despite continuing shortages and high prices of fats and oils there were no consumer shortages of soaps during 1947, as conditions at the close of 1946 had indicated there might be. Deliveries of soaps other than liquids were reported for the first nine months at more than 2,000,000,000 lb., a figure somewhat higher than for the corresponding period in 1946, al-

though still less than for any other comparable period back to 1938. The fact that other detergents continued to make progress in consumer markets probably had a restraining influence on the price structure.

In France the perfumery industry made little progress. Hopes of invading the American market did not materialize to any serious extent. All materials, domestic as well as imported, continued scarce and at staggeringly high price levels. Natural musk, for example, sold at 11 times the prewar price. By April 1947, 600 of the 2,400 French perfume manufacturers had gone out of business and it was expected that another 600 would shut down by the end of the year.

In Great Britain the mid-year financial crisis combined with already excessive production costs to constrict still further the drive for export trade which had been steadily dwindling despite the fact that the government made an extra inducement for export sales in the form of proportionate additional domestic (*i.e.*, profitable) sales quotas. (H. T.)

Soapstone: *see* TALC.

Soccer. The Ponta Delgada team of Fall River, Mass., returned soccer supremacy to the east with a double as National Open and Amateur Cup champions. In league competition, the Swedish-Americans of Chicago topped the National circuit in the major division, while Philadelphia won the American league title. The Pittsburgh, Pa., Indians won the North American professional league crown.

The National Junior cup was annexed by the Heidelberg, Pa., Soccer club. Magyars A. C. won in the Los Angeles city league; the Vikings captured the San Francisco cup, and the American A. C. Teutonia of San Francisco won the California state championship.

The English cup went to the Charlton Athletics, while the Liverpool Football club won the English league. The Glasgow Rangers captured the Scottish cup, and the French title went to Lille. (M. P. W.)

Socialism. Socialists throughout the world in 1947 continued their work for democratic socialism, as an alternative to capitalism, on the one hand, and to soviet communism, on the other.

The most significant advances toward democratic socialism during the year were made in Great Britain. On Jan. 1, 1947, the coal mines of Britain were transferred to the National Coal board, a public corporation. During the year the government nationalized cable and wireless services and passed acts for the public ownership of the railroads and other forms of inland transportation, and for the public management of the entire electrical power system and of atomic energy activities. It extended controls over the planning of cities, towns, and residential, industrial and agricultural areas, and over the direction of labour to essential industries. It enacted comprehensive social insurance and health service acts, expanded the British educational system and created a ministry of economic affairs, headed by Sir Stafford Cripps, with a view to long-term economy planning.

In Australia during the year, the federal parliament, controlled by labour, passed legislation for the taking over of private trading banks.

In Norway, the socialistic Labour government, as a result of legislation passed in 1946, greatly expanded public operations in the iron, steel, power and aluminum industries, began the construction of whole towns in the devastated Finnmark area, and co-operated with other Scandinavian countries in the formation of a Scandinavian air service.

In Denmark, the Social Democratic party in the Oct. 18 election increased its representation in the lower chamber from 48 to 57 (out of 149), while the Communists lost half of their 18 seats. Folowing the elections, Hans Hedtoft, Social Democrat, was appointed premier, and a Social Democratic cabinet was formed, which for the first time after 1934 included a woman member.

In Sweden, in Feb. 1947 a commission of the Social Democratic government recommended the nationalization of the wholesale trade in petroleum and gasoline through a public corporation in which the state would contribute at least 51% of the shares, the consumers subscribing to the balance.

Among the other European democracies, the socialist movement in France occupied during the year a most strategic position. On Jan. 16, 1947, Vincent Auriol, Socialist, was elected president of France and several days later Paul Ramadier, Socialist, was confirmed as premier, succeeding Léon Blum. Ramadier constituted a coalition cabinet of Socialists, Communists and members of other republican parties, but on May 7 dropped from the cabinet the Communist ministers who disagreed with the government's wage-price policy and were active in fomenting strikes among the workers. In the ensuing Socialist congress in August, the party's executive veered to the left. It urged, among other things, that the Ramadier government adopt a system of state control of distribution and compulsory production of essential commodities as a means of stopping inflation.

Ramadier resigned after the municipal elections of Oct. 19 and 26, and Léon Blum was called upon to form a new government. Both Communists and De Gaullists voted against his proposed cabinet, however, and the motion to confirm was defeated by a vote of 300 to 277. The next day Robert Schuman, Popular Republican leader, was elected premier and formed a cabinet containing Socialists, Popular Republicans and other democratic groups.

During the latter part of the year, Socialists within the government sought to prevent Communist-directed strikes from causing the collapse of the French economy and sowing the seeds of civil war. Within the General Confederation of Labour, Socialists likewise strove to wrest the leadership of the trade unions away from the Communists. The Socialist forces in the confederation in late December finally split from this organization, and under the leadership of Léon Jouhaux, secretary-general of the C.G.T. for more than a generation, formed a non-Communist federation.

In Belgium, during late 1946 and early 1947, Camille Huysmans, Socialist, presided over a coalition cabinet composed of Liberals, Socialists and Communists, a coalition of the so-called "left" parties. In March, the Communists brought about the fall of the Huysmans' government and Paul-Henri Spaak, leading Socialist, succeeded in forming a government of Socialists and Catholics, the first such coalition after the Poullet-Vandervelde government of 1925–26. The new government, which excluded Communists from its membership and which commanded more than three-fourths of the seats of both houses, envisaged placing under state control the *Banque Nationale* and the *Societé Nationale des Crédits à l'Industrie*. It likewise favoured an advanced social policy, including workers' participation in industrial organization.

The coalition government of Catholics, Labourites and non-party members continued in the adjoining country of the Netherlands during the year.

The fight between Communists and democratic Socialists played a large role throughout the year in the political life of Italy, which the Russian Communists hoped might become a European outpost of communist-dominated countries.

On Jan. 11, 1947, Giuseppe Saragat, Socialist president of the

constituent assembly, split away from the Socialist party on the ground that it had become a mere adjunct of the Communist party. Following the split, Saragat and 52 of the 116 Socialist deputies, among others, formed the Italian Socialist Workers party. The division in Socialist ranks precipitated the resignation of the Socialist foreign minister, Pietro Nenni, followed by the reorganization (Feb. 2) of another coalition government.

Criticism of Nenni's leadership continued throughout the year within the party. On Oct. 19, a group of left-wing Socialists, led by Ivan Matteo Lombardo, former general-secretary, maintained that the "Unity of Action Pact" between Communists and Socialists had become a "surreptitious fusion," with the result that even the internal life of the Socialist party had become sterile. Nenni (Nov. 21) was defeated in the central committee in his attempt to get Socialists and Communists to unite in a people's bloc for the next general election, but the final decision as to whether the Socialists should campaign alone was left to the party congress in Jan. 1948.

Communists were excluded from the cabinet by Premier Alcide de Gasperi, Christian Democrat, in his cabinet reorganization of June 1. On Dec. 15, in his fifth cabinet, De Gasperi appointed Saragat and two other right-wing Socialist cabinet members, while continuing to exclude the followers of Nenni and of Palmiro Togliatti, Communist leader.

In Germany, the socialist movement during the year was greatly influenced by the type of control of the occupying forces. In the Russian zone, Socialists continued to be subjected to great pressure to join with the Communists in the Socialist Unity party, and were forbidden to form a Social Democratic party.

In the three other zones, the Social Democratic party, led by Kurt Schumacher and claiming a membership of 850,000 played a significant part in the Germany economy. Outside of the Russian zone, the Social Democrats consistently refused to merge their forces with the Communists and vigorously denounced the Communist suppression of civil rights in the soviet zone.

In Austria, the Social Democratic party continued as the second largest party (with 76 deputies as against 84 for the People's party and 5 for the Communists). Dr. Karl Renner, Socialist, continued as president, while several Socialists served as cabinet members. Both Socialist and People's party refused to give the Communists a larger representation in the government, and opposed many policies of the Russian occupying forces.

In Czechoslovakia, one wing of the Social Democrats during the year objected strongly to the action of the president of the party, former Premier Zdeněk Fierlinger, in concluding a Socialist-Communist unity pact. Their protest led on Nov. 16 at the party congress to the defeat of Fierlinger as party president, and to the election of Bohumil Lauschman, minister of industry, by a vote of 280 to 182.

In other countries of eastern Europe, the Socialists had, under Russian pressure, largely lost their independence of movement; in some countries they had been utterly suppressed. In Poland, they were forced into a bloc of "left-wing parties," which, in January, gained an "overwhelming victory" in an election which western countries declared was far from "free and unfettered." The general secretary of the Socialist party, Joseph Cyrankiewicz, became premier during the year in a government dominated by Communists. The party at its December congress, however, refused the Communist request to merge with them. A considerable number of Socialists belonged to a party to which the government refused legal standing. Many of its members and some of the legal party were arrested for "purge" trials. In Rumania, the Communist government in late November began trial against Titel Petrescu and other leaders of the Social Democratic party on the charge of subversive activity—that of distributing party leaflets without having them censored by the government.

In Asia, during the year, Socialists were most active in Japan and India. In Japan, in the April 25 elections for members of the lower chamber of the diet, the Social Democrats emerged as the largest single party, electing 143 out of 466 members and securing 26.2% of the popular vote. Petsu Katayama, Socialist leader, was appointed premier. During the year Katayama's coalition government presented bills, among others, for the state control of the coal mines and for the breaking up of large Japanese industrial and business concerns.

In India, Prime Minister Jawaharlal Nehru, in mid-December, declared that in the future in the Indian union there would be a large measure of socialism in certain basic and key industries. Private enterprise, he maintained, would be continued and perhaps encouraged, but the main tendency would be toward state ownership and control.

On the American continent the Socialist movement, while exerting a considerable educational force, remained, in most countries, politically weak. Socialist party representatives continued during the year their conversations regarding unity with representatives of the Social Democratic federation. On Oct. 15, the S.D.F., however, rejected the Socialist party request for immediate unity though declaring that it believed that ultimate unity between the Social Democratic federation and the Socialist party was desirable. It recommended the continuance of joint relations and joint undertakings "on a nonelectoral nature for the spreading of the philosophy of social democracy," and, outside of New York, it declared, joint senatorial and congressional campaigns should be undertaken where practicable, "where the voters have no true choice between liberal and reactionary labour and antilabour candidates." In New York state the S.D.F. believed, however, that it should continue to work through the Liberal party. The Socialist party during the year, while continuing to work for a new democratic political alignment, believed that it would best serve democracy and socialism by presenting, with such allies as it might win, its own presidential ticket. At the end of the year it rejected support of the third party of Henry A. Wallace because it believed that movement so dominated by Communists as to jeopardize the rise of a new democratic mass party and a desirable political realignment. It supported the Marshall plan provided that the program should not impose U.S. capitalism or imperialism on Europe.

The Co-operative Commonwealth federation (C.C.F.) of Canada, with its control of Saskatchewan and its 28 representatives in the Canadian parliament, continued vigorous activity during the year, and was the host at Toronto in September at a conference of British Commonwealth Labour parties. In South America, little in the way of an organized Socialist movement was in evidence, although the advocates of socialism were prominent in the governments of Peru and Venezuela.

In the international field, several meetings of Socialists were held in Europe with a view to exploring the possibilities of international co-operation. The final meeting of the year was held in Antwerp, Belgium, in late November and early December. It was attended by about 100 delegates and observers from about a score of countries. Leading French and British Socialists were too occupied at home to attend, and the conference was disappointing to Socialist hopes in its discussions and results.

As many delegates came from eastern European countries in which Socialists were under pressure to collaborate with Communist groups, many of the resolutions passed were of a general nature. The conference, however, approved resolutions appealing for Socialist unity, denouncing Franco Spain, international blocs and foreign intervention in Greece, and mildly approving the Marshall plan and other plans for reconstruction. It ad-

mitted representatives of the German Social Democracy as delegates, denied admission to Saragat's party, and classified those sent by the U.S. Socialist party and the Social Democratic federation as observers. Finally, it created a committee for the International Socialist conference, dubbed "Comisco," to distribute information and to call a new conference in the spring of 1948 in Vienna or Rome. (*See* also COMMUNISM; POLITICAL PARTIES, BRITISH.) (H. W. L.; N. T.)

Socialist Soviet Republics: *see* UNION OF SOVIET SOCIALIST REPUBLICS.

Social Security.

The task of rebuilding social-security programs went forward during 1947 in the war-torn countries, while other countries in both hemispheres strengthened or extended existing programs or adopted new measures for protecting wage earners and their families against loss of income through the economic hazards of sickness, physical disability, unemployment, old age or death of the breadwinner. At its fourth session, held early in 1947, the Economic and Social Council of the United Nations initiated specific plans for carrying out its responsibilities.

United States.—No comprehensive changes were made in the Social Security act during 1947, though several amendments were enacted. One extended through June 1950 the temporary increases in federal grants to states for the three public-assistance programs, originally authorized for the period Oct. 1946 through Dec. 1947. Another continued the contribution rates under old-age and survivors insurance at 1% each for employers and employees during 1948 and 1949, and provided for their increase to 1½% in 1950 and to 2% in 1952.

On Jan. 1, survivor benefits based on combined earnings from both railroad employment and employment covered under the Social Security act became payable. This co-ordination of survivor benefits, authorized by an amendment to the Railroad Retirement act in 1946, substantially increased the protection afforded under both acts to survivors of insured workers. Benefits were also paid throughout 1947, under the 1946 amendments to the Social Security act, to survivors of veterans of World War II dying within three years of their discharge from military service. The first payments under the temporary federal program for reconversion unemployment benefits to seamen whose wartime maritime employment was considered federal employment became payable on July 8 for unemployment occurring on or after that date.

In September the senate finance committee appointed an advisory council of 17 members, representing employers, employees and the general public, to assist the committee in a comprehensive study of the Social Security act and of various proposals for its expansion.

Of the major risks to family security, only unemployment was greatly and immediately affected by the economic situation. In 1947 both production and employment were at unprecedented peacetime levels, and unemployment remained close to the "irreducible" minimum. Yet the volume of claims for unemployment benefits was heavier than would have been anticipated for an economy operating at such levels. There was probably less than the usual volume of normal unemployment caused by seasonal changes, inventory taking and the like. One of the other types of unemployment leading to relatively heavy volume of claims was the unemployment of veterans in the process of adjusting to civilian occupations and a peacetime way of life. There was also a certain amount of unemployment of persons displaced from their jobs by veterans or by younger, more efficient workers. Lastly, considerable unemployment stemmed from sporadic layoffs as one industry after another went through the process of stabilizing its production to a peacetime level and as labour disputes interrupted production and caused shortages of materials and parts that affected other industries.

By compensating part of the wage loss from involuntary unemployment, unemployment insurance tided workers and their families over the periods between jobs and helped maintain the stability of the nation's purchasing power. For other millions of persons who for one reason or another could not avail themselves of job opportunities and whose other income could not maintain them, retirement or survivor benefits, financed by the contributions of wage earners and their employers, provided small but steady monthly payments. For other groups of the population who could not qualify for insurance benefits or whose benefits were too meagre to support them and who were unable to work, public assistance was the main or supplementary source of income. The continued rise in prices during the year, moreover, forced many formerly self-supporting persons to turn to public assistance for supplementation of income.

In addition to the insurance and assistance programs for income maintenance, community health and welfare services also played a vital role in fostering economic as well as social security.

Social Insurance and Related Programs.—Most of the U.S. unemployment occurring during 1947 was covered by the state unemployment insurance systems, the federal system for railroad workers or the federal program of readjustment allowances for unemployed veterans. At the end of November 1,225,100 persons insured under these programs were unemployed. Of the $73,330,000 paid in benefits during November, 40% went to unemployed veterans. In Nov. 1946, 56% of the $132,136,000 expended went to veterans.

Monthly benefits under the federal old-age and survivors insurance program of the Social Security act were paid in Nov. 1947 to 1,952,000 beneficiaries, at a monthly rate of $37,712,000. Two-thirds went to retired workers and their aged wives and dependent children; the rest went to the widows, children and parents of deceased insured wage earners.

Monthly retirement, disability and survivor benefits were also paid in November to beneficiaries under the railroad retirement program (280,000) and veterans' programs (3,265,000). The number of railroad beneficiaries was about 48% greater than in Nov. 1946, largely because monthly survivor benefits became payable on Jan. 1. Retirement or disability pensions went to about 120,000 former federal employees under programs administered by the civil service commission and to about 195,000 persons protected by state and local government plans; in addition, survivors of about 35,000 persons were receiving monthly payments under the latter plans.

Aside from the disability payments mentioned, the only other government programs compensating for wage loss from disability were workmen's compensation, in effect in all states but Mississippi, and temporary disability programs in Rhode Island and California for workers covered by the state unemployment insurance law and unemployed because of sickness.

Assistance and Welfare.—Despite the record national income in 1947, the average worker could buy less with his earnings because of price increases. One result was a lessening of ability to contribute to the support of needy relatives. This factor, combined with less favourable employment opportunities for workers with only marginal skills, caused a significant increase in the number of applications for old-age assistance, aid to the blind and aid to dependent children, the three public-assistance programs financed jointly by the federal government and the states and localities, under the Social Security act. Additional federal funds made available in 1946 enabled states to increase individual payments and bring them more in line with the rise in living costs, and some states were able to assist needy

persons who previously could not be aided because of limited state and local funds.

In Nov. 1947, about 2,324,000 needy persons aged 65 or more were receiving old-age assistance, at an average payment of $36.91 a month. More than 1,000,000 children in almost 411,000 families were receiving aid to dependent children; the average payment was $62.64 per family and $24.60 per child. The assistance payment to the 63,500 recipients of aid to the blind in the 47 states administering programs under the Social Security act averaged $39.74. These averages, applicable to the country as a whole, masked wide differences in the amounts paid in the various states—differences which reflected both the ability of the state and counties to finance assistance and the standards prevailing in the state. Another factor in state variations was the coverage limitations on federal old-age and survivors insurance. Since coverage of the insurance program was restricted to workers in industry and commerce, the predominantly agricultural states had more assistance recipients in relation to total state population and to insurance beneficiaries than did the industrialized states.

Other needy persons who could not qualify under one of these special assistance programs were cared for by general assistance, financed without federal participation. In November general assistance payments went to 340,000 cases, at an average payment of $41.21 per case.

The aggregate amount expended in the month for assistance in all four programs from all sources—federal, state and local—was $128,700,000.

The rise in costs of goods and services also affected the adequacy of health and welfare services in the country. Among these services were the maternal and child health and child welfare services, financed by federal grants of $22,000,000 under the Social Security act. Of this amount, certain portions of which must be matched by states, $11,000,000 was authorized for maternal and child health services, $7,500,000 for services for crippled children and $3,500,000 for child welfare services. (*See* also LAW; RELIEF.) (A. J. A.)

Canada.—The Old Age Pensions act was amended effective May 1, to increase the amount of the pension payable both to aged and to civilian blind persons, to reduce the pensionable age for the blind from 40 years to 21 years and to increase the amount of allowable income a pensioner might have without reducing his pension. The amended act obligated the federal government to pay 75% of the net cost of pensions up to a maximum of $30 per month per pensioner in place of the previous $25 per month and left the provinces free to pay additional amounts over the rate as they saw fit. An unmarried old-age pensioner could have an over-all income, including pension, of $600 per year instead of the former maximum of $425. A married pensioner was allowed $1,080 a year, including pension.

Maximum income for an unmarried blind pensioner was increased from $500 to $720 per year, including pension. Maximum income for a married blind pensioner was increased to $1,200.

On Sept. 30, 1947, pensions were being paid to 215,889 aged persons and 7,476 blind persons.

The Family Allowances act continued without change during 1947, although alterations in the income tax laws resulted in approximately 56,000 additional children being enrolled for family allowances early in the year. Total payments for the calendar year to 1,633,675 families were $261,772,929, with the allowance per child averaging slightly less than $6.

By order-in-council on Dec. 3, to take effect on Jan. 1, 1948, unemployment insurance coverage was extended to include employees paid by the month and earning less than $3,120 per year (the previous figure had been $2,400). The change put monthly paid employees on the same basis as weekly paid employees. Alberta began free medical and hospital care for recipients of old-age, mothers' and blind pensions.

Ontario increased relief to unemployables (estimated total 16,000) throughout the province, bringing them up practically to the same scale as old-age pensioners. Municipalities were authorized a 10% increase in food allowances to such unemployables and their dependents, the province contributing half; and an allowance of $1 a month for "incidentals" (to include tobacco) was also permitted. (C. CY.)

Great Britain.—The most important development during 1947 was the introduction of the National Assistance bill in November, which broadly completed the social-security system based on the Beveridge plan. The new scheme of assistance was in two main divisions; financial assistance for all who would be in need, which became the responsibility of the Assistance board (renamed the National Assistance board) applying scales of need under new regulations to be approved by parliament after the bill became law; and greatly improved and extended welfare services which would become the responsibility of the larger local authorities. This scheme finally eliminated what remained of the old poor law, which was replaced by comprehensive assistance services of modern conception.

Any person whose needs were not fully met by national insurance benefits or pension, or who was outside the insurance scheme, would receive monetary assistance from the National Assistance board. Complementary welfare services would be provided by the local authorities, but the National Assistance board would have the responsibility for the social rehabilitation of vagrants.

An important feature of the bill was the provision for aged persons requiring other than monetary assistance. The old system of workhouses or public assistance institutions would disappear and be replaced by small homes established by the welfare authorities. The homes would be for 25 persons to 30 persons, and would provide cooking, laundry and similar services while allowing the maximum of individual privacy. The local authorities would charge for this accommodation with a minimum which old-age pensioners would be able to meet from their pensions, and have a balance of five shillings per week for incidental personal expenses. Those not on full pensions or with no pension would be put in a position to meet the minimum charges by the National Assistance board. Great importance was attached to this departure from the artificial economy of institutional relief, which had long been held to be one of the worst features of the poor law. For the future the aged who needed special care would themselves pay for this and would live as normal members of the community.

It was intended that the new assistance scheme should become operative concurrently with the national insurance scheme in July 1948. Consequently, 1947 was largely a period of preparation, altogether a formidable task; the number of those embraced by the old insurance schemes rose from 21,000,000 in 1939 to 24,000,000 in 1947, and the number of beneficiaries under the contributory pensions scheme from 3,500,000 to about 4,500,000.

Following the arrangements made in 1946 for increased rates of old-age pensions to pensioners retiring from work, the section of the main insurance act, which permitted individual extension of the statutory period of unemployment benefit, was also brought into operation. This arrangement was made to meet circumstances in certain areas where unemployment had been prolonged by the dislocation of industry in the changeover from war to peacetime conditions.

Another important phase in the evolution of social security

was a commonwealth conference held in London to consider reciprocal national insurance arrangements between the commonwealth countries. Similar discussions were held in Paris with the French government. (J. McAt.)

Social Service: *see* CHILD WELFARE; RELIEF; SOCIAL SECURITY.

Societies and Associations.

The following is a selected list of U.S. societies and associations, with date of founding, membership, officers and chief activities during 1947. (*See* also the separate articles on AMERICAN LEGION; BOY SCOUTS; RED CROSS; YOUNG MEN'S CHRISTIAN ASSOCIATION; etc.)

American Academy of Arts and Letters.—An organization founded in 1904 by the National Institute of Arts and Letters for the furtherance of literature and fine arts in the United States. Membership is limited to 50 persons chosen only from the institute. At a special academy meeting on May 22, 1947, medals were awarded, 15 arts and letters grants of $1,000 each were given to artists, writers and musicians; and new members of both the academy and the institute were inducted. Election of three new members—John Dos Passos, Mahonri M. Young and John Taylor Arms—was announced on Nov. 25. Officers elected for 1948 were: Walter Damrosch, president; James Truslow Adams, chancellor and treasurer; Van Wyck Brooks, secretary. Publications include the *Yearbook* and an art exhibition catalogue. Headquarters: 633 W. 155th St., New York 32, N.Y.

American Academy of Political and Social Science.—The academy was founded in 1889 to provide a public forum for discussion of national and world questions through the agency of meetings and publications. Membership in 1947 totalled about 13,000. The organization's 51st annual meeting was addressed by Lord Inverchapel, Britain's ambassador to the U.S. The *Annals* is the academy's bimonthly publication. Officers (1947): Ernest Minor Patterson, president; J. P. Lichtenberger, secretary, and Charles J. Rhoads, treasurer. Headquarters: 3457 Walnut St., Philadelphia 4, Pa.

American Association for the Advancement of Science.—A scientific association whose membership in 1947 totalled 32,000. It publishes *Science*, a weekly scientific journal for specialists; *The Scientific Monthly*, a non-technical, illustrated scientific journal, and (1947) technical symposium volumes on *Dental Caries and Fluorine* and *Approaches to Tumor Chemotherapy*. Officers (1947): president, Harlow Shapley; administrative secretary, Forest Ray Moulton; treasurer, William E. Wrather, and chairman of the executive committee, James B. Conant. Headquarters: 1515 Massachusetts Ave., N.W., Washington 5, D.C.

American Association of Law Libraries.—The association, founded in 1906 and incorporated in 1935, has for its objective the fostering of "the development of law libraries in the United States and Canada, through establishing and maintaining standards for libraries and librarians; to publish in its official organs material of professional interest and value." The association in 1947 had 307 regular members, 14 life members and 42 associated members. Publications: *Law Library Journal*, a quarterly, and *Index to Legal Periodicals*, which is issued 11 times yearly with quarterly, annual and triennial cumulations. Officers (1947): president, Laurie H. Riggs; secretary-treasurer, Helen M. S. Helmle of 393 Seventh Ave., Room 1506E, New York city.

American Bankers Association.—This national bankers organization, founded in 1875, had a membership in 1947 of more than 15,800 banks, representing more than 96.6% of U.S. banks in number and more than 99% of the entire banking resources of the nation. Its primary objective is "to promote the general welfare and usefulness of banks and financial institutions." Educational activities of the association include the American Institute of Banking for bank personnel and the Graduate School of Banking for bank officers. During the year 80,000 persons held memberships in the A.I.B. and more than 41,000 banking people had enrolled in courses given in many cities. Publication: *Banking*, a magazine. President (1947): Joseph M. Dodge of the Detroit bank, Detroit, Mich. National headquarters: 12 E. 36th St., New York city.

American Bar Association.—Founded in 1878 to advance the science of jurisprudence and promote the administration of justice, the society's membership (as of June 30, 1947) was 40,223. The Ross prize of $3,000 went to William Tucker Dean for his essay, "How Can International Legislation Best Be Improved?" The annual medal for conspicuous service to the cause of U.S. jurisprudence was awarded to William L. Ransom. Publications: *The American Bar Association Journal*, a monthly; an annual volume of reports and proceedings and various pamphlets. Officers (1947): Tappan Gregory, president; Joseph D. Stecher, secretary, and Walter M. Bastian, treasurer. Headquarters: 1140 N. Dearborn St., Chicago, Ill.

American Bible Society.—Founded in 1816 for the purpose of encouraging a "wider circulation of the Holy Scriptures without note or comment," the society in 1947 had a membership of about 100,000. The society was active in aiding translators of the Bible, and in publishing, distributing and encouraging its use, with special emphasis on supplying Bibles to Germany, Japan, Korea and the Philippines. Publication: *The Bible Society Record*, issued ten times a year. President (1947): Daniel Burke. Headquarters: 450 Park Avenue, New York 22, N.Y.

American Chemical Society.—Organized in 1876, the society's objectives are to encourage the advancement of chemistry, to promote research in chemical science and industry and to improve the qualifications and usefulness of chemists. Membership (as of Oct. 1, 1947) was 54,849. Outstanding activities during 1947 were the two annual meetings. The society also participated in several international chemical congresses and contributed $25,000 to the United Nations Educational, Scientific and Cultural organization to assist foreign students of chemistry studying in the U.S. Publications: *Chemical and Engineering News, The Journal of the American Chemical Society, Chemical Abstracts, Industrial and Engineering Chemistry, Analytical Chemistry, The Journal of Physical and Colloid Chemistry, Chemical Reviews, The Journal of Chemical Education, Rubber Chemistry and Technology*. Officers (1947): president, W. Albert Noyes, Jr.; executive secretary, Alden H. Emery; treasurer, Robert T. Baldwin. Headquarters: 1155 16th St., N.W., Washington 6, D.C.

American College of Dentists.—The college was founded in 1920 to promote the ideals of the dental profession, advance the standards and efficiency of dentistry, stimulate graduate study and efforts by dentists and improve public understanding and appreciation of oral health service. Membership in 1947 included 1,328 active fellows and 22 honorary fellows. A convocation was held in Boston, Mass., on Aug. 3. *The Journal of the American College of Dentists* is issued quarterly. Officers (1947) were: Dr. L. R. Main, president; Dr. O. W. Brandhorst, secretary; Dr. Harold S. Smith, treasurer. Office of the secretary was at 4952 Maryland Ave., St. Louis, Mo.

American College of Life Underwriters.—Incorporated in 1927, the college grew out of the needs for efficient life underwriting. To obtain the C.L.U. designation, candidates must pass five examinations and satisfactorily complete three years of business experience. In 1947 there were 2,999 holders of the C.L.U. designation; another 4,496 held partial credit. Publications: *Annual Announcement; C.L.U. Study Supplements*. Officers (1947): president, S. S. Huebner; chairman of the board, Julian S. Myrick; dean, David McCahan. Headquarters: northeast corner 36th and Walnut streets, Philadelphia 4, Pa.

American College of Surgeons.—Founded in 1913, the college has as its objectives the establishment and maintenance of an association of surgeons for the advancement of surgery and the ethical and competent practice of surgical arts. Membership in 1947 totalled 15,600. Publications include *Surgery, Gynecology and Obstetrics* and a quarterly bulletin. Officers for 1947 included: Dr. Arthur W. Allen, president; Dr. Dallas B. Phemister, treasurer; Dr. Paul B. Magnuson, secretary. Headquarters: 40 E. Erie St., Chicago 11, Ill.

American Economic Association.—This professional association of economists was founded in 1885 to encourage economic research, publications on economic questions and freedom of economic discussion. It consisted in 1947 of 5,300 members and 2,200 library, corporate and individual subscribers. The program of the annual meeting, held at Chicago, Ill., Dec. 28–31, 1947, was integrated around two problems: competition and monopoly; and the economic and monetary theories of J. M. Keynes. The Francis A. Walker medal was awarded to Wesley C. Mitchell and the J. B. Clark medal to Paul A. Samuelson. Publications: *American Economic Review* (quarterly); *Papers and Proceedings*. Officers (1947): Paul H. Douglas, president; James W. Bell, secretary-treasurer. Headquarters: Northwestern university, Evanston, Ill.

American Geographical Society of New York.—This society was founded in 1852 to promote geographical research and exploration and the dissemination of geographical knowledge. In 1947 drafting was completed of the two North American sheets of the *Map of the Americas*, of which the three Latin-American sheets were published in 1942; progress was made on the revision of the 107-sheet *Map of Hispanic America;* a completely revised edition of *Aids to Geographical Research*, by John K. Wright, was published; and the Ronne Antarctic Research expedition was sponsored. Membership in 1947 was 4,476. Publications: *The Geographical Review* (quarterly); *Current Geographical Publications* (monthly); *Monograph Series*. Officers (1947): president, Richard Upjohn Light; director, John K. Wright. Headquarters: Broadway at 156th St., New York city.

American Historical Association.—This association was founded in 1884 for the purpose of promoting historical studies, collecting and preserving historical manuscripts and for other activities in the interests of U.S. history and history in the U.S. It was incorporated by act of congress in 1889. The association publishes *The American Historical Review*, a quarterly; an annual report and selected historical monographs. The annual meeting was held in Cleveland, O., Dec. 27–29, 1947. Officers (1947) included: Thomas J. Wertenbaker, Princeton university, president; Guy Stanton Ford, executive secretary; Solon J. Buck, treasurer. Headquarters: Library of Congress Annex, Washington, D.C.

American Institute for Property and Liability Underwriters, Inc.—This institution was incorporated in 1942 for the purpose of establishing educational standards for qualified property and casualty underwriters with the view toward their recognition as professional Chartered Property Casualty Underwriters. To attain the C.P.C.U. designation, candidates must pass five examinations and satisfactorily complete three years of business experience. During 1947, 455 candidates took 861 examinations in 38 states; 145 persons held the C.P.C.U. designation. The *Annual Announcement* covered the objectives and activities of the organization. Officers (1947): chairman of the board, S. S. Huebner; president, H. P. Stellwagen; dean, Harry J. Loman. Headquarters: Hamilton court, 39th and Chestnut streets, Philadelphia 4, Pa.

American Institute of Accountants.—A national society of certified public accountants, the A.I.A. was founded in 1887 to maintain high standards of education and practice for the profession and to develop the techniques of accounting and auditing to serve the public interest. Its membership in Sept. 1947 was 10,963. During the year, the A.I.A.'s committees continued its work toward improvement in the federal income-tax system. The society also prepared the official examinations for 44 states, the District of Columbia, the four territories and the treasury department. Publications: *The Journal of Accountancy*, a monthly magazine, and *The Certified Public Accountant*, a monthly news bulletin. Officers (1947): president, George D. Bailey of Detroit, Mich.; treasurer, Charles H. Towns of New York city, and secretary, John L. Carey of New York city. Headquarters: 13 E. 41st St., New York city.

American Institute of Chemical Engineers.—This organization was founded in 1908 for the advancement of chemical engineering in theory and practice and the maintenance of a high professional standard among its members. Members in 1947 totalled 7,570. Publication: a monthly, *Chemical Engineering Progress*. Officers (1947) included: Charles M. A. Stine,

president; C. R. DeLong, treasurer; Stephen L. Tyler, secretary and executive secretary. Headquarters: 50 E. 41st St., New York city.

American Institute of Electrical Engineers.—The society, founded in 1884 for the advancement of the theory and practice of electrical engineering and allied arts and sciences, totalled 27,490 members as of Aug. 1, 1947. Activities during the year included four national and two district meetings and co-operation with other engineering societies in many activities. The institute's sections in 1947 numbered 80 and it had 127 student branches. Publications: *Electrical Engineering,* a monthly, *Transactions* and *Year Book,* both issued annually. Officers (1947): president, B. D. Hull of Dallas, Tex., and H. H. Henline, secretary. Headquarters: 33 W. 39th St., New York 18, N.Y.

American Institute of Mining and Metallurgical Engineers.—An organization founded in 1871 to promote the arts and sciences connected with the economic and scientific search for, production of and use of minerals, including metals, coal, petroleum and other nonmetallic minerals. Membership in 1947 was 17,500. The institute celebrated its 75th anniversary in New York city at a three-day meeting. Publications include *Mining and Metallurgy,* a monthly; five volumes of *Transactions* published in 1947 and various periodicals. Officers: Clyde Williams, president, and A. B. Parsons, secretary. Headquarters: 29 W. 39th St., New York 18, N.Y.

American Iron and Steel Institute.—This organization was incorporated in 1908 to provide for the mutual exchange of information and experience, to encourage and co-ordinate industry research, compile statistics and promote the use of iron and steel. Membership in 1947 included 109 company members, 500 associate members, 1,516 active members, 42 emeritus members and 9 honorary members. Outstanding research developments included use of high-pressure blast in blast-furnace operation and use of oxygen in the steel open hearth. Publications: *Steelways,* bimonthly; *Steel Facts,* bimonthly; *Yearbook* and numerous other works. Officers (1947): president, Walter S. Tower; treasurer, Harold L. Hughes, and secretary, George S. Rose. Headquarters: 350 Fifth Ave., New York city.

American Law Institute.—Founded in 1923 to promote clarification and simplification of the law and its better adaptation to social needs, to secure the better administration of justice and to encourage and carry on scholarly and scientific legal work. During 1947 the institute co-operated with the National Conference of Commissioners on Uniform State Laws in the drafting of a uniform commercial code. The institute agreed at its annual meeting to revise some sections of its work, *Restatement of the Law.* Membership in 1947 comprised 832 elected members (of which 52 were also ex-officio members) and 249 ex-officio members. Officers (1947): Harrison Tweed, president; William Dean Embree, treasurer, and Herbert F. Goodrich, director. Headquarters: 3400 Chestnut St., Philadelphia 4, Pa.

American Mathematical Society.—This society was founded in 1888 for the purpose of encouraging and maintaining an active interest in mathematical science. Membership in 1947 was 3,400. Publications: *Bulletin of the American Mathematical Society, Transactions of the American Mathematical Society, Mathematical Reviews, Colloquium Publications* and *Mathematical Surveys.* Officers (1947): president, Einar Hille of Yale university; secretary, J. R. Kline, University of Pennsylvania. Headquarters: 531 W. 116th St., New York city.

American Society of Civil Engineers.—The society was founded in 1852 for the purpose of advancing the sciences of engineering and architecture. Membership, as of Nov. 1947, was 22,060. Professional activities of the society were directed through its headquarters, its professional committees, technical divisions and student chapters in 125 engineering colleges. Publications include *Proceedings* (monthly), *Transactions* (yearly), *Civil Engineering* (monthly) and a *Yearbook.* Officers (1947): E. M. Hastings, president; William N. Carey, executive secretary. Headquarters: 33 W. 39th St., New York 18, N.Y.

American Society of Mechanical Engineers.—A national organization whose membership of 23,500 in 1947 was grouped into 20 professional divisions covering all phases of mechanical engineering. The society's work was carried on by its 71 sections in the U.S. and Canada. Student branches were also maintained in 122 engineering schools. The society held five meetings and completed organization of its Nuclear Energy Application committee. Publications: *Mechanical Engineering,* monthly; *Journal of Applied Mechanics,* quarterly; *Transactions,* eight times yearly; *A.S.M.E. Mechanical Catalog and Directory,* annually. Officers (1947): Eugene W. O'Brien, president; Clarence E. Davies, secretary. Headquarters: 29 W. 39th St., New York city.

American Society of Tool Engineers.—An educational body, the society was founded in 1932 to disseminate information regarding and pertinent to tool engineering. In 1947 membership was 18,072. Publications during the year were *The Tool Engineer, Tool Engineer's Handbook, Data Sheets* and various textbooks on tool engineering. Officers (1947): president, W. B. Peirce; executive secretary, Harry E. Conard; treasurer, V. H. Ericson, and secretary, W. A. Dawson. Headquarters: 1666 Penobscot building, Detroit 26, Mich.

Anti-Saloon League of America.—Organized in 1895, interdenominational and nonpartisan in character, this national federation of state temperance organizations intensified its temperance activities in 1947, with principal emphasis on its youth education program. Other activities consisted of support of extension of no-licence areas through local option and where local option was not permitted, the league sought to obtain the right to such a vote. It supported a program to conserve food through curtailing production of alcohol as a means of meeting the world food shortage. It also supported a bill before congress designed to prohibit advertising of alcoholic beverages. Officers (1947): Bishop Ralph S. Cushman, president; Laura Lindley, research secretary. Headquarters: 131 B St., S.E., Washington, D.C.

Brookings Institution.—A nonprofit organization devoted to research and training in the field of economics and government, it was founded in 1916. The institution is supported by grants from foundations, its own endowment and income from the sale of publications. Its 1947 publications included: *The Guarantee of Annual Wages* by A. D. H. Kaplan; *The Aluminum Cartel* by Louis Marlio; *A National Labor Policy* by Harold W. Metz and Meyer Jacobstein and a study guide, *Major Problems of United States Foreign Policy,* prepared by the staff of the International Studies group of the institution. Officers (1947): Harold G. Moulton, president; Henry P. Seidemann, treasurer; Elizabeth H. Wilson, secretary, and Darrell Hevenor Smith, executive manager. Headquarters: 722 Jackson Place, N.W., Washington 6, D.C.

Buhl Foundation, The.—Established in 1927, the foundation has granted to existing (or especially established) agencies a total of $5,155,000 for the promotion of nationally significant programs in the Pittsburgh district —in regional economic, historical and social research, in higher education and in research in the natural sciences. The foundation's $1,700,000 Chatham Village, a pioneering demonstration of large-scale planned residential community building for long-term investment, has received international recognition. Foundation assets in 1947 were $12,900,000. Director: Charles F. Lewis. Headquarters: Farmers Bank building, Pittsburgh 22, Pa.

Carnegie Trusts.—*Carnegie Corporation of New York,* established in 1911, with an endowment of $135,000,000, makes grants to institutions and agencies whose activities aim at the advancement and diffusion of knowledge among peoples in the U.S. and the British empire. During 1946–47, grants totalling $4,468,047 were appropriated for other Carnegie agencies, colleges and universities and various agencies. The other five separately administered Carnegie organizations in the U.S., founded before the corporation for specific purposes, are:

Carnegie Institute of Pittsburgh (1896), comprising a museum of fine arts, a music hall, a museum of natural history and a public library.

Carnegie Institution of Washington (1902), devoted to scientific research; by 1947 it had expended about $50,000,000 in its program.

Carnegie Hero Fund Commission (1904), established to recognize heroic acts performed throughout the U.S., Canada and Newfoundland; from 1904 it had awarded 3,473 medals and a total of about $7,000,000 in pecuniary awards.

Carnegie Foundation for the Advancement of Teaching (1905), established to provide retiring pensions for teachers and to advance higher education, paid $1,899,867 in such allowances in 1947, raising the cumulative expended total to $51,977,286.

Carnegie Endowment for International Peace (1910), established to serve the purpose indicated by its name, continued in 1947 to promote international understanding and further the general cause of peace.

Catholic Community Service, National.—An agency founded in 1940 to promote the spiritual, educational, recreational and welfare needs of men and women in the armed forces and war production workers and their families. Activities in 1947 were adjusted to meet the country's changeover from a war to peace economy and society. Publications include: *NCCS,* a monthly magazine, *NCCS Newsletter,* a house organ, and various pamphlets. James S. Mitchell was executive director in 1947. Headquarters: 1312 Massachusetts Ave., N.W., Washington 5, D.C.

Catholic Library Association.—An international organization of librarians, educators and others interested in promoting Catholic literature and Catholic library work. Membership in 1947 totalled 1,434. Publications include: *Catholic Library World,* the official publication; *Catholic Periodical Index; Catholic Supplement to Standard Catalog for High School Libraries* and *Catholic Booklist.* Officers (1947): president, Brother A. Thomas, librarian, Manhattan college, New York city; secretary-treasurer, Laurence A. Leavey, Manhattan college, New York city. Headquarters: Manhattan college, New York city, *pro tem.*

Commonwealth Fund, The.—An endowment, established in 1918 by Mrs. Stephen V. Harkness "to do something for the welfare of mankind." Appropriations for the year ending Sept. 30, 1947 were $1,614,442.58. Activities tending to promote or maintain physical or mental health accounted for more than 75% of this sum. The fund in 1947 sought to put more emphasis on problems of personality and emotion adjustment in relation to medicine and gave fellowships for training physicians in psychiatry and psychotherapy. Malcolm P. Aldrich was president of the board of directors in 1947; the general director was Donal Sheehan. Headquarters: 41 E. 57th St., New York city.

Daughters of the American Revolution, National Society of.—A historical, educational and patriotic society founded in 1890, whose activities are conducted by 22 national committees and whose membership in 1947 totalled about 158,000, in 2,600 chapters. The D.A.R. owns and operates 2 schools and gives support to 12 approved schools. It has an extensive education program intended to advance U.S. music, give educational and practical assistance to American Indians and enable deserving students to continue their higher education through administration of a student loan fund. A large genealogical library of more than 38,000 volumes is maintained in Washington, D.C. Publications include: *National Defense News,* appearing five times yearly; *Daughters of the American Revolution Magazine,* a monthly. Officers (1947): Mrs. Roscoe C. O'Byrne, president general. Headquarters: 1720 D St., N.W., Washington 6, D.C.

Elks, Benevolent and Protective Order of.—A fraternal order organized in 1868 "to practise charity, justice, brotherly love and fidelity; to promote the welfare and enhance the happiness of its members; to quicken the spirit of American patriotism." In 1947 the Elks had 1,500 lodges with 900,000 members, spent more than $5,000,000 on charity and increased the fund of the Elks National foundation, which is expended on scholarships, care of tuberculars, crippled children and like philanthropies, to nearly $2,000,000. Publications: the *Elks Magazine,* a monthly. Officers (1947): grand exalted ruler, L. A. Lewis of Los Angeles, Calif.; Grand Secretary, J. E. Masters of Chicago, Ill. Headquarters: Elks National Memorial Headquarters Bldg., 2750 Lake View Ave., Chicago 14, Ill.

Falk Foundation, The Maurice and Laura, of Pittsburgh, Pa., was founded in 1929 for the purpose of bettering the lot of mankind. In 1947 the foundation gave grants of $110,500 to economic research organizations and $120,000 for distribution of reports of studies made by economic research organizations and for production and distribution of moving pictures in the field of economic education. Publications (financed by the Falk foundation) in 1947 were: by National Bureau of Economic Research, *Output and Productivity in the Electric and Gas Utilities, 1899–1942* and *Trends in Output and Employment;* by Committee on Public Debt Policy, *Our National Debt after Great Wars, Our National Debt and the Banks, Our National Debt and Interest Rates* and *Our National Debt and the Budget;* by the Brookings institution, *A National Labor Policy* and *The Guarantee of Annual Wages;* by Committee on Postwar Tax Pol-

icy, *A Tax Program for a Solvent America—1947*. Officers (1947): Leon Falk, Jr., chairman; I. A. Simon, secretary; Arthur E. Braun, treasurer, and J. Steele Gow, executive director. Headquarters: 1911 Farmers Bank building, Pittsburgh 22, Pa.

Freemasonry (MASONIC FRATERNITY).—The chief problem of freemasonry in 1947 was the re-establishment of the fraternity in countries where it had been suppressed prior to and during World War II. In practically all European countries which were under axis control during the war, and in the far east, especially in the Philippines, grand lodges and many constituent lodges had been re-formed and were functioning. In other European countries, as well as in the U.S., Canada, Central and South America, Australia and New Zealand, progress was normal. The record of freemasonry in 1947 was one of substantial support to continued belief in the universal human desire for brotherhood and an indestructible determination to perpetuate its survival.

Guggenheim Memorial Foundation.—The John Simon Guggenheim Memorial foundation was established in 1925 for the advancement of research in all fields of knowledge and for creative work in the arts. The foundation in 1947 had an endowment of $23,142,755.78. During the year, it awarded 122 fellowships with grants of $310,000 and also granted 29 Latin-American fellowships with stipends totalling $80,000. Officers (1947) were: Mrs. Simon Guggenheim, president; Otto L. Myers, treasurer, and Henry Allen Moe, secretary. Headquarters: 551 Fifth Ave., New York city.

International College of Surgeons.—Founded in 1935 in Geneva, Switzerland, this organization has for its objective creation of a common bond among surgeons of all nations and promotion of high surgical standards throughout the world without regard for race, creed or colour. Membership in 1947 was about 3,500 in 29 countries. Publication: *The Journal of the International College of Surgeons*. Officers (1947): president, Dr. Albert A. Berg of New York city; international secretary general, Dr. Max Thorek of Chicago, Ill. Headquarters: 1516 Lake Shore drive, Chicago, Ill.

Kiwanis International.—Founded in 1915, Kiwanis International consists of representative business and professional men who strive, through the agency of weekly meetings, to give leadership for improvement of their communities and for other worth-while services. Membership, as of Nov. 15, 1947, totalled 180,000 distributed in 2,710 clubs. Kiwanis activities in 1947 included distribution of free lunches for needy children and other forms of child welfare help, giving vocational guidance to students, assisting veterans with housing problems and participating in "Get Out the Vote" campaigns. Publications: *The Kiwanis Magazine, Monthly Club Bulletin* and others. Officers (1947): Dr. Charles W. Armstrong, president; J. Belmont Mosser, treasurer, and O. E. Peterson, secretary. Headquarters: 520 N. Michigan Ave., Chicago 11, Ill.

Knights of Columbus.—A fraternal order organized in 1882, dedicated to preservation and championship of Catholic and U.S. principles. Membership as of June 30, 1947, was 681,480. The organization, which held its 65th annual convention in Boston, Mass. (Aug. 19–21), continued its campaign for a trust fund for Catholic college training for children of members left fatherless as a result of World War II. Its series of six 15-min. recordings on communism were broadcast over 311 radio stations in North and Central America. Publications: *Columbia*, a monthly, and *News*, a weekly. John E. Swift was supreme knight in 1947. National headquarters: 45 Wall St., New Haven 7, Conn.

League of Women Voters of the United States.—The league was founded in 1920 to promote political responsibility through informed and active participation of citizens in government without supporting or opposing any particular party or candidate. Membership in 1947 totalled 72,000. During the year local and state groups worked to improve their local and state governments through campaigns for better government machinery. Publications in 1947 included: *How the Wheels Go 'Round; Displaced Persons and U.S. Immigration Policy; Uncle Sam's Finances; The Public Interest in Atomic Energy; Current Housing Legislation*. Officers (1947): Anna Lord Strauss, president; Mrs. James G. Scarborough, secretary, and Mrs. Leonard Haas, treasurer. Headquarters: 726 Jackson Place, N.W., Washington 6, D.C.

Lions Clubs, International Association of.—This organization was founded in 1917 as a nonpolitical, nonsectarian association of service clubs whose purpose was to recognize and meet the needs of the community. During 1947 it completed 85,067 activities which may be classified under 8 classifications: boys and girls; citizenship and patriotism; civic improvements; community betterment; education; health and welfare; safety; sight conservation and blind. Membership in 1947 totalled 350,000 in 6,500 clubs in 19 countries. Publications: *The Lion; El Léon* (Spanish); *Lions International Monthly Letter*. Officers (1947): president, Fred W. Smith, Ventura, Calif.; secretary general, Melvin Jones, Chicago, Ill. Headquarters: 332 S. Michigan Ave., Chicago 4, Ill.

Music Library Association.—This organization was founded in 1931 to promote the establishment, growth and use of music libraries and collections in the U.S. and Canada. Membership in 1947 was about 750. It publishes *Notes*, the quarterly journal, and *Music and Libraries*, a collection of essays. One of its projects in 1947 was an index to music periodicals which at that time consisted of 400,000 cards based upon 99 music periodicals. H. Dorothy Tilly, Detroit Public library, was president in 1947; the secretary-treasurer was Mary R. Rogers, Library of Congress, Music Division, Washington 25, D.C.

National Academy of Sciences.—A scientific body incorporated by an act of congress in 1863 for the purpose of investigating and reporting upon scientific subjects as called for by any department of the U.S. government. Total membership (as of Aug. 22, 1947) was 407. During the year, the academy issued a number of grants and medals. Officers (1947) included: president, Alfred N. Richards; treasurer, J. C. Hunsaker, and executive secretary, Raymund L. Zwemer. Headquarters: 2101 Constitution Ave., N.W., Washington 25, D.C.

National Association of Manufacturers.—Founded in 1895, the N.A.M. is the spokesman of industry before the national government and its congressional and administrative agencies. Membership in 1947 totalled 16,500 manufacturers producing 80% of all U.S. goods and employing 75% of industry's workers. Publications include the *NAM News*, a weekly, a supplement analyzing and digesting labour rulings and a wide variety of booklets on economic and national affairs. Officers (1947): Earl Bunting, president; Robert R. Wason, chairman of the board, and Noel Sargent, secretary. Headquarters: 14 W. 49th St., New York city.

National Association of State Libraries.—Founded in 1889, the association has as its objective the providing of the benefits of interstate co-operation in administration of state libraries. Membership in 1947 included 44 state libraries. Publications include: *Check Lists of Session Laws, Statutes, Legislative Journals and Collected Documents* and *Proceedings of Annual Meetings*. Officers (1947) included: president, Dennis A. Dooley of Massachusetts; secretary-treasurer, Alfred Decker Keator of Pennsylvania.

National Lawyers Guild.—Founded in 1937, the guild is an association of lawyers who believe that human rights are more sacred than property rights, that civil liberties of all the people must be defended from invasion from any source and that the law should be made a living and flexible instrument of progress and equal justice. Membership in 1947 was approximately 4,000. Publications include: *National Lawyers Guild Review* (bimonthly), *National Guild Lawyer* (quarterly). Officers (1947): Robert W. Kenny, president; Robert J. Silberstein, executive secretary, and Abraham Pomerantz, treasurer. Headquarters (1947): 902 20th St., N.W., Washington 6, D.C.

Performing Right Societies.—A world-wide confederation of composers, authors and publishers of musical works whose chief purpose is the licensing to commercial interests of the right to perform publicly the copyrighted work of their members. The largest and most influential member of the confederation is the American Society of Composers, Authors and Publishers (A.S.C.A.P.), which was founded on Feb. 13, 1914, and whose membership in 1947 included about 1,890 composers and authors and 309 publishers. The income of this nonprofit voluntary association is derived from issuing licences to commercial establishments for the public performance for profit of copyrighted musical works of its members. Officers included (1947): Deems Taylor, president; George W. Meyer, secretary. A.S.C.A.P. headquarters: 30 Rockefeller Plaza, New York 20, N.Y.

Research Libraries, The Association of.—Founded in 1931, the association includes 45 of the largest research libraries in the United States and Canada. It seeks by co-operative effort to develop and increase the resources and usefulness of research collections in U.S. libraries. Its publications include *Doctoral Dissertations Accepted by American Universities* (periodical); *A Catalog of Books Represented by Library of Congress Printed Cards*. A *Reprint of the British Muscum Catalogue* was in the process of publication. Officers in 1947 included: Charles W. David, the executive secretary, and an advisory committee of five members. Headquarters: University of Pennsylvania, Philadelphia, Pa.

Rockefeller Foundation.—The foundation was chartered in 1913 and is concerned with problems in the medical, natural and social sciences, the humanities and public health. Except to a limited extent in public health, the foundation is not an operating organization. Its activities are confined to support of other agencies and to the training, through postdoctoral fellowships, of competent personnel in the various fields of knowledge. Publications: *The President's Review* and *The Annual Report*. Officers (1947): Raymond B. Fosdick, president; Thomas B. Appleget, vice-president, and Norma S. Thompson, secretary. Headquarters: 49 W. 49th St., New York city.

Rosenwald Fund, The Julius.—The fund was founded in 1917 for the purpose of improving the conditions of disadvantaged groups in the U.S. population, especially Negroes, with the view toward their full participation in U.S. life. It was expected that by June 30, 1948, the fund would have completed its work, having expended about $23,000,000 for education, health and other philanthropies. Officers (1947) were: Edwin R. Embree, president; Will W. Alexander, vice-president, and Dorothy A. Elvidge, secretary and comptroller. Headquarters: 4901 Ellis Ave., Chicago, Ill.

Rotary International.—A world-wide organization of Rotary clubs made up of groups of representative men for the purpose of furthering co-operation and good will in business and community life. Membership in Rotary, first organized in 1905, was as follows, on Nov. 3, 1947: 305,000 distributed in 6,301 clubs in 80 countries and geographical regions. Activities in 1947 centred principally on child welfare and student assistance, with special attention given to advancement of international good will and understanding. Publication: *The Rotarian*. Officers (1947–48): S. Kendrick Guernsey, U.S., president; secretary, Philip Lovejoy, U.S.; treasurer, Richard E. Vernor, U.S. Headquarters: 35 E. Wacker drive, Chicago, Ill.

Russell Sage Foundation.—This foundation was established in 1907 "to promote the improvement of social and living conditions in the United States." Of the income from the endowment of $15,000,000, disbursements in the fiscal year ending Sept. 30, 1947, amounted to $527,000, of which $150,000 was in the form of grants to organizations in the fields of social work, social research, health, housing and city planning. The foundation maintains a research staff, the results of whose studies are made available through publications, conferences and consultation service. Publications during 1947 included: *The Miners' Case* by Edward A. Wieck; *Social Work Year Book, 1947* (ninth edition), edited by Russell H. Kurtz; *Your Community* by Joanna C. Colcord, revised edition by Donald S. Howard. Officers (1947): president, Morris Hadley; acting general director, Ralph G. Hurlin. Headquarters: 130 E. 22nd St., New York 10, N.Y.

Spelman Fund of New York.—The Spelman Fund of New York was incorporated in 1928. The charter provides that the fund "is formed for exclusively charitable, scientific and educational purposes, including the advancement and diffusion of knowledge concerning child life, the improvement of interracial relations and cooperation with public agencies." From 1930 the fund's program had been directed toward co-operation with public agencies for the advancement of public administration. Its interest in this field is expressed through support of activities of public and quasi-public agencies engaged in making significant results of current administrative experience generally available to public officials; in developing improved methods and putting them to practical use and in experimenting with new devices and procedures under actual operating conditions. Charles E. Merriam was chairman in 1947. Headquarters: 783 Fifth Ave., New York, N.Y.

Theatre Library Association.—This association, an affiliate of the Ameri-

can Library association, was founded in 1937 for the purpose of preserving and making accessible to the public the records of the drama and kindred fields of entertainment. Membership in 1947 was 190. The official publication is *Broadside,* issued quarterly; a sponsored publication is *Theatre Annual.* Officers (1947): president, George Freedley, New York Public library; secretary, and editor of *Broadside,* Mrs. Sarah Chokla Gross; treasurer, Mrs. Elizabeth P. Barrett, New York Public library. Headquarters: Theatre Collection, New York Public library, New York 18, N.Y.

Twentieth Century Fund.—Organized in 1919 by Edward A. Filene, the foundation serves a threefold purpose: research, policy formation and public education on current economic operations. During 1947 the fund continued its efforts to bring about greater public understanding of trouble areas in industrial relations and a more constructive approach in dealing with them. A special research staff and committee produced a survey, *Rebuilding the World Economy,* which detailed the role of the United States in foreign trade and investment. *America's Needs and Resources* was also published during 1947. Officers: John H. Fahey, president; Morris E. Leeds, treasurer; Evans Clark, executive director. Headquarters: 330 W. 42nd St., New York 18, N.Y.

Woman's Christian Temperance Union, National.—The union was founded in 1874 to unite the Christian women of the Untied States to rally public opinion to the standard of total abstinence from all alcoholic liquors. Activities during 1947 included two summer schools on alcoholic education, publication and distribution of thousands of pamphlets, circulars and posters and extensive work among young people. Publications include *Union Signal* (weekly) and *Young Crusader,* a monthly for children. Officers (1947): Mrs. D. Leigh Colvin, president; Lily Grace Matheson, corresponding secretary; Violet T. Black, treasurer. Headquarters: 1730 Chicago Ave., Evanston, Ill.

Women's Clubs, General Federation of.—Founded in 1890 for the purpose of uniting women's clubs throughout the world for the promotion of education, philanthropy, public welfare, moral values, civics and fine arts. The federation in 1947 was composed of 3,000,000 members in 17,000 clubs. Activities during the year centred on services for children and young people, organization of health institutes, programs to strengthen the U.N., raising of scholarship funds and contributions for foreign relief. Publication: *General Federation Clubwoman,* a magazine. Officers (as of June 1947): president, Mrs. J. L. Blair Buck; recording secretary, Mrs. Earl Shoesmith; treasurer, Mrs. Charles Fuller. Headquarters: 1734 N St., N.W., Washington, D.C.

Zionist Organization of America.—This organization was founded in 1897 to further the upbuilding of Palestine as a Jewish commonwealth and to promote the interests of the Jewish renaissance. Among the constituent bureaus of the organization are: membership; Palestine bureau; American Zionist fund; education; radio; films; Hebrew university scholarship; veterans; Unity committee. The organization's president testified before the United Nations hearings in 1947 as a representative of the Jewish people. Membership in 1947 was 232,864. Publications include: *The New Palestine; Dos Yiddishe Folk; Palestine Yearbook.* Dr. Emanuel Neumann was president in 1947. Headquarters: 41 E. 42nd St., New York 17, N.Y. (*See* also PALESTINE.)

Sociology.

Among the currents in sociology, it was possible to trace the following in 1947: (1) the continuing coalescence of social psychology, social and cultural anthropology and sociology into a more inclusive science of social relations; (2) some evidence of sentimental archaism in the attempted revivals of thinkers recently regarded in some quarters as of historical relevance only; (3) interest in philosophy of history, theory of history, or historical sociology stimulated by Somervell's summary of Arnold J. Toynbee's *A Study of History;* (4) a wide array of books and articles of somewhat *ad hoc* character; and (5) studies in the methods and techniques of the social sciences in general and of sociology in particular. Taking these in order, the outstanding literature included the following:

Fusion.—What had been called "the anthropological approach" within the framework of a comprehensive science of social relations was evidenced in a monograph by Leighton and Kluckhohn, *Children of the People,* a follow-up of their earlier work, *The Navaho.* Field observation and a series of tests provided the data, but the integrated theoretical scheme lacked adequate empirical support at several points. A not altogether dissimilar approach, presented under a different name, was represented in the four special symposium issues of the journal *Sociometry,* although the testing apparatus was more elaborate and was focused on a number of additional points.

Single articles of general "social relations" type were very few; the only one of importance was that by Homans, "A Conceptual Scheme for the Study of Social Organization" in the *American Sociological Review;* it derived primarily from Henderson's interpretation of Pareto, and drew heavily on the work of other Henderson-influenced researchers of Harvard. Textbooks in this field were published by Cuber, Hiller and Sorokin. The first two offered little that was essentially new, and Sorokin's textbook was really a treatise systematizing the theoretical framework that pervaded his other writings. Whatever its shortcomings, the volume reached a high level of abstraction, was carefully integrated, and made readily available a number of novel insights and formulations. Overshadowing Sorokin's contribution, however, was the monumental work of Max Weber, *The Theory of Economic and Social Organization,* published in translation by Henderson and Parsons. Here a real foundation for a science of social relations was presented.

Revivals.—Revivals of thinkers judged to be of sociological significance were best exemplified by Max Horkheimer's *Eclipse of Reason,* in which Hegelianism was persuasively recommended. Horkheimer's political leanings toward the German Social Democratic tradition, with its reverence for Hegel as interpreted by Marx, accounted in large measure for his special emphasis. In the pages of the Stalinist journal, *Science and Society,* numerous articles of similar type appeared—with, of course, a Communist rather than a Social Democratic orientation. A slashing attack on this general line of analysis which also enjoyed some vogue in Britain although not popular among intellectuals on the continent, was delivered by Lundberg in his "Sociology versus Dialectical Immaterialism" (*American Journal of Sociology*). Lundberg was undoubtedly nettled by Marxist attacks on his positivism, but altogether apart from the intruding personal note, the article was an acute appraisal and rejoinder.

History and Sociology.—Historical sociology enjoyed much public interest because of the 1947 Toynbee fad. Dating from 1934–36, his six-volume treatise came to attention in 1947 because of an adroitly advertised one-volume abridgement. The work was hailed as a crushing refutation of Marx, but Marx had been crushingly refuted many times before. Toynbee's real significance lay in his masterly descriptions and analyses of various ethnic and cultural groups such as the Spartiates, the Jews, or the Turks, rather than in his comprehensive but highly speculative theodicy. In the midst of a welter of enthusiastic reviews and commentaries, those by Hicks (*Harper's,* Feb. 1947) and Barnes (*Am. Sociol. R.*) preserved balanced judgment, although Barnes was perhaps too harshly adverse.

Subjects of Immediate Interest.—Among publications dealing with contemporary problems having some sociological relevance, probably the most attention-compelling were those having to do with housing. "The American Family and Its Housing" was the title of an entire issue of the *Am. Sociol. R.,* and a similar emphasis was reflected in the programs of several sociological conventions. Juvenile delinquency and family instability brought forth the usual large crop of texts, monographs and articles, among the most interesting of which were Hills's "The American Family: Problem or Solution," (*Am. J. Sociol.*) and Bossard's "The Role of the Guest: A Study in Child Development" (*Am. Sociol. R.*). The one major attempt to integrate theory and research published during the year, Zimmerman's *Family and Civilization,* was severely criticized as nostalgic and theoretically inadequate.

During 1947 ethnic conflicts ("race problems") caused much uneasiness, and the Social Science Research council financed a bulletin entitled *The Reduction of Intergroup Tensions.* A new series of books on "Peoples of America," aimed in a similar direction, was inaugurated by Arnold Mulder's *Americans from Holland.* The traditional melting-pot theme was used to integrate the facts. Frazier's article, "Sociological Theory and Race Relations," was one of the few good guides for analysis. Among the more definitely factual studies, McCormick and Hornseth's "The Negro in Madison, Wisconsin" offered several interesting conclusions. Industrial unrest and related matters, crystallized for the public in the Taft-Hartley act, were scientifically dis-

cussed in Warner and Low's *The Social System of the Modern Factory*.

Somewhat belatedly following the wave of general interest, there appeared a study entitled *Public Reactions to the Atomic Bomb and World Affairs*. Almost $25,000 was spent on this by the S.S.R.C.; it consisted essentially of a public opinion poll of 600 individuals interviewed before and after the Bikini bomb tests. There was some attempt at explanation of the answers elicited. Cantril, Herring, Likert, and Cottrell, the last as chairman, formed the research committee. Ogburn, likewise concentrating on matters of current interest, brought out *The Social Effects of Aviation*. Because of security regulations, it was apparently impossible to devote attention to aviation in relation to possible future warfare. The book was well-financed, and was a convenient summary of masses of empirical evidence, although analytically it had little to offer. Some light was thrown on the nature of large-scale research of the kinds just mentioned in Bendix's article "Bureaucracy: The Problem and Its Setting" (*Am. Sociol. R.*).

An article evidencing much individual initiative was Davis's "Some Sources of American Hostility to Russia" (*Am. J. Sociol.*). Abounding in analytic leads, it could readily have been turned into a large-scale research project which might have avoided bureaucratic handicaps.

A study of large-scale type which was markedly successful was the presidential committee report on civil liberties in the United States, *To Secure These Rights*. Prepared by a citizens' committee backed up by a group of social scientists who assembled the data, it had more copies distributed than any other government report in the preceding decade—not excepting Smythe's work on the atomic bomb.

Evidence of widespread uneasiness at the postwar turmoil could be inferentially gleaned from the large number of books and articles extolling the small community, with its presumable neighbourhood cohesion, as a cure-all for a wide variety of symptoms of social disorganization. Although not a professional sociologist, Hicks presented a book along these lines which was widely read and which, with a few reservations, can be strongly recommended. The drawbacks of the small community when it is extremely isolated were interestingly pointed up in an outstanding article by Peter Munch, "Cultural Contacts in an Isolated Community—Tristan da Cunha" (*Am. J. Sociol.*). Studies of other communities in which isolation was in some sense disrupted were to be found in a report covering South Seas natives under U.S. rule, *Economic and Human Resources of Micronesia,* United States Commercial company. Six of the 26 volumes of this microfilmed report were by social scientists; it was made available in its entirety by the Library of Congress. As a mine of empirical evidence and suggestions for further analysis, it had high likelihood of future use. Much the same, *mutatis mutandis,* could be said of the 10 volumes of the *War Relocation Authority Monographs*.

Methods and Techniques.—Timasheff's "Definitions in the Social Sciences" (*Am. J. Sociol.*) was a much-needed corrective of the loose practices widely evident, and Adler's "Operational Definitions in Sociology" (*Am. J. Sociol.*) was an amusing and trenchant attack on the basic absurdity of operationism. Winch's "Heuristic and Empirical Typologies" (*Am. Sociol. R.*) was an interesting effort to show that factor analysis might be of value in type construction and use. Showing much more penetration and knowledge of basic literature was Goode's "A Note on the Ideal Type" (*Am. Sociol. R.*). In fact, Goode's discussion had most of the merits called for in Ogburn's "On Scientific Writing" (*Am. J. Sociol.*)—an article, incidentally, which betrayed a marked lack of interest in precise analysis at the level of verbal symbolism. In the several articles by Hart and associates on verifiability ratings in the social sciences (*Am. Sociol. R.* and *Am. J. Sociol.*) only the visual symbolism of mathematics, especially in the ordinary statistical formulas, received adequate attention.

Valuable mathematical innovations, focusing on a highly relevant problem, were presented in Guttman and Suchman's "Intensity and a Zero Point for Attitude Analysis" (*Am. Sociol. R.*). These writers, sociologists as well as statisticians, were keenly aware of the pitfalls as well as the possibilities of polling techniques. Another worthwhile mathematical contribution was Hornseth's constructive criticism (*Am. Sociol. R.*) of Jahn, Schmid, and Schrag's "The Measurement of Ecological Segregation" (*Am. Sociol. R.*).

In Latin America, sociological teaching and research were vigorously prosecuted. The quarterly journal in English edited by Laszlo Radvanyi, *The Social Sciences in Mexico and South and Central America,* made its first appearance in May. The *American Sociological Review* also had a good article on sociology in Peru. Barnes and Becker's *Social Thought from Lore to Science,* containing chapters on sociology in the Iberian peninsula and Latin America, appeared in Spanish translation.

Sociology in France was furthered by the establishment of the Centre d'Études Sociologiques at Paris. The *Cahiers Sociologiques* continued to appear under the editorship of Gurvitch. German sociology made progress through resumption of publication of the *Cologne Quarterly* under Wiese's editorship, and the establishment of a series of sociological sourcebooks and monographs—the *Civitas Gentium* series—edited by Solms of Marburg.

In Britain the year was signalized by the publication of Ginsberg's *Reason and Unreason in Society,* Marshall's *Sociology at the Crossroads,* and the first issue of a new journal, *Human Relations,* published jointly by the Tavistock Institute of Human Relations, London, and the Research Center for Group Dynamics, Massachusetts Institute of Technology. A useful brief survey of the social sciences in the Soviet Union was presented by Barrington Moore, Jr., in the *American Sociological Review*. In Japan, a notable event for sociology was the first postwar number of *Social Research*. In June the sociologists, together with five other social science societies, held their first postwar convention in Tokyo. (H. Bec.)

Sodality of Our Lady. The year 1947 brought to the 14,438 sodalities of the United States two new monthly periodicals: *Action Now,* issued for adult sodalists, and the *Junior Sodalist,* for elementary school aged sodalists. *The Queen's Work* was changed in format and its content geared to the "Queen's Teens."

A new department for men's sodalities was set up at the central office (3115 So. Grand Blvd., St. Louis 18, Mo.) under the direction of former chaplain Rev. F. L. Zimmerman, S.J., and a new visual educational department was established under the guidance of Rev. Robert E. Southard, S.J.

International collaboration continued: Revs. J. Roger Lyons, S.J., and Aloysius J. Heeg, S.J., of the central office in St. Louis took part in the international sodality convention in Barcelona, Spain, as the two official delegates from the United States. Dorothy Willmann participated in the first postwar congress of the Section de Jeunesse, Union International des Ligues Femininines Catholiques in Rome, Italy, and was re-elected to the executive council of the organization.

Seven summer schools of Catholic Action were held in St. Louis, Boston, Montreal, St. Paul, San Antonio, New York and Chicago. These drew a record total attendance of 14,257. The Garvey collection, only Catholic collection of interracial and Negro progress, begun in 1914 by Rev. A. J. Garvey, S.J., was

donated to the sodality central office. It numbers 26,000 books, brochures and magazines. Renewed activity was concentrated on weekend conventions and institutes throughout the U.S., directed by Rev. Daniel A. Lord, S.J., national organizer, and other members of the staff.

Along with emphasis on the spiritual aspect of the Sodality of Our Lady (established in 1563) of honouring the Blessed Mother of God and of intensifying the spiritual life of individual members, the central office encouraged a stronger and more militant apostolate along wider spheres of social and economic studies and projects. The theme for World Sodality day, observed throughout the world on the second Sunday of May, exemplified this through its 1947 slogan: "To Christ through Mary by an intelligent, militant apostolate."

(D. J. W.)

Sodium Carbonate. The United States more than doubled its output of natural sodium carbonate in the decade ending with 1946, reaching 215,625 short tons during that year, against 194,045 tons in 1945. There is a minor production of the natural salt in Canada, which dropped from 286 tons in 1945 to none in 1946 and 136 tons in 1947.

(G. A. Ro.)

Sodium Sulphate. The production of natural sodium sulphate in the United States rose from 178,196 short tons in 1945 to 198,781 short tons in 1946. In Canada the natural sulphate output increased from 93,068 short tons in 1945 to 105,919 short tons in 1946 and 136,150 short tons in 1947. (G. A. Ro.)

Softball. Both the Fort Wayne, Ind., Zollners in the men's and the Jax Maids of New Orleans, La., in the women's division repeated as victors in the finals of the 1947 national amateur softball championship at Cleveland, O. The Jax Maids, however, turned professional immediately after the tournament and the title was awarded to the Phoenix, Ariz., team. In the All-American Girls' Baseball league, the Grand Rapids, Mich., Chicks won the playoff, defeating Muskegon, Mich., in the final. The Parichy Bloomer Girls of Forest Park, Ill., captured both the league and playoff divisions of the National Girls' Baseball league. (M. P. W.)

Soil Erosion and Soil Conservation. In 1947 various countries reported a serious lack of trained soil conservation scientists and technicians for adequate staffing of land conservation programs. Especially was this true where programs were well organized and funds available for supplying landholders with technical assistance in planning farms for permanent conservation agriculture. Scientists and officials in many parts of the world therefore were taking steps to interest colleges and universities in setting up basic training courses in soil science and ecology in connection with agricultural engineering.

Governments of many countries continued to send selected agricultural scientists to the United States to be trained to act as leaders in various phases of land conservation. In all, about 400-500 foreign agricultural specialists and executives visited the United States in the period 1943–47 for training in soil conservation.

United States.—During 1947 the work of applying all soil and water conservation practices needed for permanent conservation farming and range management was completed on an additional 21,000,000 ac. About 500,000 farmers were carrying out active conservation plans on more than 132,000,000 ac. at the end of the year. Soil conservation surveys, made by the soil conservation service to provide data and information for use in farm planning, had been completed on more than 250,000,000 ac.

As of Dec. 1, farmers and ranchers had organized 1,956 soil conservation districts including 1,041,960,685 ac. and 4,570,655 farms, or more than three-fourths of the agricultural units in the country and its territories.

Strong emphasis was placed by the soil conservation service on perfecting wind-erosion control methods that could be relied on by farmers to prevent serious soil blowing in case of drought. Specialists in wind erosion had concluded, after nearly two decades of study, that soil blowing could be prevented only if precautionary measures were used at all times—in years of adequate rainfall as well as dry years—as an integral part of the farming system. Extensive research over wide acreages had proved that crop-residue management, usually called stubble-mulch farming, was extremely important in controlling soil blowing. By the end of 1947, farmers were using this method on nearly 20,000,000 ac. in soil conservation districts in the great plains grain belt, in the Pacific northwest and elsewhere in the country.

The value of legumes in stubble-mulch farming was demonstrated by experiments carried out in the great plains over a period of years and reported in 1947. Where the soil was provided with nitrogen through growing legumes and subtilling the residue, yields of crops were better than yields from plowing. Corn grown by subtilling sweet clover residue produced five bushels per acre more than corn grown by plowing. On the other hand, on land farmed without legumes, corn yield did not improve by subtilling, a practice especially designed as a precautionary measure against soil blowing. This showed an important connection between legumes in the cropping system in regions where wind erosion was a serious hazard to agriculture.

Studies in South Carolina showed new promise for successful use of crop residues to protect the soils in the southeast. The experiments demonstrated that residues from preceding crops could be maintained on the surface of the soil during growth of corn and oats without depressing the yield of these crops. During a three-year period, average yield of corn per acre following vetch and rye where the surface mulch method was used was 55 bu. Where the residue was plowed under, the average corn yield was 52 bu. per acre. With no cover crop, the yield was 46 bu. per acre. The average per cents of runoff during the corn-growing season were: 3% where vetch and rye residue was retained as a mulch on the surface; 10.7% where it was plowed under and 30.8% where no cover crop preceded the corn. The corresponding soil losses through erosion in pounds per acre were 320; 1,540 and 5,690.

Studies in the corn belt emphasized the importance of maintaining crop rotations, fitted to the land, in corn production. In Iowa land that had been cropped continuously for 15 years yielded only 27 bu. to the acre, while adjoining land which had been farmed during the same period in a rotation of corn-oats-meadow yielded 86 bu. per acre. A part of the low-yielding, nonrotation land was rehabilitated, and the corn yield was raised to 70.6 bu. per acre by one complete three-year rotation. Thus, a single rotation increased corn production threefold on land that had been excessively used for corn production.

In Wisconsin bluegrass pastures renovated with a field cultivator and seeded to alfalfa-brome grass gave a 60% increase in yield. This plowless method of pasture renovation can be carried out with practically no soil loss, although regulated grazing must be practised to prolong the pasture's productive life. Conservation-needs surveys revealed that more than 50,000,000 ac. of pastureland in the northeastern quarter of the United States should be similarly treated to prevent land damage and improve yields.

The soil conservation service carried on flood-control operations on 11 watersheds during 1947. Construction work in cooperation with landowners consisted of gully control, stabilizing waterways and building small dams and other measures designed to prevent flooding of the upper reaches of streams and to protect upland farmland. The drainage basins on which work was in progress comprised nearly 16,000,000 ac. in New York, Pennsylvania, Maryland, Virginia, West Virginia, Tennessee, Mississippi, Texas, Georgia, Iowa, Oklahoma and California.

During 1947 the facilities of the soil conservation service nurseries were used largely for maintaining foundation seed stocks and for quantity production of about two dozen conservation crop plants developed by plant observational studies in the period 1933–46. The total seed production was 422,000 lb., distributed to soil conservation districts for seed increase. In the southeast 730 five-acre seed blocks of one selected grass were established in soil conservation districts in nine states.

Approximately 83 species and strains of erosion-control plants were advanced to the field-trial and seed-increase stage. By 1947, 18 heretofore undomesticated native grasses had been brought into use in the west, with seed available for soil-conservation purposes. They included such important grazing species as blue grama, buffalo grass, western wheat grass, sand love grass and the bluestems.

Canada.—A survey to determine the most serious soil conservation problems of both eastern and western Canada was made during 1946 and reported in 1947 by the national committee on soil conservation. Low fertility, poor drainage and soil erosion were revealed as responsible in large measure for the extremely low crop yields of eastern Canada. Soil loss is heavy on rolling land devoted to grain and intertilled crops, and sheet erosion is common in eastern agricultural areas. Wind erosion in eastern Canada is confined to restricted areas used for production of intertilled crops on sandy soils. At the Ontario Agricultural college (Guelph) a soil-conservation farm-planning program was initiated early in 1947. Other soil-conservation activities in eastern Canada included the making of detailed soil surveys, pasture-improvement programs, soil-erosion experiments to determine actual soil losses under different conditions, field demonstrations on private farms and reforestation of eroded lands by provincial governments and paper companies.

In western Canada, soil conservation work under the Prairie Farm Rehabilitation act consisted of soil-drifting control, regrassing, tree planting, water storage and introduction of conservation tillage methods and crop rotations especially designed to prevent both soil blowing and erosion by excessive runoff. Eighty-nine large irrigation projects and 993 small irrigation projects were in progress, to develop or restore irrigation on about 200,000 ac. Forty-nine community pastures having a total of 1,337,320 ac. had been developed and were in use. At the same time, 18,655 dugouts and 4,178 stockwatering dams had been constructed for water storage in dry areas. Nearly 17,000,000 trees had been planted in the prairie provinces in addition to 713 mi. of field-crop shelterbelts.

Mexico.—Benefits from soil and water conservation were reported in 7 of Mexico's 12 soil-conservation districts. In the Arroyozarco district, 919 dams had been constructed to control 90 torrents, and soils of certain valleys flooded seasonally were being stabilized by planting grasses and legumes, and by use of crop rotations especially designed to improve fertility conditions and increase food-crop yields. Alfalfa was being used on approximately 247 ac. for the first time in the area. About 120,000 fast-growing trees had been planted in large gullies.

In the Malintzin district, covering 285,779 ac. of the state of Tlaxcala, 2,200 water-control structures were built in the latter half of 1946 and in 1947 to control and divert floor waters descending from high plateau lands to agricultural valleys. Seed production work had begun on 120 parcels of land to develop and increase seed stocks of trees, grasses and legumes for planting in the volcanic soils of the region. At the same time, in an attempt to reforest the severely eroded slopes of La Malintzin volcano, the soil conservation service of Mexico initiated an extensive tree-planting program. Dune control work was begun in 1947 for fixation of a moving dune approximately 30 mi. in length at Puerto de Vera Cruz in La Carbonera-Acultzingo soil-conservation district.

Throughout central Mexico, terracing, strip cropping and contouring were widely adopted by growers of cultivated crops. Badly eroded land in the region of San José de la Cumbre, treated with terraces for water control and planted to beans, clover, wheat and pasture crops in 1945–46 produced at an increase in yields amounting to $400 per acre in 1947.

Chile.—An erosion survey revealed that the coastal cordillera of Chile was severely eroded, the province of Concepción being most affected. In the province of Malleco, 60% of the soil had been seriously damaged by erosion after 70 years of cultivation. In the southern regions with semiarid climate, wind erosion was common and had already transformed the mountainous parts into deserts. Much of this land was bared by fire when rich forests were burned to increase production of sheep; hurricane winds starting in the mountains carried the sands and deposited them on the bare slopes surrounding the lakes of the region. In the Chilean Patagonia the excessive overgrazing of sheep and plowing of grasslands had resulted in wind erosion so serious that all topsoil had disappeared, leaving the white subsoil uncovered.

The ministry of agriculture of Chile, through its soil-conservation agency organized in 1946, launched a program of reforestation and regrassing in an attempt to control erosion in the mountainous and semiarid regions.

Brazil.—Soil-conservation methods of improving and protecting cultivated lands were greatly extended in the state of São Paulo during 1947. Excellent contour terracing was done over large areas, with gradient, spacing and waterway systems fitted to various types of slopes and crops. Strip cropping, contouring and gully control, both by structures and planting, were adopted by many farmers. Several million acres of cropland were reported to be under complete soil conservation and, in addition, coffee growers had adopted practices such as contour embankments and cover plantings to control erosion on coffee plantations.

Australia.—Co-ordination of soil conservation, water control and forestry agencies of Australia was announced in Oct. 1947. Approximately £30,000,000 to be used over a period of years had been allocated for the work, £100,000 being spent during 1947. Works already undertaken included building of roads, catchment dams and diversion weirs with necessary channels to store and divert needed water to farmlands, and complete soil-conservation plans for individual farms and ranches in river valleys being treated with water control and supply structures.

Both wind and water erosion were found to be more serious in South Australia than in any other Australian state. Contour furrowing had been adopted by many farmers in water-eroded areas and was particularly effective on the Calca Soil Conservation station, where large areas were reclaimed in 1946 and 1947. Wind erosion, an even greater problem, was being controlled on demonstration farms by planting cereal crops and grasses for permanent pasture.

A law authorizing farmers to include costs of applying soil-conservation practices in income-tax deductions, passed by the Australian congress in 1946, proved an important impetus to the national soil-conservation program throughout 1947.

Africa.—A soil-conservation division was established in the department of agriculture of Belgian Congo in 1947. A program to control erosion by gullying was launched among native farmers, and agriculture students were being trained to act as conservation farm planners in the new agency.

In Southern Rhodesia, an extensive grassland improvement program, embracing the whole province of Mashonaland (more than 50,000,000 ac. in the eastern half of the colony) was started in 1947. Research studies were begun to determine runoff and soil losses with different types of vegetal cover and treatment. Rainfall percolation and soil-moisture studies also were initiated.

Europe.—During 1947 agricultural officials from ten European countries visited the United States for soil conservation training and observation of methods adaptable to European cropland. They represented the following countries: Italy, Switzerland, Spain, Sweden, Yugoslavia, Belgium, France, Portugal, Greece and Cyprus. A survey of farming conditions in marginal land areas of Greece, made by specialists of the U.S. soil conservation service at the request of the Greek government, revealed that advanced soil erosion was responsible in large measure for low yields of food crops throughout much of the country. (*See* also AGRICULTURE; AQUEDUCTS; DAMS; IRRIGATION; METEOROLOGY.) (H. H. BE.)

Solar System: *see* ASTRONOMY.
Somaliland, British: *see* BRITISH EAST AFRICA.
Somaliland, French: *see* FRENCH OVERSEAS TERRITORIES.
Somaliland, Italian: *see* ITALIAN COLONIAL EMPIRE.

Sophoulis, Themistocles (1860–), Greek statesman, was born on Nov. 25 at Vathy, island of Samos (then belonging to the Ottoman empire). An archaeologist and man of letters by profession, he took a prominent part in local politics, heading the patriotic opposition to the Greek governor appointed by the Porte. After the union of Samos with Greece in 1913, he was elected to the Greek parliament where from that time he continuously represented his native island. In the same year he was appointed minister of the interior. A staunch supporter of the Liberal leader, Eleutherios Venizelos, Sophoulis followed him at the time of the Salonika revolution of 1916, returning to Athens after King Constantine had been removed from the throne. He was elected president of the chamber in 1917, a post which he held till the defeat of the Liberal party at the elections of Nov. 1, 1920. In 1924 after Venizelos' withdrawal from politics and the proclamation of the republic, Sophoulis was for a few months prime minister. During the period from 1924 to 1936 he was repeatedly re-elected president of the chamber. After Venizelos' second withdrawal from politics in 1935, Sophoulis succeeded him as leader of the Liberal party. During the period of the Metaxas dictatorship (1936–40) Sophoulis abstained from politics. In 1944 he was arrested by the Germans on suspicion of being in correspondence with the Greek government-in-exile and was detained in the Haidari concentration camp near Athens. After the liberation, he took office as prime minister of a republican cabinet on Nov. 22, 1945. He resigned after the elections held on March 31, 1946, had given the victory to the Populist (Conservative) party. On Sept. 7, 1947, he again assumed the premiership in a coalition government composed of Liberals and Populists.

Sorghum. U.S. production of all sorghum for grain was estimated at 95,609,000 bu., against a total of 106,941,000 bu. in 1946 and the 92,124,000 bu. average for 1936–45. It was the smallest crop after 1940. Most of the decline was in Texas, which ordinarily had amounted to two-thirds of the nation's total; the Texan crop was only 68,313,000 bu. compared with 73,742,000 bu. in 1946.

The total acreage was 5,606,000 in 1947, more than 20% below the 6,773,000 ac. grown in 1946. The yield was 17.1 bu. per acre compared with the average of 15.2 bu., the smaller crop resulting primarily from the smaller acreage. The Arizona crop, while small (2,132,000 bu.), is important because it is mostly used as certified seed. Prices of sorghum grain for feed were around $2 per bushel in January and advanced steadily to $3.29 in August. Exports of sorghum grains amounted to a record of about 25,000,000 bu. in 1946–47. The amount used for alcohol and other nonfeed purposes was small in 1947. (*See* also SYRUP, SORGO, AND CANE.) (J. C. MS.)

South Africa, British: *see* BRITISH SOUTH AFRICAN PROTECTORATES.

South Africa, The Union of. A self-governing dominion of the British commonwealth of nations. The four provinces of which it consists, the Cape of Good Hope, Natal, the Transvaal and the Orange Free State, extend from the southernmost point of the African continent to the Limpopo in the north. The former German colony of South-West Africa (area 317,725 sq.mi., pop. est. 1941: European 33,600; Bantu and coloured [mixed] 287,700) is administered under mandate as an integral part of the union, but this territory had not been incorporated as a province; the United Nations twice invited South Africa to prepare a trusteeship agreement in respect to it. (*See* TRUSTEE TERRITORIES.) Area: 472,550 sq.mi. (incl. Walvis bay, 574 sq.mi.); pop. (1947 census): 11,391,949 (Europeans 2,372,690; Bantu 7,805,515; mixed 928,484; Asiatic 285,260). Chief towns (pop. census 1946): Capetown (seat of legislature, 454,052); Pretoria (seat of government, 236,367); Johannesburg (727,743); Durban (357,304); Port Elizabeth (146,231). Official languages: English, Afrikaans. Religion: European population: Christian 95.5% (Dutch Reformed Church 55%; Anglican 19%; Methodist 6%; Presbyterian 5%; Roman Catholic 5%, etc.); non-European population: 51% Christian, the remainder Hindu, Mohammedan and Buddhist. Governor General: Maj. Gideon Brand van Zyl; premier: Field Marshal Jan C. Smuts.

History.—The outstanding domestic event of 1947 was the visit to South Africa of King George VI, Queen Elizabeth and the Princesses Elizabeth and Margaret. During the early part of the year, the preparations and the tour itself eclipsed all else. The visit was received with tremendous enthusiasm throughout the country, and crowds flocked to see the royal family in every part of the land.

The development of the new gold fields in the Orange Free State, combined with the prosperity of the country, the growth of new industries and the shortage of manpower, intensified immigration, which became sponsored by the government. The South African Immigration council was established early in the year with a target of 1,500 immigrants a month, and special ships were chartered to carry them. Others travelled from Europe under their own arrangements, some making the journey overland. During the year the government announced its intention of deporting from the Union and South-West Africa 236 Germans, whose removal had been recommended by a judicial commission, because of their alleged nazi sympathies.

In common with many other countries, South Africa had its labour troubles; but in spite of strikes, particularly among the gold miners and building artisans, industry forged ahead. The National Housing commission reported 2,200 houses built each month throughout the country. The South African Industries



KING GEORGE VI and an African queen mother exchanging handshakes at Goedegun, Swaziland, during the royal tour of South Africa in Feb.–April 1947. Behind the king, left to right, are: Princess Margaret Rose, Queen Elizabeth and Princess Elizabeth

fair held in Durban in September was the first of its kind restricted to articles made in South Africa and proved that local industries had made great strides in the past few years.

Social security schemes were developed, including the implementation of the Unemployment Insurance act, passed in 1946, though this act still provoked strong criticism. The National War Memorial Health foundation was established as a memorial to South Africa's armed forces during World War II, and a number of health and housing schemes were launched, mainly to benefit non-Europeans.

Non-European problems received much publicity and attention during the year. The increasing industrialization of the towns called for more labour, which in turn increased the influx of natives from the country districts and from neighbouring territories to the north. Lack of housing facilities led to overcrowding, crime and ill feeling between races. The prime minister, Field Marshal Jan Smuts, announced a number of measures designed to increase the responsibility of the Natives Representative council and other native bodies, and further developments were expected to follow the report of the Fagan Native commission, to be made early in 1948.

In the field of arts and culture, a national theatre was founded, and the Afrikaans language theatre reached new heights with its first presentations of Shakespeare and Ibsen in Afrikaans. Discoveries were made of important fossil remains in the limestone caves of the western Transvaal, and of rock-paintings in South-West Africa and various parts of the union.

Foreign Affairs.—The status of South Africa's Indians was again brought before the general assembly of the United Nations in 1947. Following the passing of the Asiatic Land Tenure and Representation act, which restricted to certain areas the purchase of land by Indians but at the same time granted them representation in the union parliament and Natal provincial council, India withdrew its high commissioner and imposed economic sanctions against the union. Field Marshal Smuts asked Pandit Jawaharlal Nehru to allow the high commissioner to return for consultation, but was refused. Members of the South African Indian congress demanded immediate equality with Europeans.

The future of South-West Africa was discussed again by the general assembly. Early in the year Field Marshal Smuts announced that, in deference to the United Nations, the Union would not incorporate this territory, but would respect the inhabitants' wishes as far as possible by continuing to administer it under the League of Nations mandate, making an annual report to the United Nations. When the general assembly met, India attacked South Africa for failing to submit a trusteeship agreement for South-West Africa, as requested by the general assembly in 1946.

In October it was announced that South Africa had agreed to lend Britain gold to the approximate value of £80,000,000 to help it to weather the serious postwar economic crisis.

An air service was inaugurated between the Union and the United States and better services were provided to Europe; shipping services between South Africa and most parts of the world improved considerably during the year. (J. MD.)

Education.—In 1941: state and state-aided primary and secondary European schools 33,662, scholars 388,925; non-European schools 5,229, scholars 678,161; universities, average number of students 11,801.

Banking and Finance.—Revenue (1946–47) £SA133,935,000; expenditure (1945–46) £SA131,358,216; public debt (March 31, 1946) £SA582,855,931; notes in circulation (March 31, 1946) £SA66,000,000; gold reserve (March 31, 1946) £SA123,000,000; exchange rate (1946) £SA1 = £1 sterling = 403 U.S. cents.

Trade and Communication.—External trade (1946): exports (including government stores, specie, gold bullion, wool, exported bunker coal and ships' stores) £SA95,482,129; re-exports £SA3,071,142 plus £SA1,263,947 (to South-West Africa and Northern Rhodesia); imports £SA214,437,667. Communication and transport: roads fit for motor traffic (1947) *c.*100,000 mi.; railways, including South-West Africa (March 31, 1945), 13,483 mi.; airways, including South-West Africa (Dec. 1945–May 1946): passengers carried 7,936; mileage flown 285,559; shipping (March 31, 1945): tonnage cargo landed 3,162,632, shipped 4,213,575, transshipped 207,667. Motor vehicles licensed (Dec. 31, 1940): cars and taxis 317,958; vans and trucks 51,215; tractors 1,044; cycles 21,725; wireless receiving sets, effective licences (end of 1945) 373,411; telephones, instruments in use (1940) 202,753.

Agriculture, Manufacture and Mineral Production.—In 1944–45: maize 17,870,000 bags of 200 lb. each; wheat 3,373,430 bags of 200 lb.; potatoes 2,500,000 bags of 150 lb.; oats (purchased) 96,236 bags of 150 lb.; barley (purchased) 448,913 bags of 150 lb.; groundnuts 120,000 bags; deciduous fruit 67,634 short tons; dried fruit (1945) 19,000 short tons; tobacco (1944) 23,500,000 lb. Virginian, 533,000 lb. Turkish; cane sugar refined (1945–46) 553,174 bags of 200 lb.; sheep (1943) 37,888,043; cattle (1943) 13,068,414; wool (1945–46 est.) 650,000 bales. Total agricultural production (1944–45) £SA100,319,000. Industry and labour (1942–43): establishments 9,965; employees (May 1947): European 96,123; native 161,612; employment index (average, 1929 = 100): May 1947 = 151.8; industrial production £SA177,000,000. Mineral production (Jan.–May 1947, monthly average): gold 855,896 oz.; coal 2,207,000 short tons; silver 91,550 oz.; platinum 4,977 oz.; osmiridium 514 oz.; copper 2,678 short tons; tin concentrates 53 short tons.

South America: *see* ARGENTINA; BOLIVIA; BRAZIL; BRITISH GUIANA; CHILE; COLOMBIA; ECUADOR; PARAGUAY; PERU; URUGUAY; VENEZUELA.

South Carolina. A south Atlantic state of the United States, 8th of the original 13 to ratify the constitution in 1788; known as the "Palmetto state." Area: 31,055 sq.mi.; 461 being inland water; pop. (1940) 1,899,804; white 1,084,308; Negro 814,164; others 1,332; 75.5% rural; 0.3% foreign-born. Capital, Columbia (62,396). Other cities: Charleston (71,275); Greenville (34,734); Spartanburg (32,249). The estimated population of the state on July 1, 1947, was 1,918,000.

History.—Gov. J. Strom Thurmond was inaugurated in Jan. 1947, for a four-year term. His proposals for extensive reorganization of the state government passed the house and at the close of the year were before the senate. On July 12, 1947, the U.S. district court in Charleston annulled the rule of the Democratic party denying Negroes the right to vote in its primaries; this was confirmed on Dec. 31 by the U.S. circuit court of appeals, although all laws regulating primaries had been repealed

in 1944. The federal district court denied the petition of a Negro to be admitted to the University of South Carolina law school, but ruled that he must be admitted if by the beginning of the next school year the state had not provided legal education at its state Negro college, a ruling still awaiting decision on appeal at the end of the year. The state meanwhile provided law education at its Negro college, and also paid tuition at medical colleges outside the state for South Carolina Negroes. The appointment of Col. Wyndham M. Manning as superintendent of the penitentiary led to greatly improved administration, including emphasis on rehabilitation. Concurrently, the governor stopped the "leaves of absence" for convicts. In May, 28 cab drivers accused of lynching a Negro who had robbed and killed a cab driver were acquitted, despite several written confessions and the earnest efforts of the prosecuting attorney.

Education.—Nine months' support annually for public schools was guaranteed by the state (many districts continuing to levy additional taxes). Jesse T. Anderson was state superintendent of education. For the year ending June 30, 1947, enrolment in white elementary schools was 178,686 (increase of 815); in Negro elementary schools 179,454 (increase of 3,428); in white high schools 71,211 (increase of 1,858); in Negro high schools 27,604 (increase of 2,610); white and Negro teachers, respectively, numbered 9,655 and 6,304; expenditures for white schools $22,278,658; for Negro schools $7,349,749, representing increases since the school year 1930–31 of 88.75% and 339.88% respectively. The salary scale, based on preparation and experience, was the same for all schools.

Social Insurance and Assistance, Public Welfare and Related Problems.—In the year ending June 30, 1947, federal allocation for needy persons totalled $4,834,394, to which the state added $3,195,627 (plus $546,608 for the physically and mentally handicapped). A total of $6,199,957 went to 30,176 aged; $1,517,720 to 15,742 dependent children; and $305,343 to 1,199 blind. Total relief disbursements were $8,023,021. Some counties maintain sparsely inhabited alms houses. The state unemployment trust fund, contributed wholly by employers, totalled $46,472,513. Payments to 16,552 unemployed during the year ending June 30, 1947, totalled $2,113,064. Patients in the state hospital (for the mentally diseased) June 30, 1947, were 4,928; in the school for the feebleminded 971; prisoners in the state penitentiary and on state farms 1,188; reformatory for Negro boys 197; white girls' reformatory 88; reformatory for white boys (June 30, 1947) 191; legal executions during the year ending June 30, 1947, 11.

Communications.—Paved highways on June 30, 1947, totalled 8,427 mi.; mileage under the highway department 15,113; funded highway debt $44,815,763 (being steadily reduced); railroads 3,563 mi. Eastern, Delta, National and Southeastern air lines cross the state.

Banking and Finance.—On June 30, 1947, there were 23 national banks (plus 17 branches), 96 state banks (plus 5 branches), including 1 private bank, and 90 cash depositories with capital account, deposits and resources, respectively, as follows: national $17,773,000, $389,973,000 and $409,162,000; state banks and depositories $14,412,368, $236,179,526 and $250,811,223. Resources of federal building and loan associations were $54,946,787; of state building and loan associations $20,337,324. The state debt on June 30, 1947, was $48,213,097; total collections in the year ending that date $136,602,434; the estimated surplus on the same date was $4,728,000.

Federal income taxes for the year ending June 30, 1947, totalled $158,743,937; other federal internal revenues $19,441,563. Exports amounted to $25,652,402; imports $6,270,253; and duties on imports $311,543 for the year ending June 30, 1947.

Farm real estate mortgage debt Jan. 1, 1946, totalled $39,636,000 as compared with $45,948,000 on Jan. 1, 1940.

Agriculture.—The 33 principal field and truck crops for the year 1947 were valued at $334,170,000, about $28,000,000 less than for the banner year 1946. Acreage (4,433,000) and 166,000 less than in 1946, and 355,000 less than for the ten-year average of 1936–45.

Table I.—*Leading Agricultural Products of South Carolina, 1947 and 1946*

	1947	1946
Corn, bu.	28,080,000	27,493,000
Wheat, bu.	4,356,000	2,706,000
Oats, bu.	19,630,000	20,097,000
Barley, bu.	624 000	546,000
Rye, bu.	132 000	130,000
Hay, tons	382,000	449,000
Irish potatoes, bu.	2,440,000	3,576,000
Sweet potatoes, bu.	5,940,000	6,090,000
Tobacco, lb.	153,000,000	168,200,000
Cotton, bales	640,000	697,000
Cotton seed, tons	260,000	281,000
Peaches, bu.	6,630,000	5,994,000
Pecans, lb.	2,550,000	1,406,000
Peanuts, lb.	16,900,000	16,900,000

Table II.—*Products of Principal Industries of South Carolina, 1947 and 1946*

	Value 1947	Value 1946
Textiles	$1,126,270,630	$799,525,720
Lumber products (barrels, boxes, baskets, veneering, paper and pulp, furniture, woodwork)	111,661,207	70,951,519
Electricity	30,397,001	26,249,958
Clothing, including knitted	52,236,860	30,932,240
Fertilizers	27,819,036	21,005,869

The value of commercial truck crops was $9,088,000, a sharp reduction from 1946.

Manufacturing.—The value of manufactures for the year ending June 30, 1947, was $1,557,240,138 as against $1,111,493,397 for the previous year. Employees numbered 168,091 as against 156,560 the year before.

Mineral Production.—Minerals produced (chiefly stone and clays, especially kaolin) during the year ending June 30, 1947, were valued at $2,931,437 as against $4,570,778 in the previous year. (D. D. W.)

South Dakota. A north-central state of the United States, admitted as the 40th state on Nov. 2, 1889, popularly known as the "Coyote state." Area, 77,047 sq.mi., of which 511 sq.mi. are water; population (1940), 642,961, with 158,087 listed as urban and 484,874 as rural; Indian population, 23,347. The federal census bureau estimated the population on July 1, 1947, at 564,000. The state census taken during 1945 revealed a population of 589,802. Capital, Pierre (4,322 in 1940). Principal cities: Sioux Falls (40,832), Aberdeen (17,015), Rapid City (13,844), Huron (10,843) and Mitchell (10,633).

History.—Important legislation enacted during the 60-day legislation session, ending March 8, 1947, raised the governor's salary from $3,000 to $8,500, and provided salary increases for other constitutional officers; prohibited the governor from serving more than two consecutive terms; permitted women to serve on juries; authorized submission of a constitutional amendment which would permit a $30,000,000 bond issue for a veterans' bonus; and placed restrictions on labour unions by outlawing the use of threats in the solicitation of union membership, by permitting unions to sue or be sued for damages and by limiting picketing activities.

State officials in 1947 included: George T. Mickelson, governor; Sioux K. Grigsby, lieutenant governor; Sigurd Anderson, attorney general; Miss Annamae Riff, secretary of state; Clarence Buehler, treasurer; and J. F. Hines, superintendent of public instruction.

Education.—The school census, ages 6–21, was 154,928 in 1945–46 as compared with 155,420 in 1944–45. The enrolment was 84,826 in elementary schools and 29,005 in high schools. Total expenditures were $15,926,980.

Social Insurance and Assistance, Public Welfare and Related Programs.—During the calendar year 1946 the state department of social security distributed $4,267,280 among 12,685 persons in old-age assistance; $846,134 to 1,696 families as aid to 4,173 dependent children; and $64,290 for the needs of 213 blind persons. Eight penal and charitable institutions were in operation on a legislative appropriation of $1,709,745 for the fiscal year 1947–48.

Unemployment benefit payments were allotted during 1946 to 2,092 claimants for a total of $185,730 at an average weekly rate of $13.13. About 11,000 unemployed veterans received a total of $2,103,000 for readjustment allowance as provided by the Servicemen's Readjustment act.

Communications.—The state maintained a highway system of 5,942 mi. which in 1946 included 2,853 mi. of pavement and 2,804 mi. of gravel surface at a cost of $3,146,247. There were 3,966 mi. of railroad in operation in 1946. Telephones reached a total of 108,688 of which 35,716 were classified as rural.

Banking and Finance.—There were 35 national banks in operation on Dec. 31, 1946, with total assets of $245,793,000 and total deposits of $234,503,000. The 135 state banks and trust companies on June 30, 1947, had resources of $242,794,187 and deposits of $231,343,970. Nine building and loan associations on June 30, 1947, reported total resources of $4,124,900.

Total receipts for the state treasury for the fiscal year ending June 30, 1947, were $43,699,742; disbursements were $40,753,748. The bonded indebtedness was $20,314,000. Federal internal revenue collections for the same period totalled $51,795,756, of which amount $45,753,067 was derived from the income tax.

Agriculture.—Despite unfavourable weather conditions during July and August which resulted in a sharply reduced corn crop, the cash income from farm crops and livestock remained at a high level during 1947.

Principal Agricultural Products of South Dakota, 1947 and 1946

Crop	1947 (est.)	1946	Crop	1947 (est.)	1946
Corn, bu.	77,840,000	120,300,000	Flaxseed, bu.	5,640,000	3,440,000
Wheat, bu.	55,827,000	53,197,000	Potatoes, bu.	1,610,000	2,842,000
Oats, bu.	96,752,000	100,398,000	Hay (tame and wild), short tons	3,162,000	2,776,000
Barley, bu.	31,027,000	30,294,000			

Mining.—The total value of mineral substances produced in 1946 was $17,968,270. The state ranked second in gold production valued at $10,928,645; second in bentonite valued at $1,143,858; second in mica valued at $72,124; and third in feldspar valued at $583,557. (H. S. S.)

Southern California, University of. This metropolitan university which is operated under a private foundation and which was founded in Los Angeles, Calif. (where it is still located), comprised in 1947 a total of 26 schools and colleges.

The 1947 enrolment exceeded all previous records. The housing situation continued to be acute despite special efforts to meet the problem. The alumni numbered 52,000 with about 7,500 being members of the general alumni association.

The new president of the university, Fred D. Fagg, Jr., previously vice-president of Northwestern university, Evanston, Ill., assumed the administrative and other functions of his office on Sept. 1. Capt. Burnett K. Culver became commanding officer of the Naval Reserve Officers Training corps. Prof. Sheldon D. Elliott of the school of law succeeded William G. Hale as dean of that school. Dr. Lewis F. Stieg became director of the graduate school of library science. The college of dentistry celebrated its 50th anniversary. New departments were organized, namely, biochemistry and nutrition, aeronautical engineering and Slavic studies.

A graduate department was organized in the school of medicine and a similar development was initiated in the school of dentistry. The number of graduate students enrolled in the university exceeded 3,100, with 1,469 being registered in the graduate school and the remainder being distributed among the various professional schools, university college and civic centre divisions. Twenty-nine departments and divisions give the Ph.D. degree and 51 departments and divisions the various masters' degrees. New masters' degrees were authorized in aeronautics, aeronautics and guided missiles, industrial chemistry, industrial design and medicine; new Ph.D. degrees were authorized in mathematics and physical education. Numerous research projects received special financial aid from foundations and government sources. These included projects in the college of engineering, departments of chemistry, biochemistry, philosophy, physics and public administration. Extensive additions were made to the university and departmental libraries. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (E. S. Bs.)

Southern Rhodesia: *see* RHODESIA, SOUTHERN.

South-West Africa: *see* SOUTH AFRICA, THE UNION OF; TRUSTEE TERRITORIES.

Sovereigns, Presidents and Rulers: *see* PRESIDENTS, SOVEREIGNS AND RULERS.

Soviet Republics: *see* UNION OF SOVIET SOCIALIST REPUBLICS.

Soviet Union: *see* UNION OF SOVIET SOCIALIST REPUBLICS.

Soybeans. The U.S. crop of soybeans in 1947 was the smallest since 1941, although about 50% above the ten-year (1936–45) average. The 1947 crop was estimated at 181,362,000 bu., 10% below the record crop of 201,275,000 bu. harvested in 1946. The acreage was increased 11% in 1947 to 11,125,000 ac. but the yield declined to 16.3 bu. per acre compared with 20.5 bu. in 1946 and the ten-year average of 18.2 bu. per acre. Lower yields in Illinois and Iowa, two of the three leading soybean states, reduced their crops sharply. Indiana, second to Illinois in 1947, had yields about equal to those of 1946. The Minnesota crop was better, but that of Missouri declined.

Prices of soybeans ranged higher through the year, advancing from an average of $2.93 per bushel in January to $3.67 in March and then levelled off at $3.00, later advancing again to $3.67 per bushel in December. These prices compared with an average of 95 cents per bushel for the prewar period of 1935–39.

U.S. Soybean Production by Leading States, 1947, 1946 and 10-Year Average, 1936–45

(In thousands of bushels)

State	1947	1946	10-yr. Average	State	1947	1946	10-yr. Average
Illinois	65,196	78,020	50,239	Arkansas	3,396	5,458	1,787
Indiana	28,176	26,106	16,294	Kentucky	1,908	1,566	583
Iowa	26,310	35,604	20,115	Kansas	1,887	2,178	1,070
Ohio	17,575	16,254	13,423	Virginia	1,425	1,106	832
Minnesota	13,800	10,675	2,025	Mississippi	1,330	1,050	806
Missouri	9,900	14,360	4,194	Michigan	1,292	1,200	1,248
N. Carolina	3,915	2,862	2,219	Tennessee	930	810	378

The government-support price, at 90% of parity, was $2.06 per bushel in October compared with the market price of $3.11 per bushel. No surplus of soybeans or soybean oil was in prospect because of the small world supply of oil seed. The Manchuria crop, which amounted to about 85,000,000 bu. for export in prewar years, furnished less than 2,000,000 bu. surplus during the first nine months of 1947.

The goal for 1948 was set at about the same acreage as was harvested in 1947 and more than 260% of the prewar acreage. (*See* also CHEMURGY.) (J. C. Ms.)

Spaak, Paul-Henri (1899–), Belgian statesman, was born on Jan. 25, in Brussels. A law graduate, he practised in Brussels and was elected to the chamber of deputies on the Socialist ticket. In 1936, when Spaak was foreign minister in the Van Zeeland government, he conducted negotiations to secure Belgium's release from the Locarno pact and the Anglo-French-Belgian agreements; he then believed that Belgium could remain neutral in the event of war.

He fled to England after the German invasion in 1940, joining the government-in-exile as foreign minister and minister of labour. Retained as foreign minister in the Van Acker government established on Belgian soil in Feb. 1945, he headed the Belgian delegation to the United Nations conference in San Francisco and on Jan. 10, 1946, he was elected president of the general assembly.

After the fall of the Huysmans government, Spaak formed a new government March 19, 1947, retaining in addition to the premiership the foreign affairs portfolio. In the summer of that year, he represented Belgium at the 16-nation Paris Economic conference. The following autumn, he attended the United Nations general assembly in New York and joined the western bloc in its demands that a U.N. border-watch committee be set up in the Balkans. Toward the end of 1947, the issue of King Leopold's return to the throne was resurrected in the Belgian parliament; Spaak, however, opposed the king's return and won a vote of confidence on his stand, Dec. 10.

Spaatz, Carl A. (1891–), U.S. army air officer, was born June 28 in Boyertown, Pa. He was graduated from West Point in 1914. During World War I he commanded a pursuit squadron in the St. Mihiel offensive. He was chief of staff to Gen. Henry H. Arnold in 1941, and in July 1942 he was named U.S. air commander in Europe. Early in 1943 he was shifted to the Mediterranean theatre as commander of the 12th U.S. air force and of the Allies' Northwest Africa air forces. On Dec. 24, 1943, Pres. Franklin D. Roosevelt announced the appointment of Gen. Spaatz as commander of "the entire American strategic bombing force operating against Germany" from all directions. During 1944 and 1945, under his command, U.S. air forces brought all points in Europe within range of Allied bombers.

Spaatz was named for promotion to the temporary rank of full general, March 13, 1945. He represented the U.S. at the German surrender ceremonies in Berlin, May 8. The war department announced his appointment July 5 to commander of the newly created U.S. strategic air force in the Pacific to direct

Superfortress blows against Japan.

Gen. Spaatz succeeded Gen. Arnold as commander of all army air forces (Jan. 24, 1946), and after the air force was given entity as a separate branch of the armed services, he was named by Pres. Truman on Sept. 25, 1947, as air force chief of staff. An advocate of a "stronger America," Spaatz was concerned over the postwar decline of U.S. air strength, and told the President's Air Policy commission, Nov. 18, that the U.S.S.R. had 14,000 military aircraft.

Spain. A country of western Europe, bounded on the north by the Bay of Biscay and France, on the west by Portugal and the Atlantic, and on the south and east by the Mediterranean. Area: (including Balearic and Canary Islands) 194,945 sq.mi.; pop. (est. 1946) 27,246,000. Chief towns (pop. est. 1944): Madrid (cap. 1,140,621); Barcelona (1,108,961); Valencia (508,072); Seville (347,997), Zaragoza (Saragossa) (206,488); Málaga (258,598); Bilbao (208,347). Religion: mainly Roman Catholic. Caudillo, or chief of state: General Francisco Franco.

History.—At the end of 1947 General Franco was to all appearances entrenched in power more firmly than ever. The United Nations resolution, passed in Dec. 1946, recommending the withdrawal of ambassadors from Spain, caused a strong nationalist reaction there, and the masses, well prepared by months of intensive propaganda, were easily brought to patriotic fervour by the lavish use of such slogans as "Hands off Spain." The demonstrations of Dec. 9–10, 1946, held all over the country, were reinforced by the tumultuous welcome given in Jan. 1947 to Pedro Radio, the newly appointed ambassador from Argentina, a country which did not carry out the U.N. recommendations, to Eva Perón, wife of the Argentine president, who made an official visit to Spain in June, and to the crew of an Argentine training ship, which paid an official visit to Spain in August and conveyed back to Argentina the bodies of the parents of the liberator, José de San Martín. There was possible political significance, too, in the ceremonial transference from Madrid to Jerez de la Frontera of the remains of Gen. Primo de Rivera, dictator of Spain from 1923 to 1930.

Negotiations between General Franco and the Monarchists finally broke down; and, as the "Republican government in exile," reconstructed in February under Rodolfo Llopis, also broke down in August (to be reconstructed again on Aug. 23 under Alvaro del Albornoz) upon the resignation of its Communist member, the chief hope of the emergence of a new regime seemed to lie in the conversations between monarchists and right-wing Socialists led by Indalecio Prieto, which went on at intervals throughout the year. General Franco made the next move, however, by publishing on April 1, the eighth anniversary of his victory over the Republicans, the text of a "Law of Succession" which subsequently was unanimously approved by the cortes, and, in July, by a referendum of the people, 14,145,163 of whom (82.34% of the total electorate) voted in its favour and only 722,650 against it. The document described Spain as a kingdom, with General Franco as chief of state. He was to be "assisted" by a "Council of the Kingdom"; in case of his death or incapacity, he would be succeeded by a "person of royal blood" jointly proposed by the council and the government, who must be accepted by at least two-thirds of the cortes. Failing such a person, Spain would be governed by a council of regency pending the election of a regent. The chief of state might at any time name his successor, who must also have the assent of two-thirds of the cortes.

A week after the publication of the law, the pretender to the throne, Don Juan de Borbón, attacked it, in a manifesto addressed to the Spanish people, as "completely opposed to the system by virtue of which the succession to the Spanish crown has been governed throughout history" and an attempt "to turn the dictatorship of an individual into rule for life." He was ready, when the moment came, to agree to an "unconditional transfer of authority," but regarded the law as "valueless and void by its very origin." It was probably symptomatic of General Franco's feeling of security that he should have allowed this manifesto to be printed by every newspaper in Spain together

SPANISH PAGEANT staged at Madrid to honour Señora Perón, wife of the president of Argentina, during her visit to the Spanish capital in June 1947



with a government-inspired leading article attacking it. In September he announced that he proposed to assume the traditional prerogative of the head of the Spanish state to confer "grandeeships" (*grandezas de España*) and other titles of nobility, and it was believed that the object of this move was to divide the Monarchists by creating a new aristocracy favourable to a Carlist royal house.

Serious strikes, organized by the Basque resistance movement, which took place in northern Spain in May, were admitted by the foreign ministry to have affected 40% of the workers in the Bilbao area—a proportion increased officially to 75% over a much wider region. The strikes began with the observance of May day, despite a government ban, by about 50,000 workers, and were extended by the refusal of the civil governor of the province to agree to their readmittance, except on their special application and with loss of privileges. Eventually the deadlock was solved by the sympathy of many of the employers with the men and within a fortnight all was normal.

Economically there was little change. An exceptionally good olive harvest greatly eased the position with regard to olive oil, but the third-class bread ration (the largest, except that allowed to heavy manual workers) was cut in June, together with the tobacco ration. In August the prices of each class were raised, together with the prices of newspapers throughout the country, and in October it was announced that the daily bread allowances of the three regular classes would have to be reduced from 250g., 150g. and 100g., respectively, to 150g., 120g. and 75g. Gasoline restrictions were imposed in October, in the form of a decree forbidding private cars to be on the road for at least two days a week. In August, probably because of the phenomenal heat, a catastrophe occurred at Cadiz, when about 150 people were killed and 5,000 injured, in a series of explosions in the shipyards and in a submarine defense depot. Early in September a disaster of less magnitude, difficult to explain except as deliberate terrorism, occurred in the explosion of an underground powder magazine at Alcalá de Henares.

On March 28 a new monetary agreement was signed between Spain and Great Britain, each country to hold the other's currency up to £2,000,000 and Spain to hold an additional sum to cover the probable balance of payments in its favour. In July this was supplemented by a further agreement in which Spain undertook not to restrict the acceptance of sterling in the Spanish monetary area as settlement of payments for current transactions by residents outside that area.

In May the International Civil Aviation organization, during its first assembly at Montreal, Que., resolved to expel Spain from membership, subject to ratification of the resolution by two-thirds of the member states, on the ground of Spain's exclusion from the United Nations.

In the year 1947 fell the 400th anniversary of the birth of Miguel de Cervantes Saavedra, and during the year there were celebrations and commemorations throughout Spain. An international Cervantine congress (*Asamblea Cervantine de la Lengua*), attended by many foreign delegates, held its first series of sessions in October. (*See* also FASCISM.) (E. A. P.)

Education.—(1945): primary schools 45,148, scholars 2,530,728; secondary, scholars 185,644; commercial, scholars 53,214; technical, scholars 6,334; fine arts, scholars 9,379; trades, scholars 25,745; universities 12, students 43,498.

Finance.—Revenue (est. 1947) 12,963,523,857 pesetas; expenditure (est. 1947) 11,358,827,402 pesetas; gold reserve (1947) U.S. $111,000,000; national debt (1946) 43,977,876,800 pesetas. Rate of exchange: 1 peseta = 9.132 U.S. cents.

Trade and Communication.—Imports (1945) 869,048,000 pesetas; exports (1945) 880,656,000 pesetas. Communications: railways (1945), length of line 10,878 mi., including 768 mi. electrified; roads open to traffic (1946) 79,672 mi., mileage of regular road transport services 46,857 mi.; airways (1946) planes arrived 8,186, left 8,181, totals arrived, left and in transit: passengers 226,791; mails and newspapers 495 short tons; freight 4,008 short tons. Shipping: total Spanish tonnage (1945) 1,037,938. Number of telephones in service (1946) 451,819; exchanges 3,423.

Mineral and Agricultural Production.—Production (1946) in short tons: coal 11,649,200; pig iron and ferroalloys 539,690; steel ingots and castings 659,650; copper 72,610 (nine months); lead 22,778 (nine months); wheat 3,925,460; rice 220,400; beet sugar (1945) 150,540; cane sugar (1945) 10,470; oranges (1945) 928,200; olive oil (1945) 189,300; potatoes (1945) 2,936,000; wine (1944) 56,572,200 U.S. gal.

Spanish-American Literature.

Latin American books published in 1947 showed that while Mexican and Argentinean novelists were developing powerful new trends, the rest of Latin American writers still did not manage to free themselves from regionalism. Mexico had several talented newcomers. Jesús Goytortúa followed his prize-winning *Pensativa* with another successful novel, *Lluvia Roja,* and received for it the Premio Ciudad de México. Agustín Yañez made a valuable contribution to the history of modern Mexico with his novel *Al filo del Agua* dealing with provincial life at the beginning of the century. Mention should be made of three other novels: Diego Cañedo's *La noche anuncia el día,* Francisco Rojas González' *Lola Casanova* and Manuel Andujar's *Llanura.*

Argentina's A. Arias, winner of several prizes, published a second novel, *La vara del fuego.* Alejandro Magrassi received an award for his *La Caá Yarí,* a representative work of northern Argentina. Editorial Losada introduced two new novelists: Estela Canto, author of *El retrato y la imagen,* and Angel F. Rojas, from Ecuador, author of *El éxodo de Yangana.* The short story was represented by J. Balach's *Motivos sureros,* about country life in Buenos Aires province, and Max Henríquez Ureña's *Cuentos insulares.*

Chile offered a clear example of stagnation. Marta Brunet continued to describe southern landscapes in *Humo hacia el Sur;* Luis Roberto Beza indulged in colourless provincialism in *La Puebla;* Mariano Latorre ventured into juvenile literature with *El Choroy de Oro.* Hernán del Solar was more fortunate in directing and writing for the newly founded Editorial Rapa Nui, publishers of books for children. Del Solar had written several short stories and *Chiu, el Campesino* was one of his best. A collection of miscellaneous prose by the first Chilean *costumbrista,* Alberto Blest Gana, came out under the title of *Costumbres y Viajes.* Ricardo Puelma's *Arenas del Mapocho,* although interesting in content, showed poor form. Two collections of short stories, *El Enigma* by Lucía Richard and *Melodía de Antaño* by Victoria Orjikh, further proved that Chilean fiction needed a quick change before it reached exhaustion. There was an odd item in Chile's output for 1947: a detective novel, *Los minutos acusan,* by Guillermo Blanco.

Central America offered a collection of short stories, *Champaña y Guaro,* by Hugo Lindo; a distinguished first novel, *Manglar,* by Joaquín Gutiérrez from Costa Rica and an anthology of *Cuentos Cubanos Contemporáneos* edited by José Antonio Portuondo.

As usual there was a good amount of miscellaneous and poetic prose published in Latin America. Chile's Benedicto Chuaqui displayed novelty of expression in *La eternidad contigo.* In his *Episodios Históricos,* Lucio Funes gave an interesting picture of colonial Mendoza. Ricardo Saenz Hayes' *Reminiscencias,* undoubtedly one of the outstanding books published in Argentina, is a record of travels, readings and conversations presented with great intelligence. The biographical articles written by Guillermo Sosa Loyola in *Pringles, Retazos de vida y tiempo* showed sound judgment and solid documentation. Mario Lopez Osornio edited *Oro Nativo,* an anthology of legends and popular poetry of the pampas. In *La Chimba,* Carlos Lavin told the story of that famous red-light district in 19th century Santiago which Dictator Diego Portales frequently visited.

Samuel A. Lillo was awarded Chile's national prize of literature (100,000 pesos). In 1947 he published *Espejo del Pasado,*

which summed up his entire career as poet, critic and journalist. Lillo was undoubtedly a second rate poet, but as a personality he had become an institution, with direct participation in the literary activities of more than three generations.

In Mexico, Isidro Fabela published his *Cartas al Presidente Cárdenas* which he wrote while Mexican delegate to the League of Nations. Adrián Recinos prepared an edition of the monumental *Popol Vuh, las antiguas historias del Quiché* for *Colección Tierra Firme.*

Among the books of essays which appeared in Latin America during 1947, the following deserved special attention: Gabriel Ferrer's *Justo Sierra, el Maestro de América;* Carlos Miró Quezada's *Rumbo literario del Perú,* including studies on Garcilaso de la Vega, Ricardo Palma, José S. Chocano and José de la Riva Aguero; Ulises René Girardi's *El hombre y el Cosmos;* Nicolás Slonimsky's *La Música de América Latina,* a vast enterprise covering the history of Mexican, Central and South American music plus a dictionary of composers, instruments, compositions, songs and dances; Rufino Cuervo's *El Castellano en América,* the unpublished articles and essays of a great grammarian; C. R. Centurión's *Historia de las letras paraguayas;* Gonzalo Picón Febres' *La literatura venezolana en el siglo XIX;* León Dujovne's *Tomas Mann, las ideas y los seres en su obra;* José Luis Romero's *Las ideas políticas en Argentina;* Daniel Varcárcel's *La rebelión de Tupac Amaru;* Silvio Zavala's *La filosofía política en la conquista de América;* and Ramón Clarés' *Psicogénesis del Arte,* published posthumously.

Latin American poets produced abundantly. A few of their books deserve mention: Esmeralda Radaelli, from Argentina, expressed deep and passionate emotion in *Isla de Soledad;* M. Maples Arce gave importance to death and thoughts of social significance in *Memorial de la Sangre;* also from Mexico came Luis Alvarez' *Humo,* Eugenio Florit's *Poema Mío* and M. González Flores' *Motivos humanos. Por un caminito así* by Rafael Arévalo Martínez represented the best that Central American poets had to offer. Nicolás Guillén, the great Afro-Cuban poet, gathered his entire poetical production in one volume, *El Son Entero,* published in Buenos Aires. Pablo Neruda's complete works were being published in Santiago by Cruz del Sur with introduction and critical notes by Juvencio Valle. Editorial Losada quickly sold out the first edition of Neruda's *Tercera Residencia.* (F. Aa.)

Spanish Colonial Empire. Total area: *c.* 134,763 sq.mi.; population (excluding Spain; est. 1946): 1,392,000.

The accompanying table lists the colonies, protectorates, etc. of Spain (*q.v.*) with certain essential statistics appropriate to each of them.

Spanish Literature. Spain's biggest literary event of 1947 was the 400th anniversary of the birth of Miguel de Cervantes Saavedra. García Soriano and García Morales prepared a new edition of *El ingenioso hidalgo don Quijote de la Mancha,* embellished with engravings and lithographs from the more famous earlier editions. Soler Torner in *Algo más sobre el "Quijote"* returned to the classical interpretation of the novel. Cotarelo Valledor's lecture *La Dulcinea de Cervantes* appeared printed in booklet form. García Martí included in *Don Quijote y su mejor camino* a series of essays which treated such topics as Don Quixote and Faust, the innkeeper's daughter, etc. Fuentes Alonso's *Romances cervantinos* drew upon the novel for inspiration.

Substantial additions were made to the collections of Spanish classical and modern writers; in most cases their total literary production was published, but in others only their selected works. Authors represented were: Tirso de Molina, López de Zárate, Jorge Montemayor, García Gutiérrez, Leopoldo Alas, the brothers Joaquín and Serafín Alvarez Quintero, the brothers Antonio and Manuel Machado and Pío Baroja.

The theatre was extremely active with Jacinto Benavente's *La infanzona* attracting wide attention and bringing acclaim to the playwright on the occasion of its one-hundredth performance. Eduardo Marquina, who died in 1946, still figured in the theatre with a homage performance of *La ermita, la fuente y el río* and the publication of *El galeón y el milagro,* a romantic play appealing to Spanish patriotism. José María Pemán (director of the Royal Spanish academy) in *Todo a medio hacer* satirized modern society with its deceit and emphasis on speed and quantity. *Diario íntimo de la tía Angélica* unfolded the poetic story of an elderly spinster who kept a romantic diary. Pemán's *Vendimia,* a comedy in verse, was staged by the company directed by the Argentine actress Lola Membrives. His humorous comedy *La verdad* was produced at the Lara theatre. *El pulso era normal,* a comedy by Luca de Tena, related the complications arising when a man suffers from amnesia for a period of several months. Under the title of *Tres comedias optimistas,* Ruiz Iriarte published *Un día en la gloria, El puente de los suicidas* and *Academia de amor.* Calvo Sotelo with his comedy *La cárcel infinita* won the Espinosa Cortina prize. The Lara prize of 10,000 pesetas was bestowed upon Doña Amira de la Rosa, a Colombian living in Spain, in recognition of the merit of her comedy *Piltraja;* at the suggestion of the judges, the Lara management awarded another prize of a like amount to Claudio de la Torre for his comedy *Clementina.*

Concha Espina in her novel *El más fuerte* developed the thesis that the strongest is frequently routed in life by the weakest. José María Gironella received the Eugenio Nadal prize for his novel *Un hombre,* a work rich in characters and

Spanish Colonial Empire

Country and Area sq. mi. (approx.)	Population Estimated July 31, 1944 (000's omitted)	Capital Status, etc.	Principal Products (in short tons)	Imports and Exports (in pesetas)	Road, Rail and Shipping	Revenue and Expenditure (in pesetas)
Ceuta, Melilla, Alhucemas, Chafarines and Peñon de Velez, 82	145	Madrid, administered as part of Spain	(1942) exports (1942) raw materials 610,900 manufactures 7,370	(1942) imp. 169,769,990 exp. 54,764,500		
Spanish Morocco, 17,631	1,004	Tetuan, protectorate *High commissioner:* Gen. Juan Varela	(1944) wheat 40,434 barley 150,998 maize 6,507 sorghum 39,365 iron ore 742,556 antimony ore 359	(1945) imp. 494,301,977 exp. 143,388,959	rds. c. 500 mi. rly. 80 mi. shipping (1943) entered 307,379 tons, cleared 307,299 tons	(1938) rev. and exp. 111,312,200 pes. 1938: 1 peseta= 11.05 U.S. cents
Spanish Guinea, including Fernando Po, Rio Muni and four small islands, 10,900	171	Santa Isabel, colony	exports (1943) coffee 4,305 cocoa 14,133 timber 83,696	(1943) exp. 99,014,240 (imp., in short tons, 23,870)		(est. 1943) rev. 22,266,400 pes. exp. 23,631,100 pes. (in 1943 1 peseta= approx. 9 U.S. cents)
Western Sahara, including Ifni, Rio de Oro and Spanish Sahara, 106,150 *Ifni=85, Rio de Oro, etc.=37	72*	Villa Cisneros, colonies	fish and dates			

incidents. Eulalia Galvarriato was a finalist for the same prize with *Cinco sombras,* a story concerned with the colourless existence of five girls and their romantic friend Diego. Bartolomé Soler in *La llanura muerta* made manifest the restlessness of his spirit, penetrating into the hidden recesses of the soul. The action of *Romance de estrella y el mar* by Carmen Nonell takes place in the Basque country. Juan Antonio de Zunzunegui's *La quiebra* was a novel inspired in the world of finance, with the collapse in business, politics and faith following World War I. *Cuando los ángeles duermen* by Benítez de Castro was a story with the Barcelona of 1907 to 1942 as its setting. Hernández Navarro wrote a war novel in *Ida y vuelta. El golpe de estado de Guadalupe Limón* by Torrente Ballester was a vigorous novel with a South-American background.

Memorias inmemoriales, a collection of essays by Azorín, gave expression to spiritual reflections, incorporating many personal experiences and ideas. *El artista y el estilo* contained some of his other essays, collected and arranged by Cruz Rueda, who in the prologue included a biography and study of Azorín's works. Jesús de Lucas' *Pedazos de una vida* brought out how events had influenced his mind. *Smouldering Freedom* by Isabel de Palencia recorded the experiences of Spaniards living in exile. Pío Baroja's fourth volume of *Memorias,* entitled *Galería de tipos de la época,* conveyed his impressions of many acquaintances.

The Adonais Poetry prize for 1947 was awarded to José Hierro for his book *Alegría;* more than 100 works were submitted in the contest. The Juan Valera prize, given for the best ten sonnets on characters from Valera's works, was won by Molina Tenor. Ginés de Albareda's book of poetry *Seis sonetos de Mallorca y un poema de amor* was selected by the Royal Spanish academy for the Fastenrath prize.

Salvador de Madariaga's *The Rise of the Spanish American Empire* was rich in factual information about Spanish America. In *El declinar de la monarquia española,* José Deleito y Piñuela studied the process of decadence during the reign of Philip IV. Fernando Díaz-Plaja gathered interesting information about 18th century customs in *La vida española en el siglo XVIII.* José Llampayas stressed the monarch's human qualities and misfortunes in *Alfonso X* (*El hombre, el sabio*). José M. Dousinague in *Fernando el Católico y el cisma de Pisa* included 155 documents in a study of the years 1511–13. Gregorio Marañón y Posadillo objectively laid bare the character of Philip II's secretary in his *Biografía de Antonio Pérez.* Ramón Serrano Suñer, who played an important rôle in world affairs (1940–42), brought out much that transpired during World War II in his book *Entre Hendaya y Gibraltar.* (H. L. Jn.)

Spanish Possessions in Africa: *see* Spanish Colonial Empire.

Spelman Fund of New York: *see* Societies and Associations.

Spices. During 1947 the world's two largest storehouses of spices, Indonesia and India, were torn by civil strife. Bitter fighting prevailed. Occasionally a port in Java or Sumatra was opened, when good quantities of pepper, nutmegs and mace were sent, preferably to the U.S. for useful dollars. The price of black pepper fluctuated erratically. From 55 cents per pound landed at New York in January, the market declined gradually to 23 cents, moving unevenly as supplies arrived or famine impended, again touching 53 cents during October. The pepper harvest in the Malabar region of India was bountiful. Distribution was by export licences granted by the new Indian government, solely to native sellers. English firms previously had merchandised these famous Tellicherry and Alleppey black peppers. India was intensively cultivating its pepper plantations for a maximum crop in Jan.–March 1948. Prices during 1947 were two or three times those received in prewar years.

Chinese liquidation of accumulated stocks of cassia (cinnamon) continued from Hong Kong, almost all of the tonnage being shipped to the U.S. Prices fell to but 20% of the V-J day level for the standard varieties, and another harvest was almost ready.

Hungarian paprika was again offered in the world's big city markets, after a lapse of seven years. Spain again produced the largest crop. Paprika was cultivated by Morocco and Chile, finding markets readily against government monopoly prices of Europe.

Most of the war-substitute spices disappeared from international trade. The herbs, thyme and marjoram from France, again appeared. Costs were high because of manipulation of the franc.

In New York the American Spice Trade association established a research committee of scientists to raise the quality of spices as prepared and packed for consumers. Purity is so well maintained under better selection and processing of raw materials and under the food laws of most countries, that improvement must be sought by expert study of the constituents of each spice, to increase the content of natural strength and flavouring elements.

Mustard maintained leadership as mankind's most popular condiment. The seeds were cultivated in China, India, Europe and North and South America. North American 1947 production was curtailed by hail storms when the growth, heavy with ripened pods, was about to be harvested. An official (U.S. department of agriculture) estimate of the loss was 16,000,000 lb. During the year the U.S. produced 38,000,000 lb. of mustard seed, insufficient to satisfy that country's record-breaking demand. Imports offset the shortage.

Until such time as trading with Indonesia could be resumed, Grenada, one of the British West Indies, continued to hold a nutmeg monopoly. Instead of 10 cents per pound, as in 1939, the 1947 crop brought nearly 50 cents per pound.

Ginger was plentiful, more of the buying than usual being done in Sierra Leone, Africa. There the crop was heavy and the quality remarkably better than ever. Jamaica and the Indian gingers were neglected, being substantially more expensive.

Sage, genuine *Salvia officinalis,* again became obtainable from Yugoslavia. The U.S. requires about 500 tons annually, principally for seasoning pork sausage.

Large-scale production of caraway and poppy seeds in the Netherlands was welcomed by bakers who require them for certain kinds of bread and rolls.

Red peppers were plentiful throughout 1947 from Africa. In the U.S., California harvested good crops of the milder varieties, including the Pasilla or "Mexican" chilies indispensable for chili con carne.

The Levant exported more aromatic food seeds than usual. Its large crops of anise and cumin brought good prices.

(C. A. T.)

Spirits: *see* Liquors, Alcoholic.

Sports and Games: *see* Angling; Archery; Badminton; Baseball; Basketball; Billiards; Bowling; Boxing; Chess; Cricket; Curling; Cycling; Fencing; Football; Gliding; Golf; Gymnastics; Hand-ball; Horse Racing; Ice Hockey; Ice Skating; Lacrosse; Motor-boat Racing; Polo; Rowing; Skiing; Soccer; Softball; Squash Racquets; Swimming; Table Tennis; Tennis; Track and Field Sports; Trap-shooting; Wrestling; Yachting.

Squash Racquets. Charles W. Brinton of Philadelphia, Pa., again dominated the squash racquets scene in 1947, topping his rule with the national championship in an all-Philadelphia final with Stanley Pearson, Jr. Brinton won, 15–12, 15–9, 9–15, 18–16. Pearson and David McMullen, also of Philadelphia, won the national doubles, while Mrs. Charles Homer, Jr., of Merion, Pa., captured the U.S. women's singles.

In international team competition, Canada won the Lapham International trophy and the U.S. retaliated by winning the Grant trophy for doubles play. Ed Reid of Hartford, Conn., won the professional division.

J. Richard Leonard of Cedarhurst, N..Y, defeated Richard A. Holt of England in the national amateur racquets final. Holt, however, won the Pell cup over Leonard.

Squash tennis honours were generally cornered by F. Barry Ryan, Jr., of New York, who won both the national and veterans' championships. (M. P. W.)

Stalin, Joseph Vissarionovich (1879–), soviet statesman, was born on Dec. 21 in Georgia in Transcaucasia and succeeded Lenin as virtual dictator of the Soviet Union in 1924 (see *Encyclopædia Britannica*). On May 6, 1941, shortly before the German invasion, Stalin assumed the premiership of the U.S.S.R.

During World War II, the necessity for defeating their common enemy forced the Big Three's leaders to synchronize their politico-military actions and Stalin, in his meetings with Winston Churchill and Franklin D. Roosevelt at Tehran and Yalta, and later with Clement R. Attlee and Harry S. Truman at Potsdam, was able to reach agreement with the Allies on many issues. After the war, however, the grand alliance disintegrated and latent antagonisms between the wartime partners soon came to the surface. East-west disputes in the major international conferences engendered fears of a new world war. Stalin asserted several times, however, that neither the nations nor the peoples of the world wanted war, but declared that the most serious threats to peace were the "incendiaries of a new war," naming Churchill as the foremost "incendiary."

His views on U.S.-soviet relations were expressed in his interview with Harold Stassen on April 9, 1947, when he told Stassen that despite their differing economic systems, the U.S. and the Soviet Union could exist together in harmony if there was a will to co-operate, adding that the U.S.S.R. "wants to co-operate."

To Secretary of State George C. Marshall (who visited the soviet prime minister during the Moscow conference of the Big Four foreign ministers) Stalin was quoted as saying he thought compromises were possible on all the major issues before the council but that "it was necessary to have patience and not become pessimistic."

In Feb. 1947, Stalin was unanimously elected as deputy to the supreme soviet of the Russian Soviet Federative Socialist Republic. The following month, he resigned as minister of the armed forces and handed the job to Gen. Nikolai A. Bulganin. He also was elected to the Moscow city soviet on Dec. 21, his 68th birthday. (*See* also UNION OF SOVIET SOCIALIST REPUBLICS.)

Stamp Collecting: *see* PHILATELY.

Standards, National Bureau of. Deriving authority from act of U.S. congress March 3, 1901, this bureau is the principal agency of the federal government for fundamental research in physics, mathematics, chemistry and engineering. During 1947 it consisted of 13 scientific and technical divisions, 1 concerned with commodity standards, and 4 concerned with administrative and plant matters. The scientific divisions were electronics, applied mathematics, atomic physics, radio propagation, mechanics and sound, electricity and optics, metrology, chemistry, organic and fibrous materials, mineral products, heat and power, building technology and metallurgy.

The present structure represents a reorganization that became effective July 1, 1947, and involved a regrouping of established sections to form the atomic physics and building technology divisions, the expansion of the work in mathematics into a division of four sections, and a consolidation of the old simplified practice and commercial standards divisions into a single commodity standards division to which are assigned co-ordinating functions of the bureau's work in federal specifications.

Coinciding with the range of the physical sciences, the activities of the bureau during 1947 were extremely diversified and extensive. Three broad types of activities were pursued in these fields: research and development; test, calibration and standard samples; and advisory and co-operative functions. In general, each of the divisions and sections of the bureau was engaged in all of these activities.

Normal investigations were continued in atomic physics. An important advance in this field was the development of an electronic method of focusing electrons emitted by radioactive atoms, called tracer micrography. This new method permits higher resolution in observing tracer atoms—radioactive isotopes introduced into substances to observe the behaviour of individual atoms. Beta-ray standards were developed and calibrated; microgram gamma-ray standards were prepared; disintegration schemes and nuclear energy levels were investigated; atomic energy levels were compiled; radiation hazards of low-energy radiations were studied; an extensive program to determine the absorption and scattering characteristics of concrete barriers for broad X-ray beams up to 1,500,000 volts was under way; and a co-operative program with the Carnegie institution on the fundamental action of penetrating radiation on biological matter was in progress.

The creation of a division of applied mathematics, the National Applied Mathematics laboratories, represented a major co-operative effort of the bureau, the office of naval research and other federal agencies. Four sections were activated: the Institute of Numerical Analysis, located at the University of California, Los Angeles; the Computation laboratory, incorporating the long-established Mathematical Tables project of the bureau in New York city; the Statistical Engineering laboratory; and the Machine Development laboratory. Instrumental in supporting the program and in recognizing the need for a centralized national computational facility equipped with high-speed automatic machinery, the office of naval research provided funds for the first two units. The office of naval research and the bureau of the census contracted for high-speed electronic automatic computers. The machine development group completed the design phase of this work, in close co-operation with the electronic component group of the bureau, and construction was to begin in 1948. Highly specialized mathematical tables were prepared during the year, including tables of spherical scattering functions for complex arguments, of spherical Bessel functions, of the exponential integral for both complex and real values of the parameter, and tables of intensity functions for complex indices of refraction.

Two major problems confronted the bureau in its basic research. First, the demands of contemporary science and technology for greater precision and additional data on scientific standards, the properties of materials, and physical constants required intensified activity in the established branches of the physical sciences. For example, new standards of direct capacitance for units below 5 micromicrofarads were developed and

investigations of plain ring gauges cylindrically accurate to 0.000005 inch were in progress. Second, new fields of science demand new standards. Thus radar extended the radio frequency spectrum a hundredfold during World War II, and this extension required much basic research of the nature of propagation, in the development of instruments and methods of measurement, and in the preparation of standards. As a result of the year's work, the bureau could certify the accuracy of practically all radio measuring instruments and components of frequencies up to 30 megacycles; attenuators and voltmeters of conventional design and range could be standardized up to 100 megacycles; and frequency meters or cavity resonators up to 20,000 megacycles.

Representative projects included the following: thermionic and secondary emission, electron microscopy, ultra-small electronic circuits, electronic components for digital computing machines, printed electronic circuits, basic radio propagation predictions, microwave and frequency utilization research, research in cosmic and atmospheric noise, oscillation of quartz plates, liquid oxygen for aircraft use, sound insulation, turbulent boundary layer research, flood waves, electrical surge measurements, underground corrosion, batteries and dry cells, transmissometer for control of approach lights, telescopic pointing, end standards, high-temperature specific heats, hydrocarbon research, gas turbine pyrometers, conventional heating devices, warm air panel heating, new secondary standards of mass, precision angle gauge blocks, surface strains in plastic dentures, benzoic acid thermometric standard, electrodeposition, high polymer research, properties of synthetic and natural rubbers, water repellent fabrics, permanence of plastics, concretes containing admixtures, new optical glasses, and various studies in ferrous and nonferrous metallurgy.

Nearly 150,000 tests and calibrations were made for other government agencies and the public. The activity embraced the furnishing of 20,000 standard samples, the testing of about 2,500 light bulbs (a sampling of nearly 3,000,000 purchased by the government), the sample testing of 3,000,000 bbl. of cement, the testing of more than 22,000 clinical thermometers, measurement and calibration of all the radium sold in the United States, and tests and calibrations of thousands of materials, devices and instruments.

The results of research and development at the bureau, typified in the preceding representative projects, are made available to the nation through official publications. Three periodicals, the *Technical News Bulletin,* the *Journal of Research* and *Basic Radio Propagation Predictions* are issued monthly in addition to nonperiodicals like the Applied Mathematics Series, the Building Materials and Structures Series, circulars, handbooks and miscellaneous pamphlets and books. All of these publications are available from the superintendent of documents, U.S. government printing office, Washington, D.C. (H. Od.)

Stanford University (The Leland Stanford Junior University), an independent institution of higher education near Palo Alto, Calif.

The enrolment in the autumn of 1947 was approximately double the prewar peak. Although classroom, library and laboratory facilities were strained, a new schedule distributing both classes and laboratory work throughout the day made it possible to accommodate the increased load. Stanford Village, a reconverted army hospital located two miles from the campus, housed more than 2,000 students.

A school of mineral sciences bringing together the departments of geology and mining was organized under the direction of Dean A. I. Levorsen. With the appointment of ten scholars made possible by a grant from the Rockefeller foundation, the Hoover institute inaugurated a program in Slavic studies. Work in creative writing was given a special impetus by a pledge of $75,000 from Dr. Edward H. Jones to guarantee for five years six annual $2,000 fellowships and prizes for excellence in writing the short story, the novel, the drama and poetry. With the aid of the National Theater conference, five junior artists-in-residence were appointed in the speech and drama department.

In the physics department Professor William Hansen designed and constructed an electron linear accelerator which was less elaborate and expensive than the cyclotron and offered dramatic possibilities for greatly increased energy through a simple extension of its length. And in bacteriology under the direction of Professor Hubert Loring significant advances were made on the identification and cultivation of strains of poliomyelitis virus.

Professor George Polya's election as a foreign member of the mathematics section of the French Academy of Sciences made him one of three living Americans so honoured. An unusual honour came likewise to Professor Stephen P. Timoshenko when he was designated the second American to be awarded the James Watt international medal by the Council of the Institute of Mechanical Engineers of Great Britain.

Gifts for the year totalled $1,696,000. From the estate of Mrs. Lucie Stern, funds were made available for the construction of an undergraduate men's dormitory. Near the end of the year construction was started on Crothers hall, a dormitory for graduate students in law. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* Universities and Colleges.) (A. C. Eu.)

Stars: *see* Astronomy.

Stassen, Harold Edward (1907–), U.S. politician and naval officer, was born April 13 in West St. Paul, Minn. He studied at Minnesota university and law school, Minneapolis, Minn., 1923–29, and was admitted to the Minnesota bar in 1929. He first ran for political office in 1930 when he was elected county attorney, a post he held for eight years. He was elected governor of Minnesota on the Republican party ticket in 1938 and was inaugurated in Jan. 1939, one of the youngest governors in the U.S. He was re-elected governor for the 1941–43 term. Stassen was temporary chairman and keynoter of the Republican national convention in 1940 and was national chairman of the Governors' conference and of the Council of State Governments, 1940–41. He resigned as governor in 1943 to join the U.S. navy. A commander and flag officer to Adm. William F. Halsey, Jr., Stassen saw action in four battles. On Feb. 20, 1945, he accepted Pres. Franklin D. Roosevelt's appointment as delegate to the San Francisco conference of the United Nations. Stassen, who was promoted to the rank of captain in October, was released from the navy on Nov. 15, 1945, and he returned to the political arena. On Dec. 17, 1946, Stassen became the first of the G.O.P. aspirants to announce his candidacy for the 1948 presidential nomination. A former Wendell L. Willkie backer, Stassen and his "liberal" platform was looked upon with misgivings by the conservative wing of the party. Toward the close of 1947, Stassen led the assault on commodities speculators, and his charge, Dec. 10, that administration "insiders" profiteered in food led to a senatorial probe of grain speculators.

State, U.S. Department of: *see* Government Departments and Bureaus.
State Guard: *see* National Guard.
Steel: *see* Iron and Steel.
Stellar System: *see* Astronomy.
Stock Exchanges: *see* Stocks and Bonds.



SHAREHOLDER of the U.S. Steel Corp. addressing the 46th annual meeting of stockholders and directors which was held at Hoboken, N.J., on May 5, 1947

Stocks and Bonds. The U.S. stock market in 1947 was exceptionally inactive in volume of trading, remarkably steady in price level and slightly bearish as compared with the closing price level of 1946.

With the exception of railroad stocks, the three alternate bull and bear movements of 1947 were comparatively minor in extent. The drastic bear market of 1946 apparently had spent its force, and the 1947 price level seemed to indicate primarily a backing and filling procedure.

During 1947, corporate earnings were regarded as more or less uncertain because of the large wage increases granted toward the end of 1946 and in the first months of 1947, although corporations within most groups of shares, with the exception of rails, managed to make a fairly satisfactory adjustment. In this they were aided by price increases in either products or services. Unfortunately the rate of adjustment was spotty in different fields and much slower than had been anticipated. Moreover, the entire year was marked by a psychology of inflation and a rapid rise in most basic commodities. Markets also seemed to reflect the view that neither a high postwar boom nor a serious business depression was likely.

Toward the close of 1947 observers emphasized the following problems as causing most of the stock market's unsettlement: (1) extremely high and sensitive commodity markets, (2) rising inventories of retailers with increasing sales resistance and declining sales, (3) absence of needed skilled labour, (4) gradual stiffening in long-term money rates, reflected by many new lows among preferred stocks as well as bond issues, (5) inflation at a high point, and (6) adverse developments in the foreign situation.

On Dec. 1, 1947, the market value of all listed shares on the New York Stock exchange stood at $67,026,000,000, with an average market price per share of $47.13. On Nov. 1, 1946, this market value stood at $66,115,000,000, with an average price of $51.63. A depreciation in value of approximately 8.7% was thus shown for the year.

According to the New York Stock exchange's compilation, the total stocks listed on that exchange on Dec. 1, 1947, stood at 1,896,000,000 shares, with a total market value of $67,026,000,000. This value compared with $66,115,000,000 on Nov. 1, 1946, $69,560,000,000 on Nov. 1, 1945, and $53,087,000,000 on Nov. 1, 1944. Of the 1947 total (as of Dec. 1), U.S. stocks aggregated 1,843,000,000 shares valued at $65,970,000,000, and stocks of other countries 53,427,000 shares valued at $1,056,000,000. The total of shares was distributed over 1,354 separate U.S. issues and 19 issues of other countries, representing a total of 992 issuing corporations.

Total shares traded on the New York Stock exchange during 1947 amounted to only 253,623,894 shares, as compared with 363,709,000 shares during 1946, 377,564,000 shares during 1945, 263,074,000 shares during 1944, 278,742,000 shares during 1943, 125,678,000 shares during 1942, 170,534,000 shares during 1941 and 1,124,991,000 shares during 1929, the largest yearly total on record. The New York curb market had sales during 1947 of only 72,380,000 shares, as compared with 137,220,000 shares during 1946, 143,337,000 shares during 1945, 71,062,000 during 1944, 71,382,000 during 1943 and 22,328,000 during 1942.

Bonds.—According to the New York Stock exchange's record, stock, bond and note flotations of U.S. corporations during the first nine months of 1947 totalled $2,681,000,000; but exclusive of refunding issues, investment trusts and holding companies,

Table I.—*U.S. Security Market Prices*

	Railroads 20 stocks		Industrials 50 stocks		Public Utilities 20 stocks		*Copper 7 stocks		Stocks 90 stocks	
	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946
Jan.	46.8	66.7	146.3	172.8	79.7	88.5	118.3	132.2	120.8	143.1
Feb.	48.7	66.3	152.5	173.1	80.9	89.5	121.0	136.3	125.5	143.5
March	44.6	62.7	146.8	167.8	77.6	88.8	118.8	131.4	120.4	139.2
April	41.3	63.7	141.7	179.5	74.7	93.7	114.1	139.1	116.0	148.2
May	38.8	63.6	139.7	179.8	72.5	94.3	109.7	142.8	113.9	148.5
June	39.9	66.1	145.2	177.8	73.1	94.5	108.1	139.7	117.9	147.6
July	44.5	62.8	154.2	173.5	76.2	90.2	115.3	138.8	125.2	143.4
Aug.	43.0	59.9	150.9	170.5	75.8	88.4	114.4	133.9	122.7	140.6
Sept.	41.7	48.3	147.0	145.9	74.5	75.5	113.0	109.2	119.6	119.9
Oct.	42.5	45.1	151.4	142.9	74.5	74.3	115.6	109.7	122.7	117.2
Nov.	40.7	46.6	150.9	141.5	69.9	76.0	118.7	115.1	121.3	116.7
Dec.	41.7	48.4	148.7	145.3	66.7	79.5	116.9	123.8	119.3	120.2

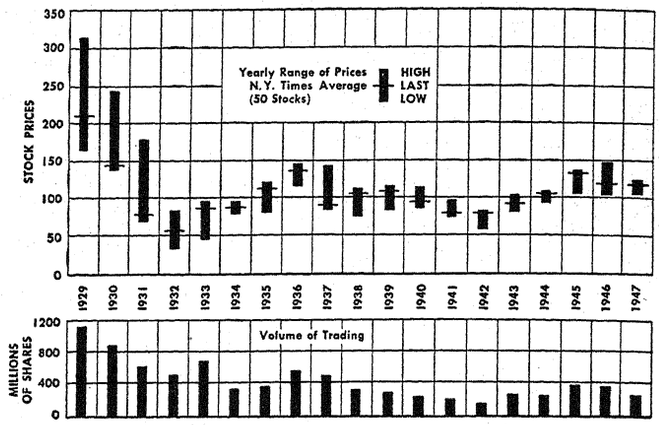
*1935–39 base period; all other figures use 1926 as a base period.

The above figures are an average for the month based on daily closing prices, except for copper, which are weekly closing prices.

Source of data, *Trade and Securities, Current Statistics*, Standard and Poor's Corporation.

Table II.—*1947 Price Range of 25 Leading Representative U.S. Common Stocks*

Stock	Close 1946	High 1947	Low 1947	Close 1947
Allied Chemical & Dye	171	202	164	189½
American Car & Foundry	49¾	54⅞	36	41⅜
American Smelting & Refining	58⅜	70½	48½	56¼
American Telegraph & Telephone	171½	174¾	149¾	151⅜
American Tobacco	81	84¾	61⅛	68½
Anaconda Copper	40⅜	42	30⅞	34
Bethlehem Steel	91	105½	76½	103
Chrysler Corporation	91½	66⅞	56¼	63¾
Douglas Aircraft	71⅝	76	45¼	47½
E. I. du Pont de Nemours	190¾	197	173	187
General Baking	11¾	13¼	9¾	10⅜
General Electric	35⅞	39⅞	32	35¾
General Motors	52½	65⅞	51⅞	58¼
Goodyear Tire & Rubber	54⅞	61⅜	41½	43½
Great Northern Ry. (pfd.)	45⅝	49⅝	34½	41
Illinois Central Railroad	25⅛	32¼	18⅛	31⅛
International Harvester	72	95	70	89
Montgomery Ward	60⅛	64⅝	49	53⅜
National Dairy Products	36⅞	38	26⅝	29
New York Central Railroad	18⅛	22⅜	12	14¼
Pennsylvania Railroad	25½	26⅞	15½	18⅛
Standard Oil of Indiana	41	44¼	37¼	42⅞
Standard Oil of New Jersey	69¼	80	63	79⅜
Union Pacific Railroad	130⅛	164½	120	164½
United States Steel	71¾	80	61⅜	78⅛



TRADING IN STOCKS on the New York Stock exchange: yearly range of prices and number of shares sold, exclusive of odd-lot and stopped sales

the total flotation amounted to only $1,414,000,000. These figures compared with similar totals during the corresponding ten months of 1946 of $3,331,000,000 and $1,080,000,000, respectively.

The total par value of bonds listed on the exchange at the beginning of Nov. 1947, stood at $136,711,000,000, with a market value of $136,336,000,000. This value compared with $136,880,000,000 and $124,802,000,000 for the corresponding years of 1946 and 1945. The increase in value during 1945 and 1946, as was the case also for a number of previous years, was largely attributable to the issue of large amounts of U.S. government securities, while during 1947 this important factor ceased to be a continuing one. Of the 1947 total, U.S. corporation bonds (at the beginning of November) amounted to $14,636,000,000, with a market value of $13,367,000,000; company bonds of other countries with a par value of $603,783,000 and a market value of $541,107,000; U.S. government bonds (inclusive of corporations and subdivisions) with a par value of $119,710,000,000 and a market value of $123,200,000,000; and other governments (inclusive of subdivisions) with a par value of $1,511,000,000 and a market value of $979,721,000. The total listed bonds of U.S. corporations were distributed over 584 issues with 316 issuers; of U.S. government bonds with 79 issues and 3 issuers; and other governments with 188 issues and 44 issuers. The total bonds traded on the New York Stock exchange during 1947 amounted to $1,075,541,000 as compared with $1,364,000,000 during 1946.

Stock Exchange Rules.—Alterations in the rules, practices and recommendations of the New York Stock exchange during 1947 included:

Permissive Incorporation.—On Jan. 16, 1947, the board of governors again disapproved amendments to the constitution which would permit corporations to hold memberships, and refused to have the amendments submitted to the membership for a vote. Following this action the proposed amendment was again submitted, on Nov. 7, to a vote on a petition bearing 340 names. By a vote of 835 to 344 the membership disapproved the proposed amendment. The proposition this time was submitted for balloting to the membership without the governing board's approval or disapproval.

Margin Requirements.—In January the federal reserve board ruled that, effective Feb. 1, 25% credit could be extended on transactions in registered securities listed on national securities exchanges. The board had prohibited such extension of credit since Jan. 21, 1946. On Sept. 26, 1947, the margin rules of the exchange were amended by the board of governors to provide that effective Oct. 1, securities selling above 5 could be purchased on the same credit terms as previously applied only to securities selling above 10.

The president of the New York Stock exchange declared that ill-advised use by the federal reserve board of its credit authority had contributed to unsatisfactory conditions in the securities markets and that an appropriate credit basis would be 50%.

Commission Increases.—On Oct. 17 the board of governors approved an amendment to the constitution of the exchange providing for the calculation of commissions on a money-involved basis and an estimated over-all increase in gross commission income by approximately 20%.

The amendment was approved by the membership on Oct. 31 and the new rates became effective Nov. 3. It was vigorously opposed by many, and a record 1,131 votes were cast in the balloting, with 756 approving the new measure and 373 in opposition.

Exchange Procedures.—The board of governors approved an amendment to the constitution of the exchange "which would enable members of the exchange, by petition with 175 signatures, to present Constitutional amendments to the Board which

Table III.—*U.S. Bond Prices for 1947*

Composite Bonds
Dollars per $100
(Standard and Poor's Corporation)

Month	High	Low
Jan.	116.7	115.8
Feb.	117.1	116.5
March	117.0	116.2
April	116.9	116.2
May	116.3	113.6
June	114.7	113.9
July	116.1	114.6
Aug.	116.2	116.0
Sept.	115.6	114.5
Oct.	114.4	113.3
Nov.	113.7	112.9
Dec.	113.1	111.7

Table IV.—*1947 Price Range of 25 Leading U.S. Domestic Bond Issues*

Name	High	Low	Last (Dec. 31)
American Telegraph & Telephone 2¾s 80	103¼	88	90¾
American Tobacco 3s 62	105½	100¼	101⅜
Atchison, Topeka & Santa Fe 4s 95	132	115¼	116
Bethlehem Steel 2¾s 70	103½	95	96½
Chesapeake & Ohio 3½s 96D	107	100¼	100¼
Chicago, Burlington & Quincy gen 4s 58	114⅝	107	107⅛
Commonwealth Edison 3s 77	109⅜	101⅜	103
Erie 3⅛s 2000 G	94	78¾	78¾
Great Northern Railway 3⅛s 90 N	104¾	89⅞	90
Illinois Bell Tel. 2¾s 81	105⅝	94¼	96
Illinois Central 4s 52	102	96	98
Louisville & Nashville 2⅞s 2003	98¼	83	83
National Dairy 2¾s 70	104¼	97⅛	97½
Northern Pacific 4s 97	113⅜	98⅛	99
Ohio Edison 3s 74	107½	99½	100
Pennsylvania Railroad gen 5s 68	125½	101¾	107¾
Philadelphia 2¾s 67	105⅜	98¼	99⅛
Reading Railroad 3⅛s 95	99½	81½	83½
Southern Pacific 4½s 81	100	83¼	87⅜
Southern Railway gen 4s 56	103¼	91	93¼
Standard Oil of New Jersey 2⅜s 71	99¾	91½	93½
Swift & Company 2⅝s 72	103¾	98	98¼
Union Pacific 2⅞s 76	106⅜	96½	96½
Western Union 5s 51	95½	76⅛	87½
Westinghouse El. & Mfg. 2⅝s 71	103	97	98

Table V.—Stock Indexes, 1947: Monthly Highest and Lowest Points

Month	Fixed Interest Share		Industrial Ordinary Share		Government Securities		Gold Mines		Stock Exchange Dealings Marked in Official List	
	High	Low	High	Low	High	Low	High	Low	High	Low
Jan.	149.5	148.5	140.6	133.8	120.94	120.55	134.56	128.68	19,438	9,143
Feb.	148.7	145.9	134.2	124.4	120.90	119.28	135.28	127.85	13,041	10,222
March	145.7	141.2	132.6	126.8	119.75	116.38	134.95	123.26	16,136	10,012
April	143.8	141.8	134.5	128.6	118.25	117.60	125.34	119.48	13,226	8,801
May	145.0	143.8	137.2	134.2	118.85	118.28	121.84	114.73	14,869	9,478
June	144.7	142.8	137.1	133.1	118.52	116.87	121.79	115.16	12,169	9,071
July	142.5	135.8	134.5	119.5	116.84	113.09	119.17	113.42	15,597	7,219
Aug.	135.1	131.7	121.8	110.4	113.81	111.89	134.71	113.16	10,033	5,838
Sept.	132.8	131.4	116.9	104.2	113.61	111.82	128.06	120.84	9,369	5,691
Oct.	135.4	132.2	117.9	110.4	114.58	112.85	126.44	121.90	8,245	5,895
Nov.	136.2	134.2	119.9	113.1	115.24	113.68	127.06	122.94	9,536	6,520
Dec.	134.8	134.2	129.0	118.9	113.58	112.88	123.59	118.69	13,434	5,684

Bases are 100 as at the following periods: fixed interest, 1928; industrial ordinary, July 1, 1935; govt. securities and gold mines, Oct. 15, 1926.

The indexes shown in the above table are those calculated each day by the *Financial Times*, and are reproduced by permission of the *Financial Times*.

would be referred to the membership for vote whether or not approved by the Board." The amendment was approved by the membership on March 20 by a vote of 739 to 122.

An increase in the capital requirements for firms carrying commodity accounts was placed into effect on April 18.

Informative Reports.—A survey of the geographical origin of all orders in stocks executed on the floor of the exchange during the period of March 24 through March 29 disclosed that 75.18% of total share trading originated in the east; 16.30% from the central time zone; 1.82% from the Rocky mountain zone; and 7.70% from the Pacific coast zone.

A specific detailed breakdown of the regular monthly short position report in listed stocks as of June 17 disclosed that, of the total short interest, "of 1,539,638 shares, 88.9% or 1,369,186 shares reflected positions of nonmembers, compared with 170,452 shares or 11.1% for members. Of 11,165 short accounts, nonmembers accounted for 10,731 or 96.1%, compared with 434 member accounts or 3.9%."

The Securities and Exchange commission reported that during the violent bear market of 1946 on the exchange, it did not appear that "the over-all market action resulted from planned or concerted action by any group; nor do the activities of any group seem to have amounted to more than the free play of different opinions as to when to buy and when to sell"; and that it "found no evidence that market prices depended at any moment on manipulative activities." (*See* also BUSINESS REVIEW.)

(S. S. H.)

Great Britain.—The year 1947 was critical for the London market in stocks and bonds. The long bull market in industrial ordinary shares which had begun in 1940 was stemmed by the fuel crisis in February, which brought large sectors of British industry to a temporary standstill, and finally broke when the running out of the U.S. loan and suspension of sterling convertibility underlined the gravity of Britain's economic position.

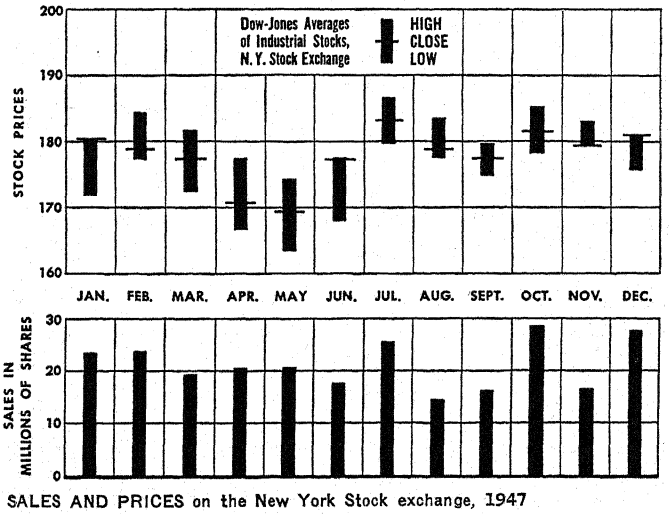
At the same time, the growing dangers of fostering an already inflationary situation by the policy of cheap money appeared to have impressed themselves upon the government advisers, and the market for British funds was allowed to find its own level. Yield on long-term government securities rose from about 2½% to 3%, and the newly-issued 2½% treasury stock ("Daltons"), redeemable in 1975 or after at government option, at one time fell to 20% discount. Yields on other securities were adjusted accordingly.

A major influence in bringing down gilt-edged prices was the substantial discount on "take-over" prices at which home rails were standing for most of the year. These securities, to be replaced by a £1,000,000,000 government guaranteed British transport stock on Jan. 1, 1948, provided a means of buying a gilt-edged stock at prices cheaper than gilt-edged themselves, and exchanges into home rails tended to depress gilt-edged prices. The basis for issuing transport stock depended on the level of gilt-edged at the date of issue, and it was probably the desire of the government to issue the stock as cheaply as possible that impelled Hugh Dalton, before he resigned the chancellorship, to speak hopefully of the market's prospects in the autumn, with the sequel that a good recovery ensued, which was partly lost when Sir Stafford Cripps became chancellor.

There was no doubt that the hope of a U.S. plan of aid for Europe helped stave off a more drastic break in market prices. Other developments tending to aid markets included the agreement to sell the British-owned railways in Argentina for £150,000,000, conclusion of financial agreements with a number of countries, the high prices of commodities, and the swing of political opinion to the right in local elections.

The full impact of the export policy had yet to be seen, and public activity in markets declined as the year wore on.

(H. PN.)



SALES AND PRICES on the New York Stock exchange, 1947

Stomach Disorders: *see* ALIMENTARY SYSTEM, DISORDERS OF.

Stone. The table lists the production of the various types of stone in the United States in 1945 and 1946.

The outputs of the types of stone used in building construction show clearly the effects of the postwar building revival. In addition to the dimension stone listed below, 69,660 tons of slate were sold in 1945, and 96,250 tons in 1946, while crushed stone was increased by 482,200 tons of slate granules and flour in 1945 and 663,500 tons in 1946. These figures also do not

Production of Stone in the United States, 1945 and 1946

(In thousands of short tons and thousands of dollars)

Name of Stone	1945 Dimension	1945 Crushed	1945 Total	1946 Dimension	1946 Crushed	1946 Total
Basalt	204	14,707	14,911	50	16,350	16,400
Granite	362	7,378	7,740	535	10,584	11,119
Limestone	334	112,240	112,574	504	134,213	134,717
Marble	60	112	172	77	128	205
Sandstone	64	4,323	4,387	161	4,093	4,254
Others	35	13,587	13,622	47	12,109	12,156
Total	1,059	152,347	153,406	1,375	177,478	178,852
Value	$17,849	$161,459	$179,308	$32,972	$201,367	$234,239

cover outputs of stones for special uses, which in 1946 included 43,887,000 tons of limestone used in making cement and 11,985,000 tons used in making lime. Including these additional items with the totals for dimension and crushed stone gives a grand total of stone output of 235,374,100 tons in 1946, as compared with 193,129,400 tons in 1945.

Canada.—Stone production in Canada increased from 6,205,555 short tons in 1945 to 8,056,260 tons in 1946 and 8,758,364 tons in 1947. (G. A. Ro.)

Straits Settlements: *see* MALAYAN UNION AND SINGAPORE.

Strategic Mineral Supplies.

Definite progress was made in 1947 toward the building up of a national stock pile in the United States of those materials declared to be strategic or critical. Stockpiling activity was of two types: (1) The taking over of those stocks of raw surplus war materials which had been declared to be strategic or critical by the Munitions board, and storing them for use in the event of future emergency demand. (2) The purchase and stocking of new materials designated as strategic or critical.

The Munitions board set up a list of more than 100 commodities divided into three major groups. Group A included materials for which stockpiling was considered the only satisfactory means of assuring an adequate supply for a future emergency. Group B included materials practicable for stockpiling, but recommended for acquisition only to the extent available as war surplus. Group C included materials not at the time recommended for stockpiling.

Previous to the passage of the Stock Piling act on July 23, 1946, and its implementation with an appropriation on Aug. 8, stockpiling activities were confined to materials in Group B. With funds available from the appropriation, a purchase program was initiated for a limited number of materials in Group A.

At the end of Dec. 1946 funds had been encumbered only to the extent of about $35,000,000, out of an appropriation of $100,000,000, but the act had been in force for less than five months, much of which time had been expended in building up an operating force, and the results were not considered unfavourable.

During the remaining six months of the fiscal year, to June 30, 1947, the rate of placing contracts was increased somewhat, but not by enough to use up the available funds. Commitments during these six months amounted to about $45,000,000, leaving at the end of the fiscal year an unencumbered balance of about $19,000,000.

The volume of stockpiling to the end of 1947 involved the use of 55 different military reservations, about 6,000,000 sq.ft. of outside storage area, and 700,000 sq.ft. of warehouse storage. To supplement existing covered storage there was erected a number of surplus steel fuel tanks, as a substitute for shed or bin storage.

For the fiscal year ending June 30, 1948, congress authorized an appropriation of $100,000,000 plus $75,000,000 in contract authority, for stockpiling purposes.

The other phase of the stockpiling operations is that of taking over from other government agencies the stocks of surplus strategic and critical materials that were on hand at the close of World War II, less any amounts that must be turned into industrial channels to make up current shortages in civilian supply. It was estimated that the value of the total surplus that would eventually be turned over to the stockpile would be of the order of $275,000,000.

The amount and character of the information that can be made public concerning stockpiling operations must be greatly limited, for security reasons. Data on what specific materials are being purchased, how much is being contracted for, how much is being sought, and where and in what amounts it is being stored are all considered confidential information. The information in the above review was abstracted from nonconfidential extracts from reports made to congress by the secretary of war and the secretary of the navy.

Strawberries: *see* FRUIT.

Streptomycin: *see* CHEMOTHERAPY; MEDICINE; NERVOUS SYSTEM; TUBERCULOSIS; UROLOGY.

Strikes and Lock-outs.

The United States, Canada and Great Britain published, for many years, current statistics of strikes and lock-outs, their causes and results, together with detailed reports on the more important strikes of each year. After 1942 the statistics on strikes gathered by these countries were less complete because of the wartime conditions.

During 1946 (Table I) there were 4,985 strikes in the United States; 235 more than in 1945, but involving the loss of 116,000,000 man days, more than three times the number lost in 1945 or in 1937, the previous peak years in time lost. In 1947, on the other hand, strike activity was at a much lower level; approximately 3,000 strikes during the first nine months caused the loss of fewer than 30,000,000 working days. While official figures for the last three months of 1947 were not available when the table was compiled, news releases indicated that strikes in the last quarter were at an equally low level, lower than during the first nine months of the year.

Table I.—*United States: Number of Strikes, Workers Involved and Man-days Lost: 1941–1947 (9 months)**

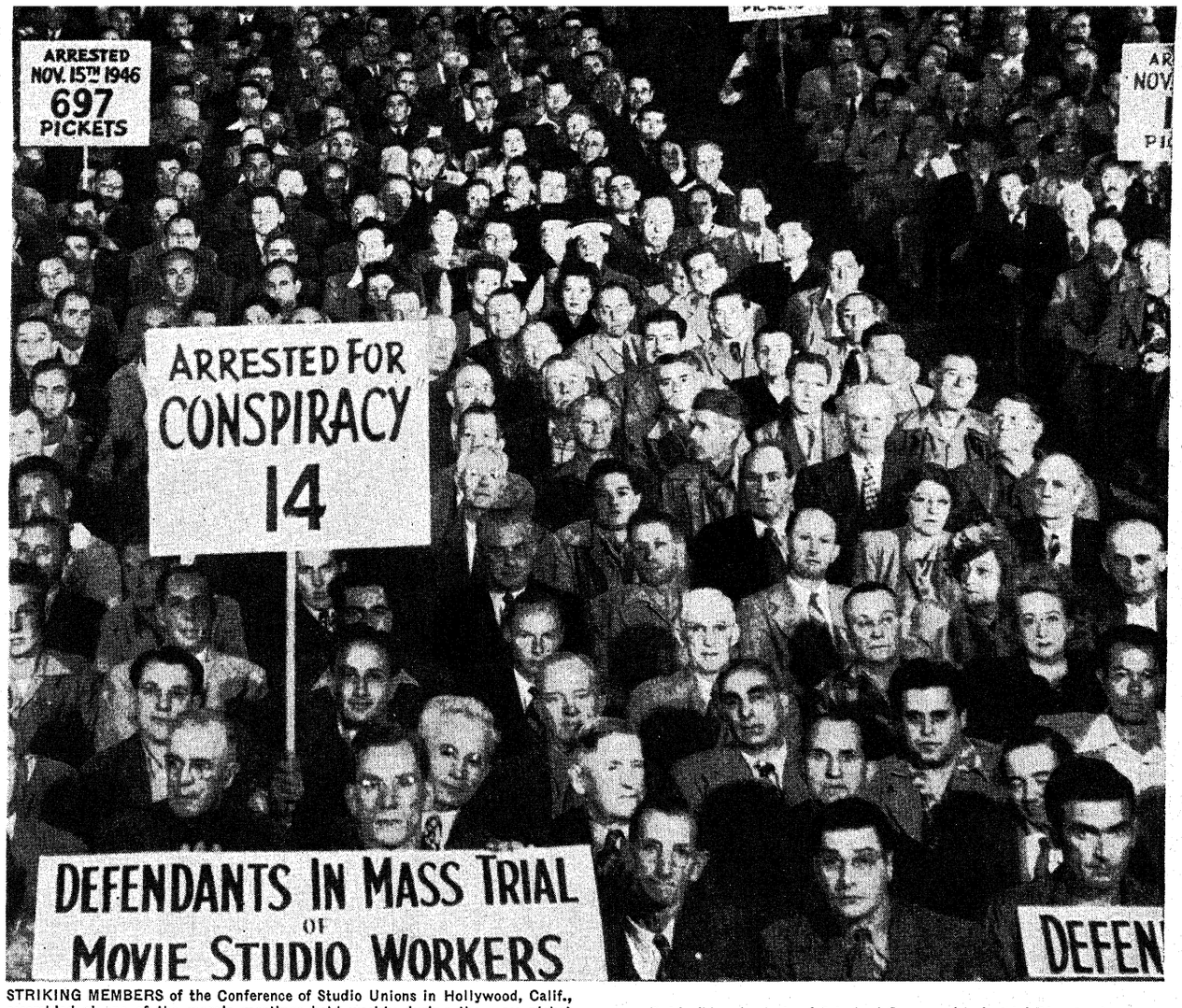
Year	Number of strikes	Number workers involved	Man-days idle during year
1941	4,288	2,362,620	23,047,556
1942	2,968	839,961	4,182,557
1943	3,752	1,981,279	13,500,529
1944	4,956	2,115,637	8,721,079
1945	4,750	3,470,000	38,000,000
1946	4,985	4,600,000	116,000,000
1947 (9 mo.)	3,000	2,250,000	29,825,000

*Compiled from *Monthly Labor Review*, United States Bureau of Labour Statistics.

All known work stoppages, arising out of labour-management disputes, involving six or more workers and continuing as long as a full day or shift were included in reports of the bureau of labour statistics. Figures on man-days idle and workers involved covered all workers made idle in establishments directly

Table II.—*Analysis by Industries of Work Stoppages Arising from Industrial Disputes in Great Britain: First Nine Months of 1947 and Corresponding Months in 1946*

Industry	January-September 1947			January-September 1946		
	Number stoppages beginning in period	Number working people involved	Aggregate number working days lost	Number stoppages beginning in period	Number working people involved	Aggregate number working days lost
Fishing	3	2,600	13,000	2	6,600	63,000
Coal mining	806	243,500	747,000	1,029	176,400	347,000
Other mining and quarrying	11	700	2,000	8	600	1,000
Brick, pottery, glass, chemical, etc.	21	1,800	7,000	25	2,000	8,000
Engineering	55	11,500	74,000	148	90,700	489,000
Shipbuilding	91	62,400	300,000	84	15,100	181,000
Iron, steel and other metal	71	12,900	35,000	135	32,400	214,000
Textile	16	2,200	9,000	29	6,200	34,000
Clothing	14	2,600	11,000	30	14,300	101,000
Food, drink, tobacco	14	2,200	12,000	15	6,900	47,000
Woodworking, furniture	12	1,200	6,000	15	900	6,000
Paper, printing, etc.	5	1,200	9,000	7	3,400	4,000
Building, etc.	28	3,600	18,000	49	4,800	10,000
Gas, water and electricity supply	3	400	1,000	10	4,800	18,000
Transport	73	114,400	562,000	76	33,200	74,000
Public administration services	7	3,200	51,000	5	1,200	8,000
Distribution, commerce, etc.	19	18,200	72,000	16	8,800	64,000
All other industries	28	8,700	34,000	24	3,200	15,000
Total	1,277	493,300	1,963,000	1,707	411,500	1,684,000



STRIKING MEMBERS of the Conference of Studio Unions in Hollywood, Calif., assembled at one of the morale meetings held weekly during the mass picket trials of 1947

involved in a stoppage. Figures for 1947 were preliminary and subject to revision.

Table II compares the number and severity of work stoppages in Great Britain during the first nine months of 1947 and 1946. Strike idleness in 1947 through September was not quite as bad as during the corresponding months of 1946; the principal difference was in the smaller strike idleness in coal mining and transport industries. Shipbuilding and transport were the only major industries more seriously affected by strikes in 1947.

During the first nine months of 1947 there were 1,277 strikes in Great Britain, which compared with 1,707 in the corresponding months of 1946. There were 493,300 workers idle in the strikes of 1947, compared with 411,500 in the nine-month

Table III.—*Relative Frequency and Size of Labour Disputes in Great Britain in 1947 (nine months) and 1946*

Month	Strikes in progress		Number of work people involved		Number of working days lost	
	1947	1946	1947	1946	1947	1946
January	171	212	114,100	40,900	412,000	120,000
February	151	207	50,000	50,700	158,000	183,000
March	190	225	53,200	56,000	113,000	274,000
April	251	213	68,500	42,100	240,000	157,000
May	129	231	70,200	85,400	182,000	208,000
June	169	219	58,200	51,900	210,000	224,000
July	106	183	52,700	47,400	170,000	164,000
August	123	184	46,600	44,000	121,000	169,000
September	114*	205	85,100	42,500	354,000	185,000
October	...	238	...	70,700	...	289,000
November	...	209	...	44,600	...	133,000
December	...	97	...	40,900	...	120,000

Compiled from *The Ministry of Labour Gazette* (London).
*Figures for Sept. 1947 are provisional and subject to revision; those for earlier months have been revised where necessary in accordance with latest information.

Table IV.—*Analysis of Principal Causes of Industrial Disputes in Great Britain in 1946*

Principal causes	Number begun during 1946		People directly involved	
	Number	Per cent	Number	Per cent
Wage Increase	254	11.5	82,000	20.3
Other wage disputes	707	32.0	88,000	21.7
All wage disputes	961	43.5	170,000	42.0
Hours of labour	63	2.9	15,000	3.7
Employment of particular classes or persons	287	13.0	74,000	18.3
Other working arrangements and discipline	778	35.3	78,000	19.2
Trade unionism	81	3.7	47,000	11.6
Sympathetic action	16	0.7	8,000	2.0
Other causes	19	0.9	13,000	3.2
Total	2,205	100.0	405,000	100.0

The Ministry of Labour Gazette (London).

period of 1946, the increase being in the numbers of men who struck in the shipbuilding and transport industries. In man-days lost the 1947 strikes were more serious: 1,963,000 com-

Table V.—*Number* and Time Loss in Canadian Labour Disputes, 1947 (nine months) and 1946, by months*

Month	1947				1946			
	No. of strikes	No. of employees involved	Time loss in working days	Per 1,000 available work days	No. of strikes	No. of employees involved	Time loss in working days	Per 1,000 available work days
Jan.	12	2,203	28,519	0.38	13	2,957	18,948	0.25
Feb.	13	17,219	199,679	2.67	16	3,594	11,891	0.16
March	10	792	378,057	5.05	22	4,299	45,846	0.61
April	21	3,151	363,886	4.86	22	4,924	45,764	0.61
May	32	18,053	365,424	4.89	29	46,681	566,410	7.57
June	19	2,844	166,370	2.22	25	31,556	933,876	12.49
July	18	1,707	24,355	0.33	33	28,226	915,911	12.25
Aug.	21	5,755	52,314	0.70	20	5,180	870,694	11.64
Sept.	25	5,202	276,859	3.69	18	2,036	657,714	8.79
Oct.	..	...	...	...	10	6,881	393,296	5.43
Nov.	..	...	...	...	12	2,221	33,890	0.47
Dec.	..	...	...	...	5	839	23,804	0.33
Total	171	56,926	1,855,463	...	225	139,394	4,518,044	...

Compiled from *Canadian Labour Gazette*. All 1947 figures are preliminary.
*These figures relate only to the actual number of strikes and lock-outs in existence and the workers involved during the year, not being a summation in each case of the monthly figures.

pared with 1,684,000 in 1946.

In Great Britain wage questions accounted for 43.5% of the total number of stoppages in 1947 and 42.0% of the total number of workpeople directly involved.

The few disputes which arose on questions of hours of labour accounted for only 2.9% of the total number of workpeople directly involved. Disputes in connection with the employment of particular classes of persons, working rules and discipline made up more than half of the total number of stoppages (Table IV).

The number of strikes in Canada, and particularly in the numbers of workpeople involved and man-days lost (Table V) decreased to an extent comparable with the decline in strikes in the United States.

(*See* also LABOUR UNIONS; NATIONAL LABOR RELATIONS BOARD; NATIONAL MEDIATION BOARD; UNITED STATES.)

(D. D. L.)

Strontium Minerals. Celestite production in the United States declined from 2,784 short tons in 1945 to 243 tons in 1946, and supply was maintained by increasing imports from 3,691 tons to 4,507 tons. (G. A. Ro.)

Submarines: *see* NAVIES OF THE WORLD.
Subsidies: *see* AGRICULTURE.
Sudan: *see* ANGLO-EGYPTIAN SUDAN; FRENCH OVERSEAS TERRITORIES.

Sugar. The U.S. sugar supply for 1946–47 was the largest in several years. Production in areas supplying the United States increased to about 10,500,000 tons, compared with 9,500,000 tons average prior to World War II. Price guarantees to domestic sugar producers and higher prices for Cuban sugar under terms of the Cuban Purchase agreement improved the supply. A record Cuban crop more than offset a loss in Philippine production.

Total sugar production in the United States proper was estimated for 1947 at 2,056,000 tons of beet and cane, compared with 1,820,000 tons in 1946 and an average of 1,818,000 tons during 1936–45. The 1947 crop included 1,705,000 tons of beet and 351,000 tons of cane sugar. The sugar beet crop set a new record in 1947, amounting to 12,248,000 tons compared with 10,562,000 tons in 1946 and an average of 9,617,000 tons during 1936–45. Acreage planted was 11% above that of 1946—887,000 compared with 802,000; the average for 1936–45 was 781,000. The yield was also high—13.8 tons per acre compared with an average of 12.3 tons. Approximately 1,824,000 tons of raw sugar were manufactured from the crop—19% above the output of 1946.

Sugar cane for sugar and seed in 1947 was reported at 5,353,000 tons compared with 5,967,000 tons in 1946 and an average of 6,049,000 tons during 1936–45. The acreage was higher but the yield was only 16.6 tons per acre compared with 19.5 tons

Table I.—*U.S. Sugar Beet Production 1947, 1946 and 10-Year Average 1936–45*

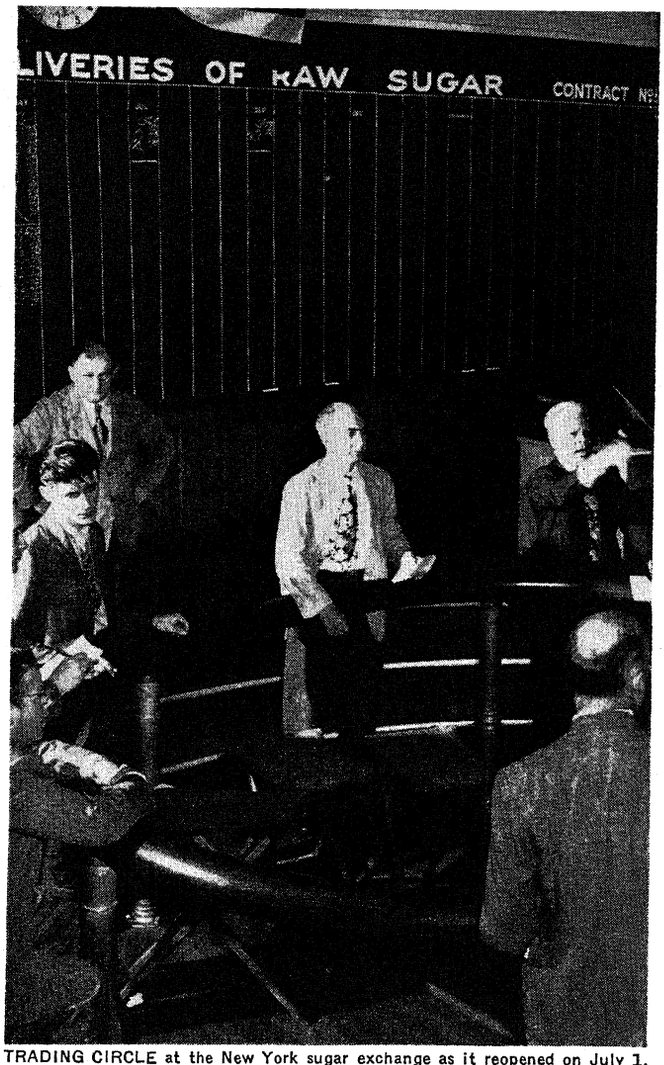
(In thousands of short tons)

State	1947	1946	10-yr. average	State	1947	1946	10-yr. average
California	2,792	2,076	1,939	Utah	766	568	553
Colorado	2,450	1,920	1,887	Michigan	469	814	803
Idaho	1,782	1,274	846	Wyoming	454	421	489
Montana	893	891	839	Ohio	158	234	291
Nebraska	806	825	805	Other states	1,728	1,536	1,164

Table II.—*U.S. Sugar Cane Production 1947, 1946 and 10-Year Average 1936–45*

(In thousands of short tons)

State	1947	1946	10-yr. average
Louisiana	3,870	4,488	4,812
Florida	1,030	1,037	784



TRADING CIRCLE at the New York sugar exchange as it reopened on July 1, 1947, following the removal of price controls on sugar futures. Trading was discontinued in 1942 with the imposition of price controls

in 1946 and a 10-year average of 20.6 tons. A hurricane destroyed much of the crop in Louisiana and Florida in Sept. 1947.

Maple sugar production was estimated at 305,000 lb. in 1947 compared with 372,000 lb. in 1946. Honey production was put at 210,039,000 lb. compared with 213,814,000 lb. in 1946. The Cuban sugar cane crop was about 6,400,000 tons in 1947—almost 2,000,000 tons above the previous year's production. The Puerto Rican crop was above the prewar level and about the same as in 1941.

The total supply of sugar for the United States in 1947 provided about 94.9 lb. per capita, almost 25% more than in 1946, and only 2 lb. less than the prewar average. The supply was allocated by the International Emergency Food council (I.E.F.C.), which gave an allotment of 7,150,000 tons to the United States. Following the end of rationing July 12, 1947, distribution of sugar rose. On Aug. 30 all controls were removed and consumption increased. Price controls ended Oct. 30 but no general advance in prices resulted since consumers had apparently been getting ample supplies. Annual consumption was estimated at about 95 lb. per capita in 1947, 75 lb. in 1946, and about 96.5 lb. in the prewar years. Supplies were low in some areas early in 1947, and rations were held to 25 lb. per person for domestic use; industrial use was also controlled at 60% of the 1941 base.

The Sugar Control Extension act passed in March 1947 transferred the control of sugar to the U.S. department of agriculture. It also extended rationing and price control to Oct. 31, 1947, and inventory control to March 1948, but these controls were discontinued in June and August as the supply increased. Steady improvement in the Cuban crop led the I.E.F.C. to in-

crease the U.S. allotment in June by 350,000 tons.

The Sugar act of 1948 which replaced the act of 1947 on Dec. 31, 1947, authorized the secretary of agriculture to determine the amount of sugar needed to meet requirements for the ensuing year, and to fix quotas for domestic and imported sugar. The 1948 act also authorized the secretary of agriculture to make payments to growers on a basis of 80 cents per 100 lb. of raw sugar.

Payments to beet growers in 1946 amounted to $28,200,000, to cane growers $6,600,000; Hawaii $6,574,000; Puerto Rico $15,200,000 and Virgin Islands $75,000, total $55,038,000. The average price to growers in 1946 for beets was $13.70 per ton, cane $7.92 per ton. Retail prices ranged from $5.71 per 100 lb. in 1941 to about $10 per 100 lb. in 1947.

On Nov. 28, 1947, the president issued a proclamation reestablishing quotas which had been suspended since April 1942; the new quotas were scheduled to become effective in 1948 after public hearings.

The sugar quota law became a subject of vigorous controversy in the International Trade organization meetings because of the charge that it conflicted with the general policy of the United States to ask for the reduction of trade barriers of all types.

World sugar production in the 1946–47 crop year was estimated at 31,231,000 tons, 19% above the 26,283,000 tons of 1946 but below the prewar (1935–39) average of 34,783,000 tons. The increases were in Cuba, with a crop more than twice the prewar level, Puerto Rico, Brazil and the United States. France's crop was one-fourth below the prewar level, Germany's about one-half and India's almost normal. Both Formosa and the Philippines were down to less than 10% of prewar production. Recovery was expected to continue rapidly, however, and Europe had 40% more sugar production in 1947 than a year earlier; South America had 17% more.

The goals for sugar beets and cane for 1948 were the same as for 1946—beets 966,000 ac. and cane 320,000 ac. A guarantee of $14.50 per ton for beets was offered in 1946 but there was no support price for 1947 sugar cane. (*See* also BEEKEEPING; MAPLE PRODUCTS; PRICE ADMINISTRATION, OFFICE OF; SYRUP, SORGO AND CANE.) (J. C. Ms.)

Suicide Statistics. The death rate from suicide in the United States during 1947 was practically at the level of that for 1946, according to provisional estimates by the Metropolitan Life Insurance company. Final figures for the number of deaths from suicide in the United States during 1946 were not yet available at the end of 1947; the latest estimate was 15,174, a rate of 10.8 per 100,000 population. In Canada, the number of deaths from suicide during 1946 was 985, the rate being 8.0 per 100,000 population. During the same year, England and Wales recorded 4,493 deaths from suicide and a rate of 10.5 per 100,000 population.

It had been observed that death rates from suicide were high in those areas of the United States where the death rates from homicide were low. Thus, in 1945, the death rates from suicide in the south Atlantic, the east south central, and the west south central states were at the relatively low levels of 8.7, 6.5, and 7.5 per 100,000. The homicide death rates in the same areas were quite high, namely 10.0, 11.3 and 8.9, respectively. This situation reflected, in large degree, the low mortality from suicide and the high mortality from homicide among the Negro population of these areas. On the other hand, in the northern tier of the country, with a small proportion of Negro population, the death rates from suicide averaged a little over 12 per 100,000, while the homicide rate was, in most states, well under 4 per 100,000.

Mortality from suicide in 1945 was highest in the Pacific coast states, where the rate was 16.0 per 100,000 population; for the mountain states, the rate was 11.5.

A survey of the methods of suicide among white industrial policyholders of the Metropolitan Life Insurance company showed in some instances striking changes over the period from 1921 to 1946 (*Statistical Bulletin,* May 1947). Among white males, firearms were the leading means of suicide, being used in about one-third of the cases throughout this period. Hanging, however, increased in importance as a means of suicide among white males, from 17% of the total in 1921–25 to 27½% in 1946. There was relatively little change in the proportion using either asphyxiation or drowning; the former accounted for 17½% of the total in 1921–25 and 15½% in 1946, while the latter was used in a little under 6% of the cases for the period as a whole. The use of poisons decreased from 14½% of all means in 1921–25 to 7% in 1946, and the use of cutting or piercing instruments from 7⅓% to 4½%. On the other hand, jumping from high places and crushing increased in importance as a means of suicide. On the whole, the trend in the means of suicide among white females followed that among white males, although the importance of the various means differed between the two sexes.

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Sullivan, John Lawrence (1899–), U.S. government official and lawyer, was born on June 16 in Manchester, N.H., and attended Dartmouth college and Harvard university. Admitted to the New Hampshire bar in 1923, he began practising law the following year. He soon became senior partner in law firms both in his native city and in Washington, D.C. Sullivan was assistant secretary of the treasury (1940–44), assistant secretary of the navy for air, 1945–46, and undersecretary of the navy, 1946–47. His appointment as secretary of the navy was announced Aug. 21, 1947, although, like the secretaries of the army and air under the new national defense organization, he was not given cabinet rank.

Sullivan appeared before the president's Air Policy commission on Nov. 30 and denied that air power was the prime need of U.S. security, citing as evidence the performances of the naval branch of the service in World War II. He did, however, recommend a program to strengthen the navy's air arm.

Sulphur. The United States normally produced about 80% of the world output of sulphur, Italy 12% and various minor countries the remaining 8%. War conditions seriously curtailed the Italian output, increased that of the United States, and brought in Mexico and Argentina as new producers.

United States.—The salient data of the sulphur industry of the United States are shown in the table below, in thousands of short tons.

	1942	1943	1944	1945	1946
Production	3,876.0	2,843.5	3,604.4	4,203.6	4,322.8
Shipments	3,504.0	3,308.3	3,941.4	4,293.3	4,623.6
Imports	25.6	18.7	...	...	?
Exports	655.5	764.4	756.2	1,055.8	?
Available supply	2,877.2	2,562.6	3,185.2	3,237.5	?
Consumption	2,768	2,836	3,270	3,316	?
Stocks (Producers')	4,800	4,997	4,600	4,484	4,221

Production in the first three-quarters of 1947 was 3,596,749 short tons, 14% over the same period of 1946, while shipments advanced 24%, to 4,046,728 tons. The increased activity was to be attributed mainly to the expanding exports. (G. A. Ro.)

Sumatra: *see* NETHERLANDS INDIES.

Sunday Schools. The most conspicuous world event of 1947 relating to the Sunday school was the meeting of the World Council of the World's Sunday School association in Birmingham, Eng., on Aug. 18–22. About 100 persons from more than 40 countries attended this business meeting of the governing body of the association.

Sunday-school attendance in some countries of Europe had returned to prewar figures by 1947. Shortage of teachers, however, was still a serious problem; it resulted in part from the fact that many teachers discontinued teaching during World War II and had not returned to all their former activities, and in part to the fact that young people who grew up during the disturbed war years did not develop the practice and habit of working in the Sunday school.

Significant forward-looking actions were taken in the Birmingham meeting, among which were the following: (1) To change the name of the World's Sunday School association to World Council of Christian Education; (2) To establish a department of audio-visual aids and a department of children's work; (3) To co-operate with the World Council of Churches in youth work and (4) To hold the 1950 World's convention in North America.

A Joint Commission on Christian Education representing the International Missionary council, the World Council of Christian Education and the World Council of Churches was established, the World Council of Christian Education to carry major administrative responsibility.

Several national Sunday school conventions were held, among which were these: The first postwar convention of the Finnish Sunday School association; the first postwar convention of the Sunday School Association of Czechoslovakia; and the International (U.S. and Canada) Sunday School convention of the International Council of Religious Education in Des Moines, Ia.

The International Council of Religious Education published a significant report of a special committee of which Prof. Paul H. Vieth was chairman, entitled "The Church and Christian Education." (*See* also CHURCH MEMBERSHIP.) (F. L. KP.)

Superphosphates. The more important features of the superphosphate industry in the United States are shown in the following table, in thousands of short tons.

	1943	1944	1945	1946
Production	6,293.0	6,692.4	7,372.1	7,847.6
Shipments	3,935.3	3,951.4	4,333.0	4,421.7
Stocks	791.4	794.8	808.0	646.3
Exports	268.6	205.9	207.2	270.3
Imports	2.8	1.3	2.0	2.8
Phosphate rock used	4,067.6	4,123.0	4,419.8	5,157.0

About two-thirds of the phosphate rock output goes into the production of superphosphates. (G. A. RO.)

Supreme Court of the United States. Frederick M. Vinson of Kentucky, appointed by President Truman to be the 13th chief justice of the United States, presided over a session of the court for the first time Oct. 7, 1946, the day on which the court convened for its 1946–47 term, known as the October term, 1946. The term continued through June 23, 1947, the latest date on which the court had adjourned its annual term during the 20th century.

Associate Justice Robert H. Jackson returned to the court after a year's absence during which time he was engaged as chief prosecutor for the United States at the trial of the major nazi war criminals before the International Military tribunal in Nuernberg, Ger.

The court disposed of 1,366 cases, the greatest number at any one term in its history. Largely responsible for the size of the court's docket was the fact that an unprecedented number of petitions, 528, were filed by indigent persons, mostly prisoners. Of these 60% came from inmates of prisons in the state of Illinois. Of the 142 cases disposed of by written opinion as distinguished from disposition by mere denial of petitions for review and by memorandum opinion, the federal government was a party in 84, and of these approximately 72% were decided in its favour. As had been the case during the past several terms, controversies concerning federal regulation of business including those affecting labour relations predominated.

Dissenting votes were cast in 84 of the cases decided by written opinion.

Members of the Court.—The United States supreme court was composed in 1947 of the following members (dates indicate year appointment was confirmed by the senate): chief justice, Frederick M. Vinson (1946); associate justices, Hugo L. Black (1937), Stanley F. Reed (1938), Felix Frankfurter (1939), William O. Douglas (1939), Frank Murphy (1940), Robert H. Jackson (1941), Wiley B. Rutledge (1943) and Harold H. Burton (1945). (*See* also LAW.) (H. B. WY.)

Surgery. In the surgical treatment of cancer of the oesophagus Richard H. Sweet showed that of the patients surviving the operation 77% were alive at the end of 6 months, 50% alive at the end of 12 months, and 37.5% at the end of 24 months. Alton Ochsner, Michael E. DeBakey and J. Leonard Dixon demonstrated that the surgical treatment of cancer of the lung which previously gave extremely poor results now offered a much better outlook, even though these cases were seen relatively late because diagnosis had usually not been made early. Slightly more than half of the patients surviving the operation for cancer of the lung lived for six months; 40% for one year, and 23% for five years or longer. In addition to the curative treatment of cancer either by surgical removal or by destruction *in situ* by X-ray or radium, much was accomplished in 1947 by the palliative use of substances which tend to retard the growth of tumours. (*See* CANCER.)

In order to prepare a patient with a large hernia of the abdominal wall for operation, particularly an extremely fat individual, Goni Moreno of Buenos Aires advocated introduction of air into the abdominal cavity as a preliminary procedure. In this way, the patient gradually becomes accustomed to increasing pressures within the abdomen, making it possible for him to tolerate these pressures when the hernia is repaired. The method has been found to be particularly valuable in older people who are obese and who have other conditions, such as heart disease and diabetes.

Francis D. Moore, Waltman Walters and associates, K. S. Grimson and F. H. Lahey critically analyzed their results following treatment of ulcer of the duodenum with vagotomy—cutting the vagus nerve—and became much more conservative in their indications for advising this procedure. They emphasized the large number of undesirable symptoms which persist after the operation.

Cirrhosis of the liver associated with varicose veins of the oesophagus and stomach frequently causes severe haemorrhage from the stomach and may even result fatally. As previously reported, an attempt to relieve this condition consisted of anastomosing the vascular system of the liver with the systemic vascular system in order to short-circuit around the obstructive cirrhosis in the liver. Dallas B. Phemister and Eleanor M. Humphreys removed those portions of the oesophagus and stomach in which these varicose veins are located in order to prevent recurrences of haemorrhage. Another extremely undesirable complication of cirrhosis of the liver is an accumulation

of fluid within the abdomen, which formerly had required repeated aspirations in order to empty the abdominal cavity. Roy C. Crosby and Edward A. Cooney successfully used a glass button inserted into the abdominal wall, permitting the escape of fluid within the peritoneal cavity into the subcutaneous tissues, where it can be absorbed. In this way repeated aspirations of the fluid was obviated.

Considerable work was done in 1947 on the use of drugs to produce dilatation of the vessels and thus increase the blood supply to the extremities. R. H. Lyons and associates, D. Chess and F. F. Yonkmann, and K. S. Grimson emphasized the value of the systemic administration of these drugs in order to produce dilatation. Although apparently of value in the treatment of severe arterial disease, as shown by M. E. DeBakey, George Burch, Thorpe Ray and Alton Ochsner, such administration may actually do harm in the treatment of a patient with disease of the vessels of the extremity, because by producing a generalized dilatation of the vessels the pressure within the entire vascular system becomes decreased. In this way that portion of the body in which blood vessels are diseased and in which there is the greatest demand for blood will receive less blood than if local dilatation of the diseased vessels is accomplished and contraction of the other vessels is maintained. Normally, in order to produce dilatation of the vessels in a particular area, a lending-borrowing mechanism is set up whereby the blood is shunted from the rest of the body into that area in which it is most needed. George E. Burch and associates demonstrated that the systemic use of vasodilator drugs in the treatment of diseases of the arteries of the extremity is not rational and should not be used. It had been generally agreed that in the younger persons with diseased blood vessels of the extremities in which the spasm of the artery is largely responsible for the decrease in the blood supply, the removal of the sympathetic nerves is of value. This procedure, however, was not used a great deal in older persons with hardening of the arteries. Gaza deTakats and M. H. Evoy showed that even in the older persons with arteriosclerosis sympathectomy is of value in relieving symptoms caused by diminished blood flow. Not only were the patients able to walk better, but pain was relieved in a large majority of cases. The results obviously were not as good as could be obtained in younger persons.

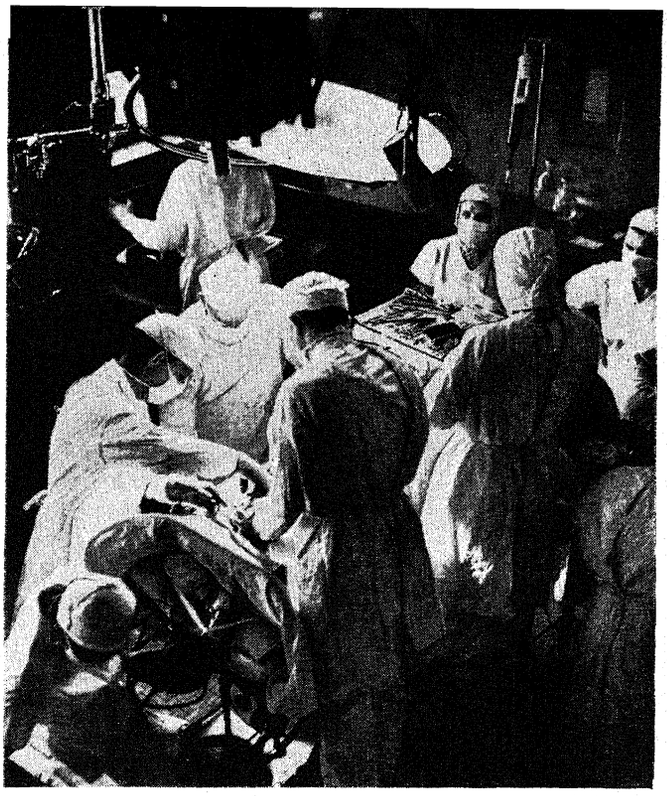
Not infrequently it is necessary to use tubes and plates in the body in order to conduct fluid or to fill defects. Whereas previously rubber and other types of material had been used, F. D. Ingraham and associates suggested a plastic substance which can be easily handled and produces practically no reaction in the body. It had the great advantage over some of the metals, such as vitallium, in that it could be moulded and cut.

In order to cure relatively simple congenital cysts and sinuses difficult to treat, P. Jacobson suggested the destruction of such cysts by means of electrocoagulation. Because the persistence of the sinuses in these conditions is caused by the persistence of the secreting membrane, Jacobson believed that the best and simplest result could be obtained by destruction of the secreting cells by the electric cautery.

L. A. Grossman and associates, G. J. Strean and associates and E. E. Muirhead and associates advocated and used irrigation of the peritoneal cavity with various fluids to remove waste products resulting from kidney shutdown associated with certain surgical procedures. (*See* also ANAESTHESIOLOGY; MEDICINE.)

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(A. O.)



SURGEONS operating on a "blue baby" at Johns Hopkins hospital, Baltimore, Md., in March 1947, as a television camera (upper left) carried the scene to an audience of doctors elsewhere in the hospital

Surinam

(DUTCH GUIANA). A Netherlands colony in northeastern South America, bounded on the east, south, west and north, respectively, by French Guiana, Brazil, British Guiana, and the Atlantic ocean. Area, 54,291 sq.mi.; pop. (Jan. 1, 1942, official figure), 183,730 (1945 est., 178,000). The capital is Paramaribo (pop., 60,723). The governor in 1947 was Dr. J. C. Brons.

History.—A widely publicized colonization scheme was advanced by the Freeland league, an organization for resettlement of Jewish *emigrés,* providing for settlement of from 50,000 to 100,000 Jewish displaced persons in Surinam within two years. A committee representing the league went to Surinam in mid-April to discuss the plan with Gov. Brons and other officials, and the colonial legislature voted on July 7 to admit up to 30,000 Jewish displaced persons.

Six soldiers and police were seized at Paramaribo on Nov. 15 in an alleged revolutionary plot. The colonial legislature during the year approved the immediate undertaking of an aerial photographic survey of the rugged and largely unexplored interior by Royal Dutch Airlines (K.L.M.) planes.

Education and Religion.—Approximately 122 schools (4 ranking as colleges) had an enrolment of more than 22,000 in 1947. About 75 of the schools were operated by missionary societies. Religious adherents in Surinam were classified as follows: Protestants, 42,027; Catholics, 29,124; Jews, 1,069; Mohammedans, 41,300; Hindus, 32,000; Confucians, 13,000; animists, fetishists, etc., 22,000.

Finance.—The monetary unit is the guilder (or florin) of 100 cents, exchanging at 53.33 cents U.S. currency. Preliminary budget estimates of income for 1947 were 12,533,398 guilders; expenditures, 12,515,932 guilders. Inflation continued to be a serious problem during the year, and

shortage of dollar exchange complicated the economic picture. The Netherlands government announced plans during 1947 for a five-year program of economic development for Surinam to cost 40,000,000 guilders.

Trade.—Exports for the first six months of 1947 were valued at 10,914,546 guilders as against 4,401,206 guilders for the same period in 1946. Imports for the first half of 1947 totalled 13,999,245 guilders as against 6,714,049 guilders in the same period of 1946. Exports of bauxite, by far the most important export product, were almost as large in the first half of 1947 as for the entire year 1946. Total exports for 1946 were valued at 11,513,612 guilders and imports at 15,710,868 guilders. The chief export items in 1946, with value in guilders, were bauxite, 8,489,320; lumber, 831,902; balata, 703,365; rice, 513,736; coffee, 434,854; fruits, 127,002. Principal imports in that year were mineral oils and derivatives, 1,661,788; cotton goods, 1,369,965; grain meal, 957,781; butter, 412,572; cut tobacco, 379,112; piece goods, 375,799; machines and electrotechnical articles, 356,693; miscellaneous machines and machine tools, 349,665; motor and other vehicles, 306,906.

Agriculture.—Sugar production in 1946 was 5,456 short tons. Production of citrus fruits in 1946 was 30,000,000 units as against 15,500,000 in 1945. Paddy rice production in 1946 was 114,639,200 lb. as against 77,601,920 lb. in 1945. Sugar workers had to be imported temporarily from Barbados, St. Lucia, and other West Indian islands. Coffee production also increased in 1946.

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Surplus Property Disposal.

Original estimates of the maximum amount of government property expected to be declared surplus to the War Assets administration and other U.S. domestic disposal agencies were revised downward in 1947 with the receipt of new information from owning agencies. At one time it was expected that this total would be in the neighbourhood of $34,000,000,000. Later estimates indicated that the amount to be acquired was approximately $29,500,000,000. Amounts in addition to existing inventory expected to be declared surplus totalled only $1,300,000,000.

This revision of estimates brought closer to finality the job of disposing of surplus left over from World War II. By the end of Sept. 1947 the total in inventory amounted to $7,600,000,000. The disposal of personal property was expected to be completed by June 30, 1948. After that date, the principal disposal problem would be that of real property, which would comprise approximately three-fourths of total inventory by June 1948.

Real property was expected to be a program of long duration in view of national security considerations, legislative restrictions and the difficulties of marketing hard-to-sell property.

The inventory of surplus property available for disposal by the designated selling agencies had been declining since June 1946, because of decreasing acquisitions, the large excess of disposals over acquisitions, and the diminishing marketability of the types of property left in inventory. Increasingly larger portions of available inventory consisted of consumer and producer goods of poor quality, special purpose machinery and "hard-to-sell" properties. The effect of these factors was shown by decreased sales, increased nonreimbursable transfers and other miscellaneous disposals, increased disposals of scrap and residual materials and decreased rate of return on sales.

Nonmonetary disposals accounted for an increasing proportion of the total by the War Assets administration in the field of consumer and producer goods. These disposals increased from about $23,000,000 in Sept. 1946 to a peak of $82,000,000 in Aug. 1947. The share of total disposals represented by sales declined from 92% of the total in Sept. 1946 to 65% in Aug. 1947.

The major nonmonetary disposals were: transfers to the armed services under the joint army-navy machine tool program; transfers to federal agencies without reimbursement for domestic and foreign relief, veterans' education, etc.; and donations to state and local governments and to educational and public health institutions.

Administration of the joint army-navy machine tool program became one of the important activities of the War Assets administration, which assumed responsibilities for the transfer of machine tools and other production equipment to the army and navy for maintenance of the military establishment, including an industrial reserve. Plans called for the transfer of approximately 92,000 items of machinery and equipment. As of Sept. 30, 1947, more than 12,000 machines had been shipped to military warehouses.

The War Assets administration co-operated with the department of the army in supplying surplus property to needy populations in the occupied areas of Europe and Asia. Substantial withdrawals of used clothing were made under this program for

SURPLUS OIL DRUMS rounded up in the South Pacific by the Standard-Vacuum Oil Co. in 1947, to solve its marketing problem in the far east where a backlog of demand for petroleum products was blocked for lack of storage containers



distribution through army channels. Provision also was made for release of surplus property to other war-torn countries.

The use of surplus property to alleviate distress from flood and other catastrophes was authorized by congress and a "mercy" priority was established overriding all other priorities under the Surplus Property act. The new procedures were used by the War Assets administration in making surplus property available for the alleviation of damage wrought in Florida, Mississippi and Louisiana by hurricanes and by fires in Maine.

Important transfers of property were made to the Federal Works agency for the use of educational institutions providing courses for veterans. Machine tools and other classes of property were donated in large amounts to educational institutions, state and local governments and health and welfare agencies, for the costs of handling and transportation.

Procedures for the sale of surplus property to veterans were further simplified. Under new procedures it no longer was necessary for veterans to apply for preference certificates in order to purchase surplus property, with the exception of aircraft, commercial laundry equipment and railroad transportation equipment. The only requirements were that the veteran present evidence of his honourable discharge and, for other than "set-aside" items, to make a statement that the property was being purchased for his own small business, professional or agricultural enterprise. This change in procedure made it easier for the veteran to exercise his priority and greatly increased the number of potential buyers. It also eliminated certain War Assets administration expenses by reducing the size of the certification staff.

Disposals of Surplus Property

(All disposal agencies, cumulative through Sept. 30, 1947, in thousands of dollars)

Total	$20,557,018
Real property	4,806,431
Consumer and producer goods	7,609,723
Aircraft	6,250,637
Aircraft components	601,395
Electronics	443,552
Food and agricultural products	106,411
Marine property	110,545
Farm land	74,177
Housing properties	89,876
Community facilities	99,826
Land (continental and territories)	44,496
Patrol vessels	106,950
Domestic activity by Office of Foreign Liquidation commissioner	44,540
Property in territories and possessions (WAA)	168,459

Under an expansion of the program for disposal of surplus at nominal prices to nonprofit schools and public health institutions, more than 200 items were added in Sept. 1947 to the list of property available at a discount of 95% from fair value. Approximately 80% of all surplus consumer and producer goods became subject to this discount when disposed of for health or educational purposes. All other types of personal property were available at a discount of 40%. (J. S. Cs.)

Swains Island: *see* SAMOA, AMERICAN.

Swaziland: *see* BRITISH SOUTH AFRICAN PROTECTORATES.

Sweden. A democratic monarchy of northern Europe. Area, 173,390 sq.mi.; pop. (Dec. 31, 1946) 6,763,685. Capital, Stockholm (pop., Dec. 31, 1946), 690,108. Other principal cities (Dec. 31, 1946), were Göteborg (Gothenburg) (325,563), Malmö (176,659), Norrköping (80,228), Hälsingborg (69,051), Örebro (61,492). Religion, Lutheran Christian. Ruler in 1947: King Gustavus V. Prime minister: Tage Erlander.

History.—During 1947 Sweden's main difficulty centred around the problems of international finance. The country's gold reserves dwindled rapidly as the people bought from abroad goods long desired but unobtainable during World War II. In the spring Minister Ernst Wigforss asked for authorization to pay Swedes in Swedish crowns for their holdings abroad in "hard-money" countries; in the fall the measure was applied and Swedish reserves were strengthened temporarily. In November the government announced its determination to reduce imports by 420,000,000 kr. in 1948.

Supplies of food were short, although far from desperate, and a disastrously dry summer added to the complications. Only the potato crop was really sufficient for food needs. Fodder crops were dangerously low, and also grains. Sweden reduced the bread ration to 5.04 oz. per person per day, claimed to be the lowest in the world. Butter was set at 1.26 oz. and sugar 1.81 oz.

The 1946 trade agreement with the U.S.S.R. was increasingly attacked, but it could not be held responsible for any of Sweden's shortages. Actually Sweden's imports from the Soviet Union were several times its exports to the Soviet Union, both in normal trading, and in the slight beginnings of trade under the five-year agreement. It was repeatedly emphasized in Sweden that the much-castigated billion kronor credit was not a guarantee to sell the Soviet Union that value of goods; it was an agreement by the Swedish government to advance up to that amount to Swedish industry for its sales to the U.S.S.R. Some 200,000,000 kr. of such purchases had been contracted for, but in many cases delivery was not due for three or four years. The soviets were buying rather slowly because of a hesitancy to pay the high prices demanded.

Sweden had extended large loans or credits to many European countries; it was not selling enough goods to potential cash customers like the United States. Instead it was buying from the United States, and thus its gold reserves of 1,600,000,000 kr. on Jan. 1 had sunk to 375,000,000 kr. by the end of October.

Almost no time was lost by industrial strife in 1946 or 1947: labour disturbances of all kinds caused only 26,425 working days to be lost in 1946. War neglected highways were being rebuilt. Ship construction was at a high level: in December 284,000 gross tons of shipping were under construction, more than half of it on Norwegian order. A great power plant was being built at Hårspranget falls on Lule river, with three generators of 105,000 kw. capacity each.

Education.—In 1943–44 there were 533,890 pupils in the regular elementary schools, and 99,253 in continuation schools. In 1946 in the middle schools there were 8,035, and in secondary schools, 63,826. In 1946, 4,154 took the "studentexamen," and 9,132 were registered in the 5 institutions of university grade. The number of pupils in Stockholm schools had doubled in the past ten years, with the offering of free meals, books, medical and dental examination. Space became a serious problem. The state provided also a large number of special industrial and continuation schools.

Defense.—Plans were made for scrapping 28 naval vessels of a total of 17,000 tons, several of them very old, but called into coastal patrol service during World War II.

Finance.—The monetary unit is the krona (worth 27.85 U.S. cents in 1947).

The government financial picture must be given in two separate accounts.

Table I.—*Data of Finance in Sweden*
(In millions of kronor)

	1944–45	1945–46	1947–48 estimate
Ordinary account: revenue	2,875	3,173	3,862
expenditures	3,632	2,764	2,998
Capital account: revenue	3,250	3,528	4,174
expenditures	4,103	3,328	3,406
Public debt	10,953	11,383 (Dec. 31, '46)	

	1945	End of Aug. 1946
Notes in circulation	2,782	2,534
Gold reserve	1,062	1,046
Commercial bank deposits	6,847	7,199
Savings bank deposits	5,468	—

Trade.—General trade statistics, mentioning only the chief countries concerned are shown in Table II. During Jan. to June of 1947 Great Britain held first place as Sweden's customer, buying 180,000,000 kr. worth of goods; the U.S. was second with 134,500,000 kr.; then came Norway (96,000,000 kr.), Belgium (82,500,000 kr.), France (75,500,000 kr.), and Argentina (71,000,000 kr.). Sweden's imports before World War II came in large part from Germany, but in the first part of 1947 the U.S. led as supplier to Sweden with 702,000,000 kr. worth of goods; next came Great Britain (201,000,000 kr.), Belgium (115,500,000 kr.), Switzerland

Table II.—*Imports and Exports, Sweden*
(In 1,000 kronor)

	1939	1944	1945
Imports (total)	2,498,700	1,677,382	1,084,341
From Germany	619,800	798,466	88,342
Switzerland	45,800	138,606	123,705
Argentina	48,100	120,928	107,707
United States	414,300	44,500	175,523
Exports (total)	1,888,600	853,396	1,758,073
To Germany	369,000	345,350	61
Switzerland	17,800	87,511	53,315
Argentina	34,100	72,211	90,573
United States	178,600	2,100	232,993
United Kingdom	417,500	5,600	277,874
Norway	137,500	30,500	331,400
Finland	93,900	71,000	149,745

Table IV.—*Values of Principal Manufactures of Sweden*

	1941 kr.	1943 (or 1942) kr.
Machinery	1,359,063,000	1,761,958,000
Ships	206,242,000	242,368,000*
Automobiles, etc.	225,293,000	246,661,000
Electrical apparatus	322,101,000	400,918,000
Milling	204,102,000	190,688,000
Wood pulp	276,578,000	307,337,000
Paper	210,206,000	292,300,000
Wood	229,167,000	423,908,000*
Furniture, etc.	194,341,000	250,049,000*
Yarn, etc.	204,942,000	225,045,000
Textiles	330,326,000	330,326,000
Breads	185,659,000	233,147,000
Tobacco products	248,055,000	326,280,000

*1942

(113,500,000 kr.), Italy (105,000,000 kr.), and Argentina (100,000,000 kr.). Iron ore exports were well up: from 2,600,000 in the first seven months of 1946 to 4,200,000 tons in the same period of 1947.

Communications.—Railroads in 1945 measured 16,711 km. There were 1,168,100 telephones, an average of 177 per 1,000 inhabitants. There were 95,967 automobiles. Air lines flew 2,926,797 mi., carrying 81,000 passengers; length of established air routes was about 16,500 mi.

The merchant fleet in 1946 numbered 2,065 ships with a gross tonnage of 1,708,171.

Agriculture.—Agricultural area and crop yields for 1945 are shown in Table III. The floods of 1946 and the drought of 1947 considerably reduced these figures.

The livestock census for 1946 included 593,000 horses, 2,869,000 cattle, 482,000 sheep, 1,165,000 swine, 7,609,000 chickens and 28,000 goats.

Forestry.—In the period 1940–44 more than 6,000,000,000 cu.ft. of timber was cut for fuel, against a normal cut of about 3,000,000,000 cu.ft. Much of the excess cut was useful thinning, but the labour burden was heavy. Export of wood products was down in 1944 to 324,635,000 kr., but climbed in 1945.

Manufactures.—Industrial establishments in 1943 numbered 20,907 and workers 598,165. Values of chief manufactured products (figures for 1941 and 1943) are shown in Table IV.

Mineral Production.—Production of the leading minerals in 1945 (in long tons) was as follows: iron ore 3,929,662 (a drop from 10,819,997 in 1943); pig iron 761,357; coal 615,366; copper ore 50,846; gold ore 107,302; silver ore 26,718.

Table III.—*Agricultural Production in Sweden, 1945*

	Hectares	Yield in metric tons
Area of meadows	942,139	
Total cultivated area	3,717,179	
Wheat (winter)	203,891	454,452
Wheat (summer)	87,105	133,811
Rye (winter)	162,824	270,326
Rye (summer)	5,358	5,946
Corn	93,286	168,750
Oats	542,727	754,895
Mixed grains	277,378	462,660
Peas	25,791	32,996
Beans	345	538
Potatoes	145,252	1,658,874
Sugar beets	54,633	1,813,661
Hay	1,342,671	—

Fisheries.—In 1945 there were 16,034 professional fishermen in salt-water fishing, nearly half from the Gothenburg region. Fishing boats numbered 21,924. The total catch was worth 113,435,000 kr. and weighed 152,641 metric tons.

BIBLIOGRAPHY.—*See* "Swedish Books for American Libraries," in *American Scandinavian Review* (Sept. 1947 and Dec. 1947). (F. D. S.)

Sweet Potatoes: *see* POTATOES.

Swimming. Of chief interest in swimming during 1947 were the first championships of Europe held since 1940; the striking feats of 18-year-old Alex Jany, of France, which stamped him the greatest speed swimmer to date; and the affiliation of the Soviet Union with the Fédération Internationale de Natation Amateur, governing body in world aquatics.

The European title gala, staged in a 50-m. pool at Monte Carlo, was brilliantly successful. Sixteen nations took part, the competition was keen and surprisingly fine performances attested to the progress made in most of the war-torn countries.

Hungary outscored favoured France for the European cup awarded to the nation gaining most points in the men's events, and the Danish women swimmers lifted the Bedius cup. Italy provided an upset in capturing the water polo title.

Individual laurels went to Jany and Karen Harup, of Denmark, the only double winners. The young Frenchman took his heat of the 100-m. free-style sprint in 56.2 sec., the final in 56.9 sec., and won at 400 m. in 4 min. 35.2 sec., smashing the world's record of 4 min. 38.5 sec. Miss Harup swam the 400-m. free style in 5 min. 18.2 sec. and 100-m. back stroke in 1 min. 15.9 sec. Jany, in possession of the 200-m. standard since 1946, later shaded the marks for 100 m. from 55.9 to 55.8 sec. and 300 m. from 3 min. 21.6 sec. to 3 min. 21 sec., raising his



TAKEOFF in the second heat of the 1,500-metre free style race at the National Collegiate Athletic association meet in Seattle, Wash., March 28, 1947. Stephen Grimm (second from right) of Ohio State university, won the heat

record holdings to 4.

Admission of the U.S.S.R. to membership in the F.I.N.A. was voted by the executive bureau at a meeting in Monte Carlo. The soviet swimmers, credited with many exploits, now became eligible for the 1948 Olympic events in London.

Nel van Vliet, of the Netherlands, holder of all breast-stroke records for women, maintained her leadership and broke 3 listed marks, clipping the figures for 100 yd. from 1 min. 11.1 sec. to 1 min. 9.2 sec., 100 m. from 1 min. 19.8 sec. to 1 min. 18.2 sec. and 200 m. from 2 min. 51.9 sec. to 2 min. 49.2 sec. She also helped Mrs. Van Feggelen Koster and Hannie Termeulen to lower the medley relay standards for 300 yd. from 3 min. 25.6 sec. to 3 min. 19.6 sec. and 300 m. from 3 min. 46.3 sec. to 3 min. 42.4 sec.

In the United States, Joseph Verdeur cut the breast-stroke records for 200 yd. from 2 min. 19.5 sec. to 2 min. 16.4 sec., 200 m. from 2 min. 35.6 sec. to 2 min. 35 sec., and Donald De Forrest that for 100 yd. from 1 min. 0.6 sec. to 1 min. 0.5 sec. Harry Holiday lowered the time for 400-m. back stroke from 5 min. 10.9 sec. to 5 min. 9.6 sec., besides teaming with Robert Sohl and Richard Weinberg to drop the marks for the 300-yd. medley relay from 2 min. 55.5 sec. to 2 min. 50.5 sec. Ann Curtis sliced the record for 440-yd. free style from 5 min. 11.5 sec. to 5 min. 7.9 sec. and equalled that of 59.4 sec. for 100 yd.

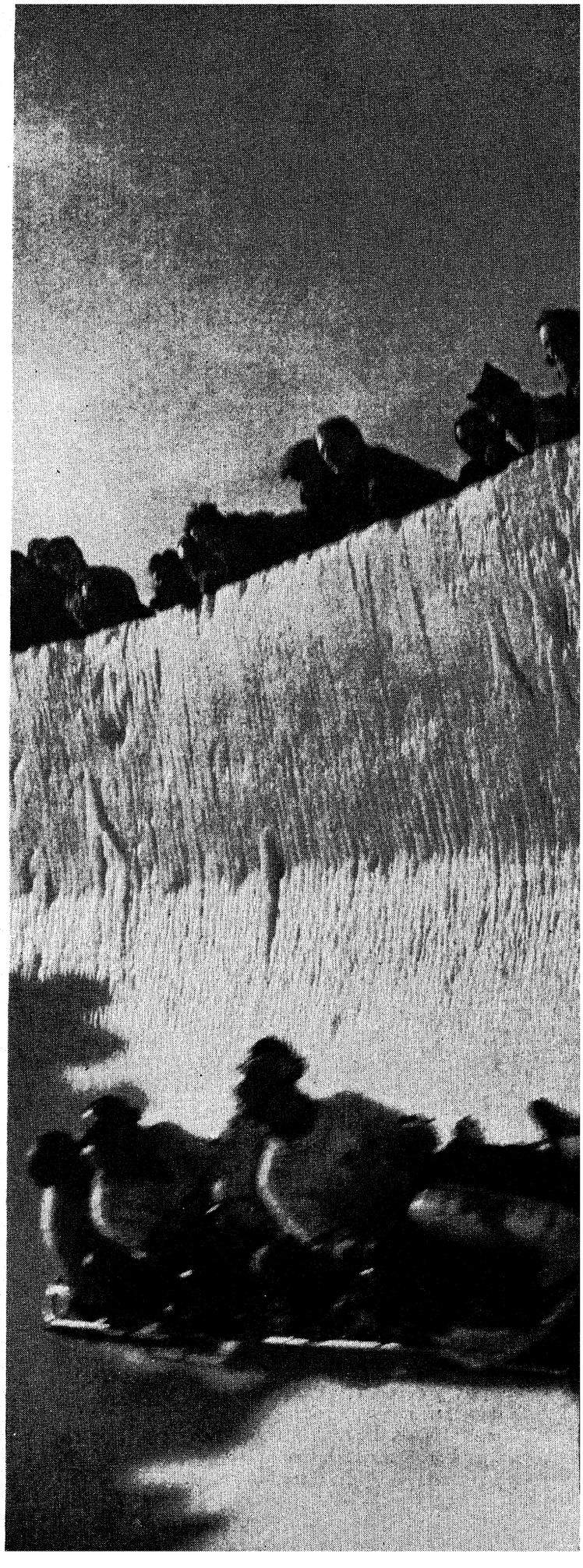
(L. DE B. H.)

Switzerland. A country of central Europe bounded on the west by France, on the north and northeast by Germany, Austria and Liechtenstein, and on the south by Italy. Area: 15,940 sq.mi.; pop. (est. 1946) 4,450,000; chief towns (pop. est. 1946) Berne (cap. 136,700); Zürich (360,500); Basle (170,300); Geneva (137,600); Lausanne (99,300). Languages: German, French, Italian and Romansh; religion: Christian (in 1941, 57.6% Protestant; 41.1% Roman Catholic; 0.5% Jewish; and 0.8% other denominations). President (1947) Dr. Philip Etter.

History.—On March 20, 1947, Dr. Max Petitpierre, head of the Swiss political (foreign) department, defined the Swiss attitude to the United Nations in a speech stating that Switzerland was ready to become a member if at the same time its traditions of complete neutrality could be maintained. The government made the same reservations in accepting on July 10 the invitation to the Paris conference on the Marshall plan of aid to Europe, insisting on its right to enter into economic agreements with the countries not attending the conference.

Elections for the Swiss national council were held on Oct. 27 and resulted in a majority for the Radical Democrats with 52 members in a house of 194. The Social Democrats, who had been in the majority from 1943, lost seven seats and retired once more to second place with 48 members. The Party of Labour (Communist) increased its seats from one to seven, but on the whole the results showed a slight strengthening of the traditionally antilabour parties.

The economic situation reached hitherto unknown levels: exports in 1946 had been to the value of 2,675,000,000 Swiss francs, twice as high as in 1938. On April 26 the federal council appealed for a check to be made on the rise in prices and wages, pointing out the danger of inflation. The sale of gold coins, which had led to the accumulation of great quantities of them by private persons, and in some cases to smuggling activities for speculation abroad, was suspended as from Sept. 9. An Argentine-Swiss trade agreement, to serve as a model treaty for all future trade agreements, was signed on Jan. 20; trade agree-



OLYMPIC BOBSLED RUN at St. Moritz, Switz. Ski enthusiasts of many nations continued to flock to the fashionable winter resort in the Swiss Alps during 1947 despite currency regulations

ments were also concluded with France, Denmark, Norway, the Netherlands and Spain.

On July 6 a law was passed to introduce an old age insurance system. The rationing of tea, coffee, cereals and gasoline was abolished in March, that of meat and fats in October; the daily bread ration was cut on April 17 from 250 to 225 grams, in order to help meet the greater needs of other European countries.

On Dec. 11, Dr. Enrico Celio, federal councillor (minister) for posts and railways, was elected president of the Swiss confederation for 1948. (T. Hr.)

Education.—(1945–46) Primary: teachers 13,529, scholars 431,132; secondary: teachers 2,045, scholars 50,413; advanced schools: teachers 2,181, scholars 37,602; professional schools 248, teachers 1,661, scholars 32,022; universities (1946–47) 7, students 12,760; technical high schools 1, students 4,046; commercial universities 1, students 373.

Finance.—Revenue (est. 1947) 1,612,600,000 Swiss francs; expenditure (est. 1947) 1,709,200,000 Swiss francs; public debt (1946) 14,678,458,000 Swiss francs; note circulation (July 1947) 3,867,000,000 Swiss francs; gold reserve (1947) 5,119,000,000 Swiss francs; exchange rate: (1947) 1 Swiss franc = 23.36 U.S. cents.

Trade and Communication.—Foreign trade: imports (1946) 422,534,000 Swiss francs; exports (1946) 2,675,506,000 Swiss francs. Communications: roads (1945) 9,244 mi.; railways (1945) route mileage, normal gauge 2,262 mi.; narrow gauge 977 mi.; funiculars 102 mi.; streetcar lines 252 mi.; airways (1946) passengers carried 61,366; mails, baggage and freight 2,243 short tons; motor vehicles licensed (1946): cars 62,972; buses 1,304; trucks 27,029; motorcycles 28,815; radio receiving sets (1946) 769,352.

Agriculture.—(1946) production in short tons: wheat 224,250; spelt 36,900; rye 31,730; mixed corn 26,780; barley 70,300; oats 98,500; maize 11,000; potatoes 1,189,900; sugar beets 188,200; tobacco 3,195; milk 2,380,320; meat 115,350; wine 19,304,970 U.S. gal.

Symington, William Stuart (1901–), U.S. government official, was born on June 26 in Amherst, Mass. He joined the army during World War I and attended Yale university from 1919 to 1923. He worked with the Symington company, a railroad equipment plant owned by his family, and later entered the radio manufacturing field, becoming in 1938 president of Emerson Electric Manufacturing company in St. Louis, Mo.

On June 7, 1945, President Harry S. Truman named Symington chairman of the Surplus War Property board. After the senate approved Truman's proposal to place surplus property disposal under supervision of a single man, Symington was appointed surplus property administrator. On Jan. 18, 1946, the president named him assistant secretary of war for air. (During World War II, Symington built what the army called the world's largest aeroplane armament plant as part of his Emerson company.) In this post, he became one of the numerous advocates of co-equality of the air force with the other armed services.

When a separate department of the air forces was created under the new national defense system, Symington became the first secretary of the air forces on Aug. 21, 1947. After his appointment he told the President's Air Policy commission that the U.S. must have no less than 630 heavy bombers in widespread bases to safeguard national security.

Symphony Orchestras: *see* Music.

Synthetic Products: *see* Agricultural Research Administration; Chemistry; Plastics Industry; Rayon and Other Synthetic Fibres; Rubber; Standards, National Bureau of.

Syphilis: *see* Venereal Diseases.

Syria and Lebanon. Independent republics, formerly administered under French mandate, bordering on the eastern Mediterranean. *Syria.*—Area 72,560 sq.mi.; pop. (est. 1943) 2,860,411; capital, Damascus (225,000). Language: mainly Arabic; religion (in Syria and the Lebanon): approximately 66% Moslem, mainly in Syria; 33% Christian. President: Shukri el Quwatli. *The Lebanon.*—Area 3,470 sq.mi.; pop. (est. 1947) 1,200,000; capital, Beirut (233,970). Languages: Arabic, French, Hebrew, Armenian and Greek. President: Sheikh Bishara al-Khuri.

History.—At the end of Feb. 1947 it became known that the Syrian and Lebanese governments had offered to mediate in the deadlock which had arisen between Great Britain and Egypt over revision of the Anglo-Egyptian treaty of 1936. The prime ministers of Syria and the Lebanon, Jamil Mardam Bey and Riyad bey al-Sulh, stated on March 15 that they were willing to continue mediation if the Egyptian government desired. Four days previously Mahmoud Fahmy el-Nokrashy Pasha, the Egyptian premier, had announced his intention to place the dispute before the United Nations.

The Lebanese chamber of deputies, elected in Aug. 1943, was dissolved on April 8, and the first general elections were held on May 25. The elections were carried out under military supervision; less than half of the electorate voted and there were few disorders. The manner in which the elections had been conducted was severely criticized in the press, and the editors of the leading daily papers, with the exception of the semiofficial *Le Jour*, wrote to the president of the republic, appealing for an immediate dissolution and declaring their intention of boycotting the sittings of the assembly. The first results gave the government 49 out of 55 seats, with 5 undecided.

The Lebanese foreign minister, Hamid Frangié, in presenting the Arab league case to the United Nations Special Committee on Palestine in Beirut in July, stated that the only possible settlement was the formation of an independent state with every Jew who lawfully obtained Palestine citizenship equal to every Arab.

The political committee of the Arab league met at Sofar, in the Lebanon, Sept. 16–19, to discuss the report of the United Nations Special Committee on Palestine, and the Arab League council met at Aley, near Beirut, Oct. 8–15. After the meeting of the political committee a statement was issued, declaring that Arab questions generally and particularly those of Palestine had been discussed. The meeting pronounced the United Nations report to be flagrantly prejudicial to Arab rights and violated all promises given to the Arabs.

At the United Nations general assembly the representatives of Syria and the Lebanon continuously supported the Arab states in opposing the plan for partition. After the final vote had been taken, the leader of the Syrian delegation declared that it was "an illegal and unjust decision," and that the Arab delegates reserved their freedom of action.

On Oct. 8, the Mufti of Jerusalem, Haj Amin el-Husseini, arrived at Beirut, where he was received by the president and the prime minister. On the following day it was announced that the British legation in Beirut had protested at his presence in the Lebanon, in view of an undertaking previously given that he would not engage in political activities.

The Syrian prime minister signed an agreement on Sept. 1 with the Trans-Arabian Pipeline company for the construction of a new 1,100-mi. pipe line from Saudi Arabia to the Mediterranean coast. The income from the pipe line was to be shared between the governments of the Lebanon and Syria by an agreement signed on April 1. (*See* Palestine.)

Education.—In Syria, 1947—government schools: primary 821, scholars 114,549; secondary schools 30, scholars 10,021; arts and crafts schools and teachers' training college 10, students 1,210; colleges 9, students 1,722. Private schools: Moslem primary 62, scholars 13,731; secondary 17, scholars 1,922; Christian schools primary 226, scholars 28,690; secondary 22, scholars 1,350; Israelite schools primary 6, scholars 1,406; other schools primary 7, scholars 892; secondary, scholars 142.

In the Lebanon, 1944–45—state schools 308, scholars 30,112; private schools 963, scholars 71,526; foreign schools 326, scholars 45,065.

Trade and Communication.—Foreign trade: imports (1946) £S266,400,000; exports (1946) £S85,200,000. Roads (1939) *c.* 1,900 mi. (Lebanon only, 1945, surfaced roads 1,371 mi.) Railways (1939) 690 mi. Motor vehicles in the Lebanon, 1944: cars 5,401; buses 210; trucks 1,867. Shipping (Lebanon tonnage only, 1945) entered 522,515; cleared 146,181 with cargo.

Finance.—Syria: estimated revenue and expenditure for 1947 balanced at £S125,820,000 (the Syrian budget does not include the general independent administrations nor the expenses of customs administrations); notes in circulation (Oct. 1947) £S189,000,000; gold reserves £S2,471,085.

The Lebanon: estimated revenue and expenditure for 1947 balanced at £S58,900,000; notes in circulation (1946) £S157,000,000.

The unit of currency in both countries is the Syrian or Lebanese pound (£S), divided into 100 piastres; rate of exchange (Dec. 1947) £S1=45.35 U.S. cents.

Agriculture.—Production (1945) in short tons: wheat 429,100; barley 272,700; maize 20,500; sorghum 83,600; grapes 186,000; olives 175,000; melons and watermelons 603,000; cotton 4,700; silk (Lebanon only) boxes prepared for incubation 21,000; number of fresh cocoons 600,000.

In Syria only (1946, in short tons): wheat 62,567; barley 310,612; corn 8,411; beans 14,985; lentils 21,437; white maize 64,869; yellow maize 30,421; potatoes 16,594; carrots 3,715; onions 442,860; garlic 9,700; cotton 15,578; linen 176; hemp 2,962; olives 46,170; vines 188,040; apricots 23,512; apples 6,246; pears 1,638; cherries 2,197; pistachionuts 1,297; almonds 2,338; walnuts 6,409; raw wool 8,193.

Syrup, Sorgo and Cane.

U.S. production of sorgo syrup in 1947 was estimated at 9,885,000 gal. compared with 11,934,000 gal. in 1946 and an average of 11,537,000 gal. during 1936–45. The acreage was up 4.5% in 1947 but the yield declined. Heavy spring rains and high, late summer temperatures hampered production.

Table I.—*U.S. Cane Syrup Production 1947, 1946 and 10-yr. Average 1936–45*

(In thousands of gallons)

State	1947	1946	10-yr. Average	State	1947	1946	10-yr. Average
Louisiana	8,460	11,825	7,671	Alabama	2,160	2,430	2,777
Georgia	4,070	4,025	4,200	South Carolina	300	420	424
Mississippi	2,600	3,500	3,209	Texas	280	270	611
Florida	2,400	1,980	1,850				

Table II.—*U.S. Sorgo Syrup Production 1947, 1946 and 10-yr. Average 1936–45*

(In thousands of gallons)

State	1947	1946	10-yr. Average	State	1947	1946	10-yr. Average
Mississippi	1,875	1,400	1,750	Georgia	944	689	1,097
Alabama	1,680	1,827	1,911	Tennessee	930	1,520	1,115
Kentucky	962	1,360	829	Arkansas	672	1,200	924
North Carolina	949	1,245	774	South Carolina	441	580	536

Cane syrup production declined in 1947 to 20,270,000 gal., compared with 24,450,000 gal. in 1946 and an average of 20,835,000 during 1936–45. The yield per acre, 181 gal., was below the 204-gal. yield of 1946. (*See* also BEEKEEPING; MAPLE PRODUCTS.) (J. C. Ms.)

Table Tennis.

After an eight-year hiatus because of World War II the International Table Tennis federation in 1947 resumed the world championship matches inaugurated in 1926. The matches, played in Paris, resulted in these winners: men's singles, Bohumil Vana (Czechoslovakia), the 1938 champion; women's singles, Gizi Farkas (Hungary), a new star; men's doubles, Vana and Adolf Slar (Czechoslovakia); women's doubles, Miss Farkas and Trude Pritzi (Austria); mixed doubles, Ferenc Soos (Hungary) and Miss Farkas; men's singles consolation, H. Anderson (Sweden); Swaythling cup for men's teams, Czechoslovakia (Vana, Slar, Tokar, Tereba); Corbillon cup for women's teams, England (Elizabeth Blackbourn, Vera Dace). The 14th I.T.T.F. congress, composed of 23 nations, initiated a reorganization; divided the world into five zones, each under a vice-president; adopted the no-spin palm service used in the U.S.A. and scheduled the 1948 championships in Wembley stadium, London, Feb. 4–11. (C. Z.)

Taft, Robert Alphonso

(1889–), U.S. senator and son of William Howard Taft (27th president of the United States), was born on Sept. 8 in Cincinnati, O. He was graduated from Yale in 1910 and received his law degree at Harvard in 1913. During World War I, he was rejected for military service because of poor vision and served as an assistant counsel on the U.S. Food administration.

Ohio Republicans elected him to the senate in 1938; he was re-elected in 1944.

Taft had strong support for the presidential nomination in both the 1940 and 1944 national conventions, but lost out first to Wendell Willkie and later to Thomas E. Dewey.

In the 80th congress, Taft became undisputed G.O.P. leader of the upper house. He was the principal architect of the Taft-Hartley Labour act, which was passed by congress over the presidential veto in the summer of 1947. In defending the bill, he disclaimed antilabour prejudice, insisting it was designed principally to reduce union "abuses."

In June 1947, he had a sharp debate with President Harry S. Truman over inflation. Delivering the first broadside, Truman declared on June 5 that Taft was an advocate of a "boom and bust" philosophy; the senator rejoined vigorously the following day that the administration itself was to blame for high prices.

On international issues Taft took the stand that the administration's foreign policy was a failure, asserting (Sept. 25) that it had "brought the world to a state of economic collapse."

In September, Taft toured seven western states to test sentiment regarding his candidacy for president in 1948. The tour was marked by his forthright statements on controversial issues.

On Oct. 24, it was disclosed that Taft had announced his candidacy in a letter to the chairman of the G.O.P. state committee of Ohio.

Taft-Hartley Act: *see* LABOUR UNIONS; LAW; NATIONAL LABOR RELATIONS BOARD; UNITED STATES.

Tahiti: *see* PACIFIC ISLANDS, FRENCH.

Taiwan: *see* FORMOSA.

Talc.

The sales of minerals of the talc group (talc, pyrophyllite and ground soapstone) are grouped together because of similarity of characteristics and a considerable degree of interchangeability of uses. The basic data of the industry in the United States are as follows, in thousands of short tons:

	1937	1939	1941	1943	1945	1946
Mine production	?	?	414.5	436.2	414.5	460.6
Sales	230.0	254.0	416.4	412.9	398.4	457.1
Crude	11.1	15.7	43.8	30.2	36.0	37.0
Sawed	1.1	1.9	4.2	1.7	0.7	0.8
Ground	217.8	236.4	368.4	381.0	361.7	419.3
Imports	26.9	26.2	18.6	6.6	6.7	18.4
Used in						
Paint	59.7	67.9	120.3	129.2	103.6	103.8
Paper	32.1	30.2	37.9	34.4	28.1	32.3
Ceramics	29.8	38.4	79.0	47.9	37.9	62.4
Rubber	26.9	31.1	58.1	49.0	63.8	66.0
Roofing	23.6	30.5	40.6	47.5	46.8	54.6
Toilet preparations	4.3	9.7	21.1	17.7	21.5	17.1
Insecticides	?	?	10.3	24.5	37.0	65.0

Both mine output and sales made new record highs in 1946.

Canada.—Productions of 14,439 short tons of talc and 14,914 tons of soapstone in 1945 decreased to 13,500 tons of talc and 11,421 tons of soapstone in 1947. (G. A. Ro.)

Tanganyika: *see* BRITISH EAST AFRICA; TRUSTEE TERRITORIES.

Tangerines: *see* FRUIT.

Tangier.

An international and demilitarized territory on the southern shore of the Straits of Gibraltar. Area: 232 sq.mi.; pop. (1941 est.) 100,000 (including 36,500 Moslems, 16,509 Europeans). Languages: French, Spanish, Arabic. Legislative power was vested in an international assembly following the Convention of Paris of Dec. 18, 1923. The regime is autonomous, under the nominal sovereignty of the sultan of Morocco. Administrator: Vice Admiral Luis Magalhaes Correia.

History.—On April 9, 1947, the sultan of Morocco paid the first visit to Tangier made by a sultan since 1889; he was received by his representative, the Mendub Haj Mohamed Tazi, and thousands of Moors came in from the Spanish zone to welcome him. While there he made a speech on April 11 containing a friendly reference to the Arab league and a claim for Moroccan independence. He left on April 14. A demonstration was held on April 15 in memory of the Moors killed in the Casablanca riots.

Finance.—Revenue and expenditure (1947) estimated to balance at Fr. 430,000,000. The monetary unit in the territory is the Moroccan franc equal to the French franc.

Trade and Communications.—Foreign trade (1944): imports Fr. 181,357,400; exports Fr. 14,630,000. Motor vehicles licensed: about 8,000.

Tariffs. Nontariff controls over international trade continued to be more important throughout 1947 than were tariffs in the commercial policies of the world's leading trading nations. In fact, because of the halting recovery in many countries following World War II, together with the acute world-wide shortage of industrial equipment and essential supplies and the accompanying dollar crisis, the latter half of 1946 and most of 1947 were characterized by an intensification of nontariff controls over imports throughout many parts of the world.

Insofar as tariffs and related instruments of commercial policy were concerned, the most noteworthy events and trends during the year were: (1) the United Nations Conference on Trade and Employment at Geneva, Switzerland (and later at Havana, Cuba), where many reciprocal trade agreements were negotiated and a charter for the proposed International Trade organization was formulated; (2) the further deterioration in the balance-of-payments position of many countries and the increasing shortage of free exchange throughout the world (*see* EXCHANGE CONTROL AND EXCHANGE RATES.)

Dominating everything else in world tariff policies during 1947 was the negotiation of the Geneva trade pacts. For more than six months beginning in April 1947, nearly 1,000 delegates from 23 countries were occupied in negotiating reciprocal trade agreements for the reduction of tariffs and the removal of other barriers to world trade. Never before had multilateral negotiations been attempted on so large a scale to obtain so broad a degree of international economic co-operation.

Ultimately, trade negotiations were carried on by 106 individual pairs of nations, bargaining simultaneously for reciprocal reductions in duty. Thus, at Geneva there emerged agreements granting tariff concessions affecting more than 45,000 individual items in world trade. The signatory countries generally accounted for three-fourths of the value of world trade, and the items on which concessions were granted had ordinarily accounted for two-thirds of the total trade of the participating countries themselves. The many concessions were safeguarded by additional provisions to prevent restrictive trade practices and various types of discrimination. Moreover, the signatory countries agreed to extend most-favoured-nation treatment to one another.

Thus, an important stride had been taken toward re-establishment of the multilateral trading system. The concessions, ultimately requiring approval by the respective governments, were combined in a composite trade agreement—a multilateral instrument—signed by each government represented at Geneva. The composite agreement comprised 20 individual schedules setting forth the concessions which signatory countries extended to one another. It was planned (subject to ultimate decisions at Havana) that for a transition period, at least, all of these concessions would be generalized to nonsignatory countries on a most-favoured-nation basis. Ultimately, however, after a date to be established, other nations presumably would benefit from the Geneva concessions only after they adhered to the I.T.O. charter and granted more or less equivalent concessions to other signatories.

However restrictive nontariff import controls may have been during 1947, the motive for their adoption or increased utilization was less that of economic nationalism and protectionism than that of conserving foreign exchange and husbanding available supplies of free currency, especially dollars. By the close of 1946, there was a marked trend toward the adoption or more intensified use of import licensing systems, exchange controls, and bilateral compensation-clearing arrangements. Import restrictions, including licensing systems, quota arrangements, and the like, were often employed in conjunction with official exchange-control operations. Such restrictions were usually designed to curtail or prohibit the importation of nonessential commodities or to assure that the available foreign exchange would be directed into the most useful channels.

Newly adopted quantitative restrictions of imports were probably most far-reaching in Canada, Brazil, Colombia and the United Kingdom. Controls were also employed with increasing intensity in many other countries, most notably perhaps in Argentina, Chile, Ecuador, Mexico, Nicaragua, Peru, Uruguay, Norway, Sweden, China, India, Australia, New Zealand and Southern Rhodesia. Bilateral barter-type agreements, which had increased markedly during 1946, were equally if not more apparent during 1947. Most of these agreements appeared chiefly to have been stop-gap arrangements to tide nations over during the shortages of free exchange. By means of bilateral clearing arrangements and the mutual facilitation of balanced trade in specified commodities, numerous countries attempted to maintain markets for their export industries and sought to assure a continued supply of essential raw materials and industrial supplies. Bilateral clearing arrangements were most prominent in Europe, where during the year they were used most frequently by countries more or less in the following order: Czechoslovakia, Poland, Bulgaria, France, Netherlands, Norway, Switzerland, Austria, Yugoslavia, U.S.S.R., Finland, Belgium and Denmark.

Except for the reciprocal trade pacts negotiated at Geneva, few countries made extensive revisions in their tariff schedules and even these changes related chiefly to tariff classifications and nomenclature and hence did not make extensive alterations in the prevailing rates of duty. Piecemeal modifications affecting individual import commodities or tariff items were also made in various countries. More or less general revisions in tariff schedules were made in Belgium, Netherlands, France, Czechoslovakia, the Dominican Republic, Mexico and Peru. Probably the most important of the new schedules originated in the agreement to establish the Belgium-Netherlands-Luxembourg customs union (Benelux). This agreement, signed in March 1947 and effective in Jan. 1948, added one more schedule to the broadening list of tariff systems employing the classification and nomenclature recommended by the League of Nations. An attempt was made to fix the rates of duty in the new schedule at a point midway between the former Belgium and Netherlands duties. It would thus appear that the new tariff provided slightly more protection to domestic industries than did the Netherlands tariff and perhaps slightly less than did the Belgian-Luxembourg duties. Rates of duty were predominantly of the ad valorem type. In Aug. 1947, Bulgaria and Yugoslavia announced that a customs union between those two countries was contemplated.

During the latter part of 1947, France also modernized its tariff schedule by making its nomenclature conform more closely to the model prescribed by the League of Nations. At the same time ad valorem duties were substituted in most instances for the specific rates which generally had applied. Although it was announced that the new duties were designed to have approxi-

mately the same ad valorem equivalent as the old, it appeared that their effective burden was somewhat higher. A revised tariff in Czechoslovakia, effective in July 1947, provided for a horizontal increase in most specific duties; it was indicated that this action was undertaken largely to compensate for the decreased foreign purchasing power of the national currency. At the same time, various Czechoslovakian rates involving double duties, surtaxes, and the like were substantially simplified. Apparently, the general level of tariffs was not raised; in fact, the duties on many important noncompetitive products were reduced. The new customs tariff of the Dominican Republic, adopted in July 1947 and effective in Jan. 1948, was designed principally to favour importation of agricultural supplies and equipment and other materials essential to domestic industries. In Nov. 1947, Mexico raised most of the duties in its import schedule, except, of course, those bound by conventions with other countries. Where the latter was true, relief under the "escape clause" was sought in a substantial number of instances. At the same time, Mexico altered most of its specific duties to compound rates (specific and ad valorem) and simplified a number of tariff classifications. Government spokesmen indicated that the new tariff was necessary to stabilize revenue, assure protection to domestic industries, and correct the country's adverse balance of payments. The new tariff schedule in Peru, instituted in June 1947, was officially described as designed to introduce improved nomenclature, provide a substantial increase in revenue, and afford more protection to domestic enterprises.

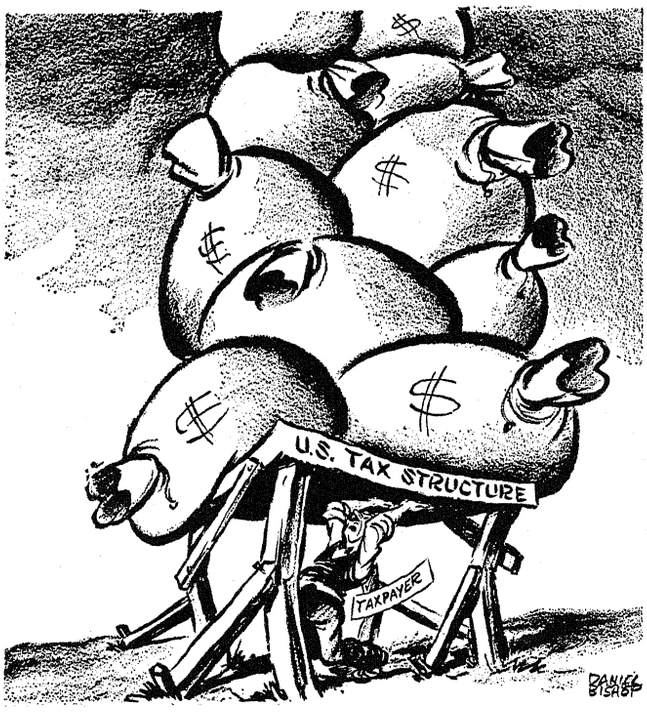
Although piecemeal tariff changes affecting individual import items or groups of items were less frequent in 1947 than in many preceding years, measures providing for lower duties apparently were more frequent than those establishing higher tariff rates. The most extensive increases in duty; *i.e.*, those affecting the widest range of commodities, seem to have been made in Chile, Mexico, Martinique, Spain, the United Kingdom, Turkey, the Netherlands Indies and Tunisia. The increased duties in the United Kingdom were limited chiefly to imports of tobacco and motion picture films. The action in Turkey and Tunisia seemed motivated principally by the desire to compensate for depreciation in the currency and involved chiefly duties levied on a specific basis.

Probably the most comprehensive reductions in 1947 were those made in Paraguay and South Africa, but even here the changes were moderate. By and large, unilateral reductions in duty on individual items were granted most frequently to alleviate particular supply situations or to facilitate the importation of materials and equipment essential to domestic industrialization programs. Many such reductions were either temporary in character or applicable only to specified quantities of imports. (*See* INTERNATIONAL TRADE.) (D. LH.)

Taxation. The year 1947, like 1946, ended without important U.S. federal tax legislation in the literal sense. Some stop-gap measures and certain minor amendments went through, but that was all. In a real sense, however, an important increase in tax burden resulted from advancing inflation. As the dollar lost buying power, not only did the value of exemptions shrink but income tax brackets stated in terms of dollars became narrower and narrower in terms of economic value, and the progression of tax rate effectively steepened. Despite this, and despite the large budgetary surplus for the fiscal year ended June 1947, the Republicans could not exert firm enough legislative control to redeem their pre-election promise of large and quick reduction in personal income tax. Twice congress passed tax-reduction bills, twice Pres. Harry S. Truman interposed vetoes, and twice the vetoes were upheld. In Dec. 1947 the congressional majority was returning to the charge with revised plans for tax cutting. Also, throughout 1947, sweeping and detailed proposals for ultimate tax revision were being offered. Their general trend was toward lightening and more comfortably adjusting the tax burden. Yet the administration seemingly maintained determination to go slow on tax relief, both to restrain inflation and to lower the national debt and meet currently the costs of effective aid to Europe and other suffering regions. So at the opening of 1948 a sharp struggle between White House and Capitol Hill was in prospect.

Tax Revision Plans.—Some of the plans for federal tax revision originated, as in previous years, outside the government itself. In mid-November the Committee for Economic Development (*q.v.*) proposed a long-range "program for prosperity" involving a number of immediate changes. The program aroused wide comment, much of it favourable. Representatives of the section of taxation of the influential American Bar association in June presented extensive recommendations to the house committee on ways and means. The association discussed tax problems at its annual meeting in September, thereafter conferring with and conveying recommendations to appropriate public officials. The ways and means committee continued its examination of need for revision of internal revenue laws, in particular appointing a special tax study committee of skilled persons under the chairmanship of Roswell Magill. From this committee came in early November a majority report and a largely dissenting minority report by Matthew Woll, one of the ten committee members. In the closing months of the year the ways and means committee conducted hearings as to various aspects of tax revision. The technical staff of the joint committee on internal revenue taxation worked continually on matters germane to revision. The treasury department, engaged in reexamination of the whole tax system, issued in June and later months at least ten important studies of leading revenue problems. The commerce department's advisory committee on small business in October recommended modification of federal tax policies "in the interests of business." Topics mentioned by the following paragraphs are among those most vigorously stirred in the reports and inquiries just indicated.

Taxation of Married Couples.—When 1947 opened, nine southern and western states and also Hawaii had community property systems which gave married couples the great advantage of splitting income between husband and wife for federal tax purposes. These jurisdictions had successfully resisted efforts by noncommunity (that is, common law) states for nationwide equalization of personal income tax burden. Up to 1942 they had also successfully resisted such efforts with respect to estate and gift taxes. In 1942, however, congress more than equalized the estate and gift situation; it made these two taxes more burdensome to community property spouses than to spouses in common law jurisdictions. Those seeking income tax equality used the 1942 disparity as a bargaining point in 1947. A working agreement resulted under which the interested parties with practical unanimity pressed a single adjustment proposal to level out the effect of all three taxes—income, estate and gift—by giving husbands and wives throughout the U.S. the same tax advantages enjoyed prior to 1942 only by spouses in community property jurisdictions. Widening adoption of community property plans, obviously for tax-saving, increased the likelihood that congress would effectuate this adjustment proposal. During 1947 Michigan, Nebraska and Oregon made themselves community property states; Pennsylvania tried to, but the state supreme court held the statute invalid. As of the beginning of 1947 the treasury estimated that general interspousal income splitting would have the substantial effect of benefiting 4,900,000 married couples at an annual revenue cost of $744,000,000.



"ANOTHER VETERAN IN NEED OF NEW HOUSING," a cartoon by Bishop which appeared in the *St. Louis Star-Times* on May 20, 1947, when the U.S. house of representatives sustained Pres. Truman's veto of a $4,000,000,000 income tax reduction bill

Taxation of Corporate Dividends.—Another intense discussion centred upon federal taxation of corporations. Here the key issue had to do with dividends. An ordinary business corporation may, in computing its taxable income, deduct interest paid on corporate bonds, notes, etc. It may not likewise deduct the amount of dividends paid to its stockholders, and the stockholders must include their dividends for individual tax, just as bond or note owners must include their interest. Hence, the complaint that dividends are double-taxed, equity financing discouraged, fixed indebtedness unwisely extended and healthy expansion of business cramped. Most suggested methods of relief inured to the benefit of stockholders as distinguished from bondholders. This of course gave room to argue that an undeserved windfall was being sought for persons who bought stock at prices depressed by former federal tax methods. The whole matter was so highly debatable and ran into so many ramifications, all of great fiscal importance, as to prevent confident prediction of congressional action.

Taxation of Small Businesses.—Strong representations were made as to the advisability of adjusting federal taxes to encourage small businesses, incorporated or unincorporated. Suggestions included changes in tax rates, special exemptions, liberalized loss offsets, acceleration of depreciation allowances and equalization of taxes as between incorporated and unincorporated small firms. The underlying facts and considerations were carefully presented in a treasury study released at the end of Oct. 1947.

Taxation of Co-operatives.—The internal revenue code exempts from corporate tax, under specified conditions, co-operative farmers', fruit-growers' and other like associations for marketing products and purchasing supplies and equipment; financing corporations organized as auxiliaries of such co-operatives may also qualify for exemption. There is no statutory exemption for consumers' co-operatives. Marketing and purchasing by the co-operative method had grown to extraordinary dimensions in the U.S., and there was sharp adverse criticism of the foregoing exemptions, notably by representatives of small business which was in a competitive position. Much logical, economic and political power was ranged on each side of this controversy, similar problems had proved difficult of solution in both Great Britain and Canada and the outcome of the discussion was unpredictable.

Estate, Gift and Income Taxes.—It had always been deemed necessary to guard federal estate tax against avoidance through transfers of an essentially testamentary nature but made during life. This was attempted in part by including many such transfers under the estate tax and in part by levying a separate gift tax. The first expedient was difficult to apply and ineffective in numerous respects. There was considerable overlapping and inconsistency between estate and gift taxes. For at least ten years the treasury had explored the possibility of eradicating these defects by combining or integrating the two types of tax. Just concern had also arisen because of inconsistencies, sometimes annoyingly whimsical, between these taxes and the income tax. In 1944 the treasury appointed to explore the problem an advisory committee of eminent tax practitioners, whose report was published in 1947. It includes a penetrating analysis of the matter and a specific recommendation of code revision for integrating estate and gift taxes into a single transfer tax, and for harmonizing or correlating this tax with the income tax.

Powers of Appointment.—In connection with federal estate and gift taxes, one highly technical matter of broad practical importance is proper treatment of powers of appointment. Such powers, typically created by a testator or the creator of a trust, enable other specified persons or perhaps the creator himself to exercise control over the transmission of beneficial interests. The code was elaborately amended in this respect in 1942. These amendments had some aspects arousing strong disapproval. After long negotiations, the treasury and interested groups during 1947 worked out satisfactory plans of revision, and appropriate legislation was introduced. Congress postponed action because of time limitations and complexity of the problem.

War Losses.—As in the matter of powers of appointment, discussion had been in progress for years about tax provisions respecting war losses and recoveries. Here, too, general agreement was reached during 1947 between the treasury and representatives of interested taxpayers but there was inadequate time to deal definitively with appropriate legislation.

International Tax Conventions.—Turning from pending proposals to action taken in 1947, first mention may be given to continuance of the policy of negotiating international tax conventions for avoidance of double taxation, exchange of relevant information and reciprocal assistance in enforcement of tax claims. Conventions with France and the Union of South Africa were before the senate foreign relations committee. Negotiations were held with Denmark, New Zealand and Mexico. Conventions earlier consummated were implemented by regulations and rulings and in one or two instances interpreted by court decisions.

Excess Profits Tax.—Although no longer operative after 1945, the wartime excess profits tax left behind it a tremendous grist of claims under the special relief provisions. The Excess Profits Tax council, appointed in 1946 to deal with this situation, completed its organization by the end of that year. During its first year, it spent much time laying down principles of operation and reviewing and revising the bureau bulletin issued earlier to guide application of the relief sections. The council began working on specific cases about the beginning of 1947, and by June 30 had disposed of approximately 1,000 cases. This number included 51 which had gone to the tax court before the council was created; of these 34 were settled by agreement and 15 more were otherwise closed, so that only 2 remained for court dis-

position. Such figures indicate the council's earnest effort to adjust acceptably to taxpayers, without judicial trials, the smaller and simpler cases, thus freeing both its time and the courts' time for the massive disputes which, whether disposed of on the administrative or the judicial level, must move comparatively slowly. In this field, a "small" case involves less than $100,000. About 57% of the 8,400 cases pending Oct. 1, 1947, were in that sense small. At the other extreme of the scale were about 250 pending cases each involving more than $3,000,000 and together representing about 60% of the total amount involved.

Tax Enforcement.—For the fiscal year 1947–48 congress cut by about $20,000,000 (more than 9%) the salary and expense appropriation requested for the bureau of internal revenue. Complaints arose that the consequent lay-off of employees seriously curtailed bureau tax enforcement activities, which had in the fiscal year 1945–46 produced nearly $800,000,000 in additional income, profits, estate and gift tax assessments. Countercharges from congressional sources suggested spite work in retaliation for the appropriation cut. An investigation of the bureau followed. The controversy had not at the end of 1947 been fully resolved.

Social Security.—The rate of old-age insurance social security tax on employees and employers was legislatively set at 1% of wages received or paid through 1949, then at 1½% through 1951 and thereafter at 2%. In December the treasury suggested that 11,000,000 self-employed persons should be brought under this social security coverage by paying social security taxes just as income taxes are paid. (*See* also SOCIAL SECURITY.)

Judicial Developments.—Few judicial decisions of great importance with respect to federal taxation were rendered in 1947. The U.S. supreme court and other federal tribunals continued to discourage efforts to avoid, minimize or delay taxes by utilizing technical provisions of the internal revenue code. Status of the Dobson case, by which the supreme court in 1943 accorded unusually great finality to tax court decisions, was affected in two ways. The sixth circuit court of appeals asserted that the tax court as an administrative tribunal fell within the scope of the Administrative Procedure act of 1946 and had no greater adjudicative power than this act allowed. Also legislation offered in congress would make the tax court a judicial, rather than an administrative, court of record. If the sixth circuit's view should stand, or if the foregoing legislation should pass, the Dobson case would apparently become obsolete.

State and Local Taxes.—While too multifarious for review in detail, tax legislation during 1947 in 44 state legislatures and the District of Columbia emphatically manifested urgent need of larger revenues than were easily forthcoming. The broad tendency was to impose new taxes, or prolong or increase old ones. Fully 30 states so legislated with respect to alcoholic beverages (including beer) or tobacco (especially cigarettes) or both; 15 states and the District of Columbia legislated with respect to motor fuel or fuel oil; 4 states enacted sales and use taxes, significant as the first new legislation of this type in a decade; legislation increased or prolonged income tax burdens in 9 states. Only Oklahoma substantially reduced income tax, although a few states continued reductions initiated in earlier years. Failure on referendum of a proposed sales and use tax in Oregon prevented higher personal exemptions under the state income tax.

State and Local Fiscal Relations.—Cities, towns and other subordinate fiscal units were acutely distressed by the rising cost of their services. Diversification of revenue sources in these municipal corporations, while not wholly impossible, is difficult to achieve and main reliance must be placed upon the inelastic property tax. States, through diversification, increased tax yields between 1926 and 1942 about 13 times as rapidly as local governments. Hence, the latter urgently appealed for state aid, which could be given by (1) withdrawing the state from the property tax field, (2) granting localities power to diversify by taxing subjects other than property or (3) making more or less systematic contributions to local expense from state tax collections. All three of these aid methods were embodied in 1947 legislation and administrative practice. At least 16 states appointed commissions or committees to study the whole problem, probably the most important report emanating in 1946 from the Moore commission (New York). This report, recognizing the natural dependence of localities upon property, particularly real estate, for tax revenues, proposed an elaborate, systematic and costly plan for state assistance to local government. The plan set up separate budgets for state purposes and local assistance purposes, the latter budget to absorb about 55% of the total state revenue. Legislation put this plan into operation in 1946, but in 1947 the fiscal needs of localities continued so acute that legislation was passed to permit counties and cities to levy many excise and licence taxes. Soundness and uniformity in such taxation were to be furthered by the state tax commission.

State and Federal Fiscal Relations.—Complementary to the matter just considered were proposals respecting state-federal tax relationship. The American Bar association issued in 1947 an elaborate committee report on this question. The treasury also released a substantial study. In Sept. 1947, a conference of 15 state governors and 13 U.S. senators and congressmen recommended that federal excise taxes be reduced as soon as practicable, that federal estate tax be amended to provide more equitable division of death tax revenue with the states, that federal tax on employers to cover administrative expenses of state employment security programs be relinquished to the states and that states avoid encroachment on tax fields peculiarly adaptable to federal uses. (*See* also BUDGET, NATIONAL; BUSINESS REVIEW; DEBT, NATIONAL; LAW.) (J. M. MAG.)

Other Countries.—During 1947 expenditure on defense and other expenditure arising from World War II decreased in Europe and the world at large more slowly than was expected, and these decreases were offset by increases as governments assumed new functions and responsibilities. Taxation, levied on incomes recovering much too slowly, increased rather than decreased, and in most countries was at record levels for peacetime, in more than one case implying serious repercussions on the economy as a whole.

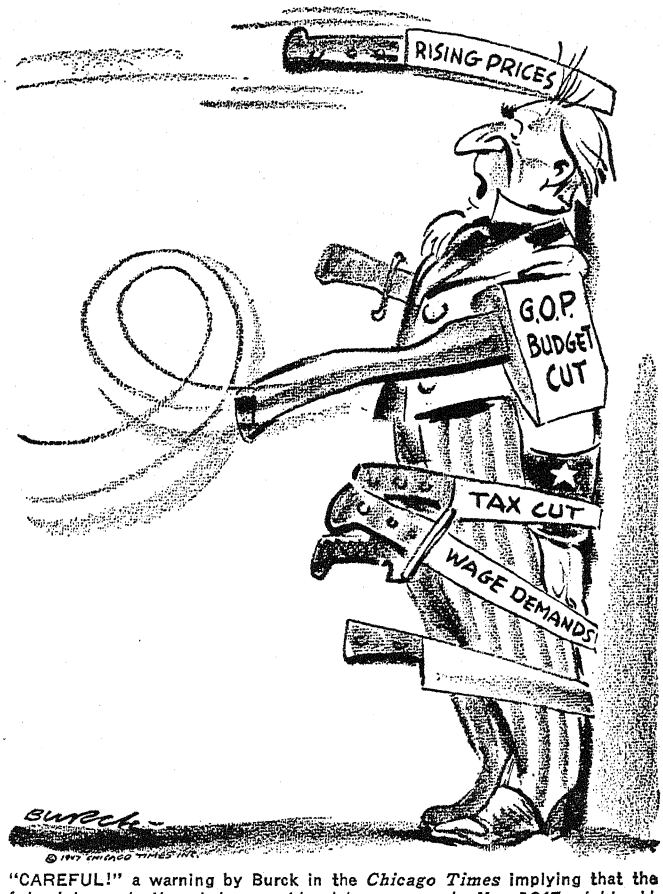
Great Britain.—Tax liabilities (central, local and social security contributions) remained in 1946 at 32% of total private income, having fallen only slightly from their wartime peak of 33%. In spite of this high proportion, the fiscal year ending March 31, 1947, closed with a deficit of £570,000,000, though that was less than budgeted for. Revenue receipts exceeded estimates by £180,000,000. For 1947–48 a total revenue of £3,451,000,000 was budgeted for, £110,000,000 more than in the previous year. The chancellor budgeted for a surplus of £270,000,000 on ordinary account, and this surplus was in fact almost achieved in the first half of the fiscal year, revenue receipts being more than fully up to the estimates.

Miscellaneous receipts, an estimated £270,000,000, included a large item, about one-half of the total, consisting of repayments to the exchequer of certain issues during the war not actually spent by the armed forces. Another £95,000,000 was expected from the sale of surplus war stores.

On the basis of the previous year's taxation not much change was expected in total receipts: a fall in excess profits tax receipts (abolished from Jan. 1, 1947) being compensated by indirect taxes on increased imports, especially of tobacco.

Further income tax relief was given. The earned income

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"CAREFUL!" a warning by Burck in the *Chicago Times* implying that the federal tax reductions being considered by congress in May 1947 might add fuel to the inflationary tendencies present in rising wage and price levels

allowance was increased to one-sixth, subject to a maximum of £250. The child's allowance was increased to £60 (from £50) and the conditions attached to the dependent relative's allowance were eased. This would cost altogether £87,000,000 in a full year. From Jan. 1, 1947, the profits tax was made discriminatory by being raised to 12½% on dividends; at the same time individuals and partnerships were exempted. This would yield an extra £36,000,000 in a full year but £16,000,000 of this would be lost to income tax. The rates of legacy and succession duties were doubled, except on charities. But new exemptions were given to smaller estates and small bequests. The increase would hit particularly legatees other than near relatives, the new rate for this class being 20% (in addition to estate duty). An additional £9,000,000 in a full year was expected from this source. Stamp duties were doubled with the exception of duties on the transfer of small property other than securities. This was expected to bring in £20,000,000. A new stamp duty was introduced at the rate of 10% on the "bonus element" in an issue of shares to existing shareholders which was expected to bring in £5,000,000 in a full year.

Heavy fuel oil and gas oil were exempted from import duty, the excise duty on home-produced artificial silk was repealed with corresponding reductions in customs duties, all these concessions costing £6,500,000. The tobacco duty was raised to record heights by approximately another £1 per pound and was £2 15*s*. on manufactured tobacco. The purpose was to reduce consumption (much above prewar) by one-third, while still making it yield £77,000,000 more than before. The effect of the duty was about as had been expected. There were £525,000,000 tobacco duty receipts budgeted for 1947–48.

The purchase tax was increased on domestic electric and gas apparatus of most kinds to 66⅔% in order to save fuel. But the tax was reduced from 33⅓% to 16⅔% on linoleum and some sports goods, and there were also other reductions. On balance an increase of £15,500,000 in a full year was expected.

A supplementary budget was introduced in November with the aim of absorbing purchasing power released by import cuts and the diversion of goods from home to export markets. From Jan. 1948 a tax of 10% would be imposed on organized betting other than on horse racing. The rate of the profits tax had been doubled retrospectively from Jan. 1947 to 25% on distributed and 10% on undistributed profits. Purchase tax rates went up, with some exceptions (including motor cars), from 16⅔% to 33⅓%, from 33⅓% to 50%, from 66⅔% to 75% and from 100% to 125%; but the list of exemptions was not changed. Duty on beer increased by 1*d*. per pint, and on spirits by 33*s*. 4*d*. per proof gallon, and on wines by 8*d*. to 1*s*. 8*d*. per bottle. There would be no further rise in food subsidies and some other subsidies were abolished. Tax arrears would be subject to interest. A novel measure was proposed (but later dropped) allowing only one-half of advertising expenditure as deduction for income tax purposes. In a full year £57,000,000 additional direct taxes and £151,000,000 indirect taxes would be raised, a total of £208,000,000.

Canada.—The surplus for the fiscal year ending March 31, 1947, was Can. $352,000,000 and another surplus of Can. $350,000,000 was budgeted for the next year, a record national income being expected. The revenue expected during 1947–48 was Can. $2,450,000,000 out of a national income of Can. $12,000,000,000. Income tax reductions, averaging 29%, and the abolition of the excess profits tax were announced. The reductions in personal income tax started on July 1. Exemptions remained unchanged but tax liabilities were reduced by 6%–7% in the upper ranges of income and by as much as 54% in the lowest ranges. Nine out of ten taxpayers would be affected. The excess profits tax ceased on Dec. 31, 1947. The corporation tax continued unchanged and in addition a 5% withholding tax was imposed on dividends payable by subsidiary companies in Canada to the parent company. This was expected to yield Can. $3,000,000–$4,000,000.

Australia.—At the end of 1946 the duty on gasoline was reduced, sales tax on clothing was removed and reduced on other goods. The concessions on sales tax cost £A16,000,000, other reductions £A4,000,000. For the fiscal year beginning July 1, 1947, the social service contribution was made slightly lighter in the lower middle range of income. There was also a general reduction in income tax, making rates of taxation lower and rebates higher. The rebatable allowance for wives was increased from £A100 to £A150, for dependent children from £A30 (£A75 for the first) to £A50 (£A100 for the first). The rate on income from personal exertion ran from 2*s*. 1*d*. (previously 3*s*.) in the £A1 to 13*s*. 6*d*. (14*s*. 6*d*.) on the excess of more than £A5,000. An agreement for the avoidance of double taxation was made with the United Kingdom. The budget proposed the abolition of the wartime (company) tax.

New Zealand.—Total taxation in 1946–47 was £NZ113,100,000 and estimated at £NZ113,400,000 for 1947–48, little less than its record high level. The only tax relief in the 1947 budget provided for exemption from the 33⅓% supertax on taxable unearned income up to £NZ200. Taxation as a proportion of aggregate private income was slightly less than 30%. In 1947–48 direct taxes were estimated at £NZ60,000,000 and indirect taxes at £NZ52,000,000.

South Africa.—The budget for 1947–48 reduced taxation by £SA15,800,000. This was made possible because of reduced defense expenditure although other expenditure rose. The basic formula applying to the taxation of gold mining companies was to be revised, reducing taxation in typical cases by about 10%. This, together with other concessions to gold mining, would cost

£SA2,225,000. The special levy on the diamond industry was reduced to one-third, which would cost £SA400,000, and the profits tax on fixed property abolished at a cost of £SA700,000. The excess profits duty and the special levy on trade profits were also abolished at a cost of £SA8,500,000.

Eire.—The autumn budget introduced further food subsidies and corresponding increases in taxation. Rates of surtax on incomes of more than £1,500 were raised to range from 9*d.* to 8*s.* 6*d.* in the pound. Excise duty on spirits was increased to £6 17*s.* 0*d.* per proof gallon, on wine doubled, on beer raised to £10 11*s.* 0*d.* per standard barrel and on tobacco to 30*s.* 6*d.* per pound. The duty on furs and cosmetics was doubled, entertainment taxes were raised and the road tax on motorcars raised by 50%. The stamp duty on the transfer of estates was raised. Income tax from April 1948 would be at the standard rate of 7*s.* in the pound instead of 6*s.* 6*d.*

India.—The budget for 1947–48 was the first to be introduced by an Indian finance minister. A new fiscal policy, designed to reduce economic inequality and to attain social objectives, was forecast. On the basis of existing taxation Rs.279 crores were expected, as against Rs.336 crores in 1946–47. Among changes in taxation was first the abolition of the salt tax, which meant a loss of Rs.9¼ crores. Although quantitatively unimportant, the salt tax had long been regarded as obnoxious and had been the centre of political agitation. This left an excess of expenditure over revenue of Rs.57 crores, and the greater part of the gap, Rs.44 crores, was filled by direct taxation. Income tax was made more progressive by raising the exemption limit from Rs.2,000 to Rs.2,500. A special income-tax of 25% was proposed (eventually reduced to 16%) on business profits (including the professions), in excess of one lakh of rupees. The yield was estimated at Rs.30 crores. A capital gains tax was also introduced, on the U.S. model, and was expected to yield Rs.3½ crores. At the same time a commission was set up to investigate the accumulation of war wealth. The rate of corporation tax was raised from 1/16 to ⅛, which would yield Rs.4 crores. Rates of income tax were not changed but the steepness of supertax was increased to reach the maximum rate of 8⅛ at Rs.1.2 lakhs for unearned income (instead of Rs.3½ lakhs), Rs.1.5 lakhs for earned income (previously Rs.5 lakhs). This would yield Rs.2½ crores. Dividend taxation was made more penal without expecting additional yield. Of indirect taxes the export duty on tea, which was of temporary nature, was raised from 2 annas per pound to 4 annas. These taxation measures would still leave a deficit. India and Pakistan would later present separate budgets.

France.—The main problem of French public finance, for a long time, was not that public expenditure was too large, in comparison with other countries, but that tax receipts were too low. Total taxation, including social insurance contributions, came to about 12%–13% of the total of private incomes in 1946. In the latter half of 1946 and throughout 1947 rising prices, caused to a large extent by the continuance of the budget deficit, made taxation, especially on profit income, lighter because of time lags between income accruals and tax payments. But the most important factor remained the evasion of taxation which was made so much easier by the complicated tax system. Rates of taxation were high but were enforced on fixed incomes only, while particular classes, especially farmers and shopkeepers, escaped lightly. In Nov. 1947, following the inventory of the financial system published a year earlier, Robert Schuman, newly elected prime minister, outlined a simplification of the income-tax system within the existing framework. Hitherto different subsidies applied to different types of incomes; henceforth, salaries (and wages) and other incomes only would be distinguished. Unification was expected to make tax collection more effective and bring in higher receipts; it was promised that the much needed general reform would come later. For salaries the exemption limit was raised to Fr.80,000, for other incomes to Fr.40,000. The tax on earnings was to be 15% (but 21% on professional incomes because of greater ease of evasion), and on nonagricultural profits 36%. An attempt would be made to tax farmers on actual profits and not on an out-of-date nominal figure, though they continued to receive special exemptions. Discounts would be given on prompt payment and interest charged on delays.

Netherlands.—The ordinary budget for 1947 showed revenue amounting to Fl.2,401,000,000 giving a surplus of Fl.91,000,000. The deficit, however, together with the extraordinary budget, was at Fl.1,967,000,000, an improvement on 1946. Two special levies were introduced, the property increment tax and the capital levy. The primary aim of these measures was to restore monetary equilibrium but they also helped in re-establishing the state's financial position. The property increment tax applied to the increase in property values between May 1, 1940, and Jan. 1, 1946. Corporations paid 50%, persons paid 50%–70% with certain exemptions. The capital levy was based on capital as of Jan. 1, 1946, and it was at the rate of 10% on part of the taxable amount up to Fl.100,000, rising to 25% for Fl.1,000,000 and more. Foreigners subject to the ordinary capital tax also paid the capital levy. Generally, they paid on physical assets in the Netherlands but not on paper titles.

Switzerland.—Ordinary revenue in 1946 came to Fr.535,000,000 leaving a deficit of Fr.135,000,000 which was more than made good by the surplus of Fr.216,000,000 on the extraordinary budget. Of the revenue Fr.230,000,000 represented customs duties, Fr.67,000,000 stamp duties, Fr.83,000,000 duties on tobacco and beer, Fr.39,000,000 post office and alcohol monopoly profits and Fr.27,000,000 taxes on property. Extraordinary taxes included national defense contribution (Fr.407,000,000), sales tax (Fr.347,000,000), national defense duty (Fr.156,000,000) and other taxes, together Fr.1,134,000,000. In the first half of 1947 customs receipts were about 50% higher than in the previous year, and stamp duty receipts moved similarly.

Sweden.—Revenue for 1947–48 was budgeted at 4,175,000,000 kr., yielding a surplus of 112,000,000 kr. over ordinary expenditure. Tax revenue exceeded that for 1946–47 by more than 400,000,000 kr. in spite of the abolition of the turnover tax since Jan. 1, 1947. The turnover tax yielded 400,000,000 kr. in 1946. The higher tax yield was partly the result of the introduction of the pay-as-you-earn method in Jan. 1947. Taxation was based on current income, whereas taxation in 1946–47 was based on income in 1944. After that date there was a substantial rise in money incomes of the order of one-third. The new income tax involved some relief for married couples without children and for single persons, but for persons in the higher income brackets taxes would be more severe. The method of child's relief was altered. A special tax on capital exceeding 30,000 kr. was introduced, but it was stipulated that central and local government taxes together must not exceed 80% of income. Tax on corporation income was raised from 32% to 40%. An additional inheritance tax was levied on estates of more than 30,000 kr. On balance persons were granted a relief of 361,000,000 kr. but corporations paid an additional 119,000,000 kr. and capital 77,000,000 kr.

Spain.—For 1947 taxes were increased. Taxes on incomes and on real estate were increased by 20%, and also taxes on various consumers' goods and capital issues. Postage rates went up sharply. Even so the budget showed a deficit.

Italy.—The autumn budget took measures to raise taxes to cover, among other things, public works. New taxes were intro-

duced on sales, gasoline, sugar and foreign cigarettes. These taxes would yield a revenue of lire 160,000,000,000 in a full year. New sales taxes would bring in lire 60,000,000,000–65,000,000,000; the tobacco monopoly expected to make a profit of lire 10,000,000,000 on the sale of foreign cigarettes, and gasoline was increased from 60 to 100 lire per litre.

Greece.—In Nov. 1947 the government announced 14 new measures of taxation to be included in the economic program, with the advice of the United States mission. An additional 600,000,000,000 drachmae were required to cover increasing expenditure, making the burden of taxation exceptionally heavy.

Argentina.—In the first half of 1947 revenue amounted to $1,385,000,000 as against $844,000,000 in the first half of 1946. The draft budget for 1948 expected a revenue of $3,092,000,000 covering ordinary expenditure which, however, excluded defense expenditure. Profits on exchange were reckoned to bring in about $650,000,000, lottery $43,000,000, postal services $86,000,000. The estimate for customs receipts, $620,000,000, presupposed vastly expanded imports. Income tax would yield $449,000,000, excess profits tax $126,000,000, estate duties $60,000,000 and capital gains tax $125,000,000. Excise, sales and stamp duties were taken at $700,000,000. (T. BAR.)

Tea. Imports of tea into the United States in the year ending July 1, 1947, were approximately 94,000,000 lb.—about 10,000,000 lb. over 1946 imports and 6,000,000 lb. over the prewar average. Most of this tea came from India and Ceylon; the Netherlands Indies, which usually shipped about 20,000,000 lb., were still in an unsettled political condition. Average consumption of tea in the U.S. was estimated at .5 lb. per capita in 1947 compared with the war-time high of .59 lb. in 1945 and a prewar average of .67 lb., 1935–37.

In Java great damage had been done to the tea plantations both by the Japanese and revolutionists; about 30% of the tea processing plants were reported as destroyed. The Dutch forces reoccupied about 90% of the tea area in 1947 but did not expect to restore normal production until 1952. (J. C. MS.)

Technicolor: *see* MOTION PICTURES.

Telegraphy. U.S. telegraphy made steady progress during 1947 in its nation-wide mechanization program. Important new telegraph apparatus and methods were placed in operation to improve service in all parts of the country. Large push-button switching centres and a number of carrier systems were installed. The radio beam system linking New York, Washington, D.C., and Pittsburgh was fast nearing completion.

Push-Button Switching Systems.—New streamlined push-button switching systems were placed in service at Philadelphia and Cincinnati. High-speed switching systems also were in operation at Richmond, Va., Atlanta, Ga., St. Louis, Mo., Dallas, Tex., and Oakland, Calif. The postwar mechanization program provided for similar systems in 11 other centres, each serving large surrounding areas, to complete the national network.

Through the push-button switching system, telegrams flash to all parts of the country with vastly greater speed and efficiency. This system speeds telegrams to their destinations by the mere pushing of a button, where under the old method each message had to be retransmitted manually at central offices. With the new system each message is typed only once, at the point of origin.

Radio Beam Telegraph.—Progress was made in the construction of a New York-Pittsburgh-Washington triangular radio beam network which followed successful experimental operation of the first such system between New York and Philadelphia. Radio towers spaced 30 to 50 mi. apart were erected and associated equipment was installed in the triangular network before the end of the year.

Sites for relay stations for further extension of the radio beam network were obtained as far west as Kansas City, and south to Atlanta. The beam system makes possible a vast increase in the number of channels available for the handling of telegraph traffic and provides amply for the telegraph growth of the future and for other communications needs.

The beam system affords the ultimate in service capacity and continuity. Since atmospheric static is not felt in the microwave region, radio beam transmission is unaffected by electrical disturbances and the hazards of ice, high wind and falling trees are eliminated. Radio beam systems would replace many of the familiar pole lines.

Telegraphy proceeded during 1947 with plans to meet television program demands through the use of its radio beam network. Equipment for the purpose was being manufactured. Frequencies in the 6000 megacycle common carrier band were to be used. Newly developed tubes delivering about 2 watts of radio frequency power and not requiring demodulation at the relay points were being employed.

Carrier Telegraph Systems.—Expansion of wire carrier telegraph systems, which make it possible to send many messages at one time over two wires by using a number of tones or frequencies, was intensified during 1947. New installations in the first 9 months added a capacity of 275,000 channel miles to the 200,000 channel miles in operation at the beginning of the year. At midyear about 30% of all trunk telegraph circuits were operated by carrier.

During 1947, a 150-kilocycle carrier system was developed specifically for use on the radio beam telegraph system. The 150 kc. band is subdivided into voice-frequency bands which accommodate telegraph, telephone or facsimile transmission. Each of these 150 kc. systems provide as many as 576 teleprinter channels operating in 2 directions.

Facsimile.—There were two new developments in the field of facsimile telegraphy. One was the teletape, a simplified facsimile machine which was developed for sending and receiving messages on Western Union teledeltos tape. A message is written on the tape and a button is pressed to start transmission. In a matter of seconds the message is reproduced in facsimile by the distant teletape machine.

The other development was the Desk-Fax, a small facsimile machine through which a businessman can send and receive telegrams from his desk. The Desk-Fax, weighing about 7 lb. and 8 x 8 x 5 in. in size, was designed to provide direct pickup and delivery of telegrams in the offices of telegraph users.

Additional telefax apparatus for automatic transmission of train orders was placed in service on railroad lines. Facsimile equipment to accommodate reservation and other communications requirements was installed by air lines. (J. L. E.)

Great Britain.—On Jan. 1, 1947 (consequent upon the Cable and Wireless act, 1946), a new court of directors was appointed for Cable and Wireless, Ltd., which operated the "via imperial" oversea telegraph services. The court, consisting of Colonel Sir Stanley Angwin as chairman, John Innes (managing director), Major General Leslie B. Nicholls, (full-time director) and A. C. Black and G. N. Gallie (part-time directors), assumed control of 155,000 nautical miles of cable routes, 7 cable repair ships, nearly 150 wireless circuits, 190 stations and more than 11,000 staff.

During 1947, arrangements proceeded for completing transfer of the control and operation by the dominions of the cable and wireless services within their territories. Developments were directed principally toward restoring facilities suspended during

World War II, introducing new services to meet postwar requirements, repairing war-damaged cables and introducing improvements unavoidably postponed during the war period. With these aims in view the network was being systematically surveyed by the new management. Major General Nicholls visited many stations in the middle and far east to discuss telecommunication developments. During the latter part of the year the managing director, accompanied by the traffic manager, undertook an extensive tour of Latin America with similar objectives.

Commercial services reintroduced during the year included facilities for sending urgent telegrams over most of the company's routes. Special-occasion services, such as through-working between Bradford and Australia, New Zealand and Argentina during the wool sales, were reintroduced as needed. Special facilities for passengers at London airport were also introduced and plans were being developed for providing similar services at other airports in Great Britain and throughout the world.

During 1947 direct cable working between the United Kingdom, and Spain and Singapore was resumed; and direct wireless communication was opened between London and Kabul.

Interisland and external radiotelephone services were expanded in the West Indies, and the company's stations provided circuits for external radiotelephone services from Athens, Malta and Hong Kong. Plans were in hand to provide radiotelephone circuits from the middle east and west Africa. Further progress was made with the restoration of cables in the far east. The company planned to restore the United Kingdom-Newfoundland transatlantic cable. Repair work was to be undertaken on the west coast of America and upon cables elsewhere. A new cable repair ship was on the stocks at Newcastle-on-Tyne and two more ships, acquired from the admiralty, were being refitted for service.

New power plant was being installed at the Brentwood, Middlesex, and Somerton, Somertshire, wireless receiving stations in the United Kingdom; a new wireless receiving station was being erected at Singapore and plans were in hand to build a relay station at Nairobi; the wireless relay stations at Colombo and Barbados were being extended. Loutsa (Athens) wireless receiving station was to be re-established. Extensive repair and extension work was also being carried out at Buenos Aires, Dorchester (Dorset, England), Kuwait, Lisbon, Rodrigues, Suez and Vigo. (A. S. A.)

Telephone. Significant telephone history was made in 1947, particularly in the United States where this type of communication had reached the highest stage of development in the world.

Beginning the year with 57.9% of the world's total, the United States added further to its leadership with a gain of more than 3,000,000 telephones and made new strides in the extension and improvement of telephone service.

The business of providing telephone service in the United States had become an $8,000,000,000 industry in terms of investment in plant and equipment. And yet, with more than two years of record-breaking expansion behind them, the telephone companies approached the year 1948 with a large program of new construction still to be accomplished.

While substantial progress was made during 1947 in reducing the cumulative total of unfilled applications, the continued heavy demand for telephones was such that there were nearly 2,000,000 people waiting for service at year end. The existence of any backlog was extraordinary in the light of the fact that more than 7,000,000 telephones had been added in the U.S. after V-J day.

Like the year before it, 1947 witnessed the manufacture and installation of huge quantities of switchboards, cable, wire and other telephone facilities, along with the construction of new buildings and additions to others. The additions to plant and equipment were put to work serving new customers as fast as the installations were completed.

The industry's tremendous growth in the United States was reflected by its (1) 1947 expenditure of more than $1,250,000,000 for new construction, (2) raising of record sums of new capital to finance the expansion program and (3) reaching of an all-time high in the number of stockholders and employees.

Plant and Equipment.—The enormity of the expansion job is indicated by Western Electric company figures on shipments to the Bell system operating companies during the first three quarters of 1947. These shipments included 26,000,000,000 conductor ft. of local exchange cable and enough dial equipment and local manual switchboard positions to serve 2,500,000 telephones. There were likewise large-scale additions and extensions to the Bell system's long-distance network. The addition of about 4,400 toll circuits during the first nine months of the year brought the system total to more than 70,000.

To make room for the large quantities of new equipment needed to serve more customers required an extensive building program. In the Bell system alone there were approximately 1,500 building construction projects completed or underway in 1947, bringing the postwar total to more than 3,000. These ranged in size from small repeater stations and community dial offices to a multimillion dollar long distance and office building in Boston, Mass.

Telephones.—A net gain of more than 3,000,000 telephones in 1947 brought the U.S. total near 35,000,000, of which 28,500,000 were served by the Bell companies and the remainder by the 5,900 independently owned companies whose lines connect with those of the Bell system. Had it not been for the nationwide telephone strike in the spring, which lasted six weeks, the 1947 telephone gain in the United States would probably have approached or equalled the record 1946 increase of 3,700,000 telephones.

At the end of 1947 the Bell system's postwar gain in telephones had reached 6,750,000—an increase amounting to more telephones than the entire number served by the Bell system after its first 40 years of business.

Estimates on world telephone development, dated Jan. 1, 1947, put the world total at 54,600,000, of which 57.9% were in the United States. On that date the United States had about 1 telephone for every 4 persons, as compared with the world average of 1 for every 43 inhabitants.

Traffic.—With millions of new customers using telephones, the amount of telephone service provided in the U.S. continued to increase. In the year ended Sept. 30, 1947, the industry handled, on the average, 136,621,000 completed local and toll conversations a day. This represented an increase of more than 8,500,000 conversations over the daily average for 1946. Completed toll conversations were up from 5,635,000 to 5,900,000 per day.

There was substantial improvement in the quality of the service. Speed of service on long distance calls was considerably greater, and a higher percentage of toll calls was completed while the calling party stayed on the line. Local manual service reflected faster answers by operators. Less turnover in the operating force, resulting in greater force experience, was an important factor in the service improvement.

Personnel.—The total personnel of the telephone operating companies in the U.S. passed the 600,000 mark in 1947. This new high in the number of employees was the result of the combination of more customers, more calls and the huge construction program. The Bell system, including the Western Electric company and Bell Telephone laboratories, embraced an

army of more than 650,000 men and women.

The American Telephone and Telegraph company, most widely owned of any U.S. business, reached a new high of 712,300 stockholders in Aug. 1947, and by year end the total surpassed 720,000.

Developments.—The growing use of radio to supplement wire lines was among the more significant trends in 1947. The New York-Boston radio relay system of the Bell system opened in the fall for experimental use. It provides long distance circuits which may be used for hundreds of simultaneous telephone conversations, for transmitting television programs and for other communication services. This system employs hilltop relay stations for sending and receiving beamed microwaves. The Bell system had begun work on a similar project between New York and Chicago.

The program for operator dialing of long distance calls on a nation-wide basis was further advanced when installation of equipment was begun on an extensive toll dialing network centring at New York city. Plans were well under way for similar installations at other major toll centres.

Substantial progress also was made on the program of converting from local manual service to dial operation and on the extension and improvement of rural telephone service. The southern transcontinental coaxial cable was completed from Florida to California, and many more miles were added on other segments of the nation-wide coaxial network. Mobile telephone service was introduced in scores of additional cities and towns and along several major highways. Overseas telephone service continued to expand. (W. S. G.)

Teleran: *see* MUNITIONS OF WAR; RADIO.

Telescopes. The most important development of the year 1947 was the completion of the optical figuring of the 200-in. mirror for the Mount Palomar observatory in southern California. Because of its great size and focal length, tests of its figure had to be made with the mirror in a vertical position. Both visual and photographic methods were used, employing a Hartman diaphragm, and the final figure was found to be good. After shipment to Mount Palomar the mirror was aluminized and placed in the completed telescope mounting, where adjustments of the support system to correspond to a horizontal position of the mirror were begun. These adjustments were determined by observations of stars near the zenith with a knife edge (Foucault test) at the primary focus in the centre of the telescope tube.

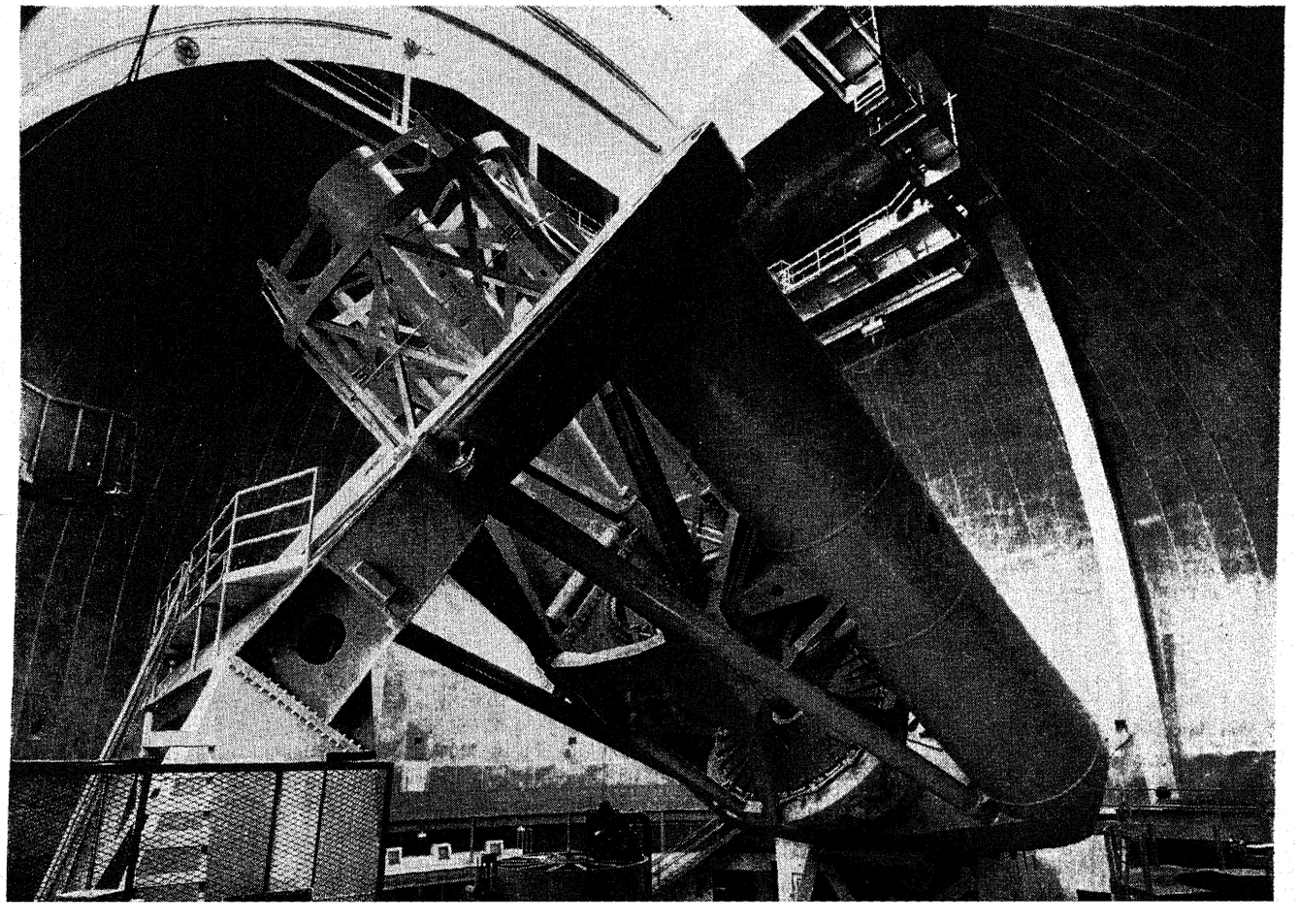
Optical figuring of the 48-in. correcting plate to be used in combination with a 72-in. concave mirror in the Schmidt telescope of the Palomar observatory was also completed. This powerful instrument, with a focal length of only 10 ft., was nearly ready for adjustment at the close of 1947.

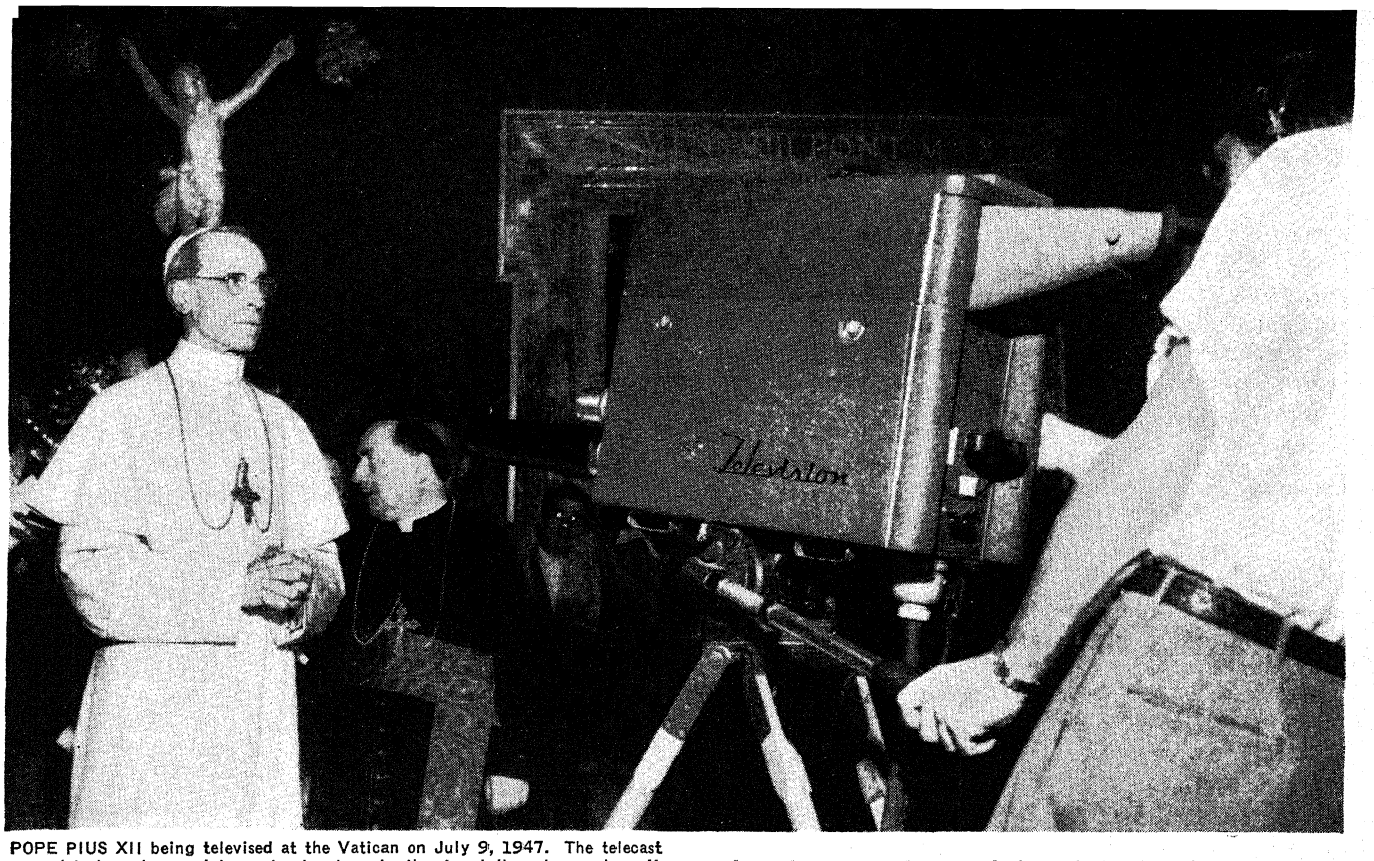
The 74-in. mirror for the Radcliffe observatory in South Africa was finished, and after aluminization was to be forwarded from England. The mounting was ready for use.

The design of the 120-in. telescope of the Lick observatory, Mt. Hamilton, Calif., was essentially complete. Preparations had been begun for the casting of the pyrex mirrors for this instrument, for several other large telescopes and for a Schmidt telescope approximately one metre in diameter, for the Stockholm observatory. Several representatives of European countries visited the U.S. during 1947 to investigate the possibility of replacing instruments destroyed during World War II. (W. S. AD.)

Television. The status of television in the United States during 1947 changed from that of a demonstrated technical reality to a firmly established broadcasting service.

THE 200-IN. REFLECTOR TELESCOPE installed on Mt. Palomar, Calif., in 1947. Astronomers planned to use it more as a giant camera than a telescope in investigating the expanding universe theory, the source of stellar energy, the origin of chemical elements, etc.





POPE PIUS XII being televised at the Vatican on July 9, 1947. The telecast was picked up by receiving sets elsewhere in the Apostolic palace, where it was seen by diplomats and church dignitaries

One of the major factors contributing to this change was the manufacture of approximately 170,000 television receivers, mostly by only 2 or 3 leading manufacturers during a substantial part of 1947. Toward the end of the year, however, a large number of radio manufacturers was entering the television receiver field.

The majority of the receivers marketed in 1947 were table models employing 10-in. directly-viewed picture tubes. Other receivers utilized directly-viewed tubes ranging in diameter from 7 in. to 20 in. The most complete television receiver models included facilities for the reception of AM, FM and short-wave stations and also a phonograph.

Two receivers of the projection type, employing reflective optics and special viewing screens were introduced during 1947. Although the screen employed in one of the receivers was of the reflection type while the other was of the translucent variety, both provided directivity patterns which resulted in a substantial brightness gain. Directional viewing screens had the additional advantage of reducing the detrimental effects of room lighting on picture contrast. These receivers were capable of producing 15 by 20 in. pictures having highlight brightnesses in the range between 30 and 100-ft. lamberts.

The Federal Communications commission hearing with respect to adoption of colour television standards for commercial operation in the frequency band from 480 to 920 megacycles continued into the early part of 1947 and the decision was announced in the spring. The commission stated that there was serious question regarding the desirability of the standards proposed for this type of operation and that insufficient field testing had been done to prove that a satisfactory colour television service could be rendered to the public.

Deliveries of television transmitters during 1947 made it possible for ten new stations to institute program service. At the end of the year 18 stations were operating on a commercial basis, and the Federal Communications commission had either licensed or authorized more than 70 stations.

An important contribution to solution of the television network problem was the completion of the American Telephone and Telegraph company's radio relay system between New York city and Boston, Mass. This system, utilizing frequencies in the vicinity of 4,000 megacycles, employed 7 repeater stations to cover a distance of approximately 220 mi. Highly directional antennas were used at each repeater station. During the formal demonstration of the system in November, television images were transmitted in both directions between Boston and Washington, D.C. Coaxial cable was used for the New York to Washington portion of the circuit.

Considerable effort was expended by U.S. television broadcasters in the development of new program techniques. The possibilities of quiz programs, particularly of the audience participation type, were investigated. Several excellent dramatic presentations were broadcast. The American Federation of Musicians' ban on its members performing for television programs continued in effect, and instrumental music was obtained from recordings.

Sporting events constituted one of the major sources of television programs; substantially every type of amateur or professional sports contest was televised at some time during the year. The availability of television cameras equipped with the highly sensitive image orthicon substantially eliminated the lighting problem in the televising of sports events.

The political potentialities of television received attention. The president and other government officials were televised on several occasions. Availability of television broadcasting facilities along the eastern seaboard was one of the major factors in the selection of Philadelphia, Pa., as the site for both the Republican and Democratic national conventions of 1948.

As the size of the television audience expanded with the installation of large numbers of new receivers, an increased interest developed on the part of advertising agencies. At the end of the year large numbers of programs were sponsored by commercial organizations; several stations were operating on a commercial basis and had established rates for their broadcasts.

Development work on colour systems continued in the laboratory. On April 30 a demonstration of the RCA all-electronic colour television system was given at the Franklin institute in

Philadelphia. A 7.5 by 10-ft. colour picture was projected by three kinescopes producing separate red, green and blue images superimposed on the screen to form a single image in natural colour. (*See* also ADVERTISING; MOTION PICTURES.)

(G. L. Bs.)

Great Britain.—The first postwar radio exhibition, held in Oct. 1947, gave manufacturers an opportunity to show advances made in design and construction of television receivers after 1945. Although nothing revolutionary was apparent, there were a number of detailed improvements, such as the fitting of interference suppression in nearly all the better sets, flat-ended cathode ray tubes and the use of miniature tubes.

Prices advanced over prewar, and the lowest figure was £50, against £30 in 1938. A few combination television-radio-phonograph receivers were on view at prices from £200 to £250, tax included.

At the beginning of the year the licence fee to use a radio receiver was increased to £2 where a television receiver was also installed. By the end of August, 23,150 television licences had been issued.

Two important developments were a new camera that gave excellent results under indifferent lighting conditions, and a system of filming the image on the screen, that marked a step toward recorded television programs. This system was first used for the cenotaph broadcast on Remembrance day, and again for the royal wedding, at which event the new camera made its debut.

It was expected that the television service would be extended to the midlands within a year or two, with the transmitting centre at Birmingham. Experimental demonstrations of relaying the program by radio beam had already been made.

Outstanding broadcasts of the year included the departure of the royal family for South Africa, taken on the platform at Waterloo station, their return to London and the eight-day tennis finals at Wimbledon.

It was announced on Dec. 1 that Maurice Gorham had resigned from his post as head of the B.B.C. television service and would be succeeded by Norman Collins, former head of the light program. (G. P.)

Tellurium.

Production of tellurium in the United States dropped from 80,750 lb. in 1945 to 3,765 lb. in 1946, because of curtailed operations in the copper refineries that recover it as a by-product. Production in Canada was only 484 lb. in 1945, but rose to 15,848 lb. in 1946 and 38,000 lb. in 1947. (G. A. Ro.)

Temporary Controls, Office of: *see* PRICE ADMINISTRATION, OFFICE OF.

Tennessee.

A south central state, 16th to enter the union, called the "Volunteer state." Land area 41,961 sq.mi., water area 285 sq.mi. Population (1940) 2,915,841; rural 1,888,635; urban 1,027,206; rural farm 1,271,944; native white 2,395,586; Negro 508,736; foreign born 11,320; other races 199. The bureau of the census estimated the civilian population on July 1, 1945, at 2,832,480. Capital, Nashville (167,402). Other cities include Memphis (292,942); Chattanooga (128,163); Knoxville (111,580).

History.—The governor of Tennessee in 1947 was James Nance McCord; secretary of state, Joe C. Carr; state treasurer, C. C. Wallace; comptroller of the treasury, J. J. Maddux; adjutant general, G. H. Butler; attorney general, Roy H. Beeler. Commissioners were as follows: agriculture, O. E. Van Cleave; conservation, Howell Buntin; education, Burgin Dossett (superintendent of schools, appointed by governor); finance and taxation, Sam K. Carson; highways and public works, C. W. Phillips; institutions, Dr. W. O. Baird; welfare, William A. Shoaf; insurance and banking, James M. McCormack; labour, W. E. Jacobs, Sr.; public health, Dr. R. H. Hutcheson; railroad and public utilities, Andrew T. Taylor, Leon Jourolman, Jr., John Hammer; safety, Lynn Bomar; employment security, W. O. Hake.

The general assembly of 1947 enacted a 2% retail sales and use tax, making possible additional $11,800,000 appropriations to public schools each year and additional sums for state universities and social security. A retirement system for state employees was established. Bridge tolls were suspended. A ban was placed on the "closed shop." Compulsory school attendance was raised to 16 years. An enabling act made it possible for Tennessee to participate in the federal hospital construction program.

Education.—In 1946, of 4,917 elementary schools only 2,318 were one-teacher schools compared with 3,555 in 1927. Enrolment in elementary schools in 1946 was 498,904, number of teachers 16,116. There were 548 high schools, enrolment 118,601, number of teachers 5,503.

Social Insurance and Assistance, Public Welfare and Related Programs.—In Sept. 1947 the total amount of assistance was $1,683,978; 48,532 old-age recipients received $999,331; aid to dependent children 37,375 (13,933 families), totalled $630,957; aid to the blind, 1,745, amounted to $53,690. In 1946–47 there were 7 correctional institutions; expenditures $1,508,048. Separate schools were maintained for the blind and the deaf; three state hospitals for the insane; a home for the feeble minded and an industrial school.

Communications.—Of the 67,388 mi. of public road, 7,563 mi. were state highways; state expenditures were $22,614,393 for the year ending June 30, 1947. There were 3,494 mi. of railroads at the end of 1946. As of Nov. 1947 there were 1,047 mi. of designated civil airways and 68 airports, of which 21 were substandard, 9 class I, 23 class II, 7 class III, 5 class IV and 3 class V (accommodating the largest planes). There were 444,300 telephones in the state, 311,300 residential and 133,000 business. Water-borne commerce on the Tennessee river in 1945 amounted to 2,163,404 net tons (1946 est. 2,399,250); Cumberland river 813,833; Mississippi river 12,097,766 net tons from Ohio river to Baton Rouge, La., and 2,593,967 at Memphis.

Banking and Finance.—In June 1947 there were 70 national banks and 224 state banks; assets $1,270,680,000 for national banks and $608,658,747 for state banks; deposits $1,194,146,000 for national banks and $568,819,833 for state banks. Savings and loan associations, Sept. 30, numbered 39 with assets of almost $91,000,000. Federal associations constituted 35 of these with assets of more than $90,000,000.

Total state revenue for the fiscal year 1946–47 was $79,401,150; revenue shared with counties and cities $10,121,024; revenue for state purposes $69,280,126. Direct bonded debt for the state was $68,056,500; highway reimbursement debt $4,793,014; gross debt $72,849,514; unencumbered surplus in the sinking fund $2,669,296; net debt $70,180,218.

Agriculture.—There were 234,431 farms in 1945; 17,849,455 ac. in farms and 5,845,145 ac. in harvested crops.

Gross value of agricultural production in 1946 was $535,518,000; cash farm income $413,752,000 (including government payments); cash farm income from crops was $217,466,000; from livestock $182,113,000; government payments $14,173,000. The forest area was 12,641,000 ac.

Table I.—*Leading Agricultural Products of Tennessee, 1947 and 1946*

Crop	1947*	1946
Corn, bu.	62,386,000	65,670,000
Tame hay, tons	2,248,000	2,417,000
Cotton, bales	505,000	520,000
Wheat, bu.	5,400,000	3,878,000
Oats, bu.	6,500,000	6,492,000
Tobacco, lb.	147,230,000	170,975,000
Potatoes, bu.	2,821,000	3,404,000
Sweet potatoes, bu.	2,241,000	3,150,000

*Estimated.

Manufacturing.—In 1947 it was estimated that approximately 3,150 manufacturing plants yielded products valued at $1,500,000,000 of which $650,000,000 was added by manufacture. Wages paid approximated $515,000,000 for 245,000 wage earners.

Mineral Production.—The value of coal mined in Tennessee during 1946 was $23,554,500 compared with $23,034,000 produced in 1945; of zinc

Table II.—*Principal Mineral Products of Tennessee, 1945 and 1944*

Mineral	Value 1945	Value 1944
Coal	$23,034,000	$23,088,000
Stone	6,318,915	7,776,775
Cement	4,669,330	6,080,921
Zinc	2,969,801	9,309,468
Sand and gravel	2,578,379	2,314,478
Lime	1,373,268	1,246,802
Clays	1,196,498	1,500,000
Barite	256,756	279,567

$6,005,816 compared with $2,969,801; of copper $4,163,400 compared with $1,658,819; of barite $272,169 compared with $256,756.

(C. E. A.)

Tennessee Valley Authority. For the second consecutive year, the TVA's integrated multiple-purpose system of dams and reservoirs controlled a major flood. In Jan. 1947, the reservoirs reduced by 12.7 ft. the crest of a flood which, uncontrolled, would have been the 6th largest in the history of Chattanooga, exceeded only by those of 1867, 1873, 1886, 1917 and 1946. Lacking control, the 1947 flood would have reached a stage of 44.5 ft. and would have caused estimated damage of $7,500,000.

Power production was nearly 15,000,000,000 kw.hr. in the fiscal year ended June 30, 1947, or about 10 times as much as was produced in the same region in 1933, when TVA was established. TVA power revenues were $44,144,000, and net income before interest was $21,839,000, representing a return of 5.5% on the average net investment in power facilities. The 5th and final generating unit at Kentucky dam was placed in operation in December, bringing system-installed capacity to 2,570,900 kw. About 370,000 kw. of generating capacity was being added to meet growing power loads.

Distribution of TVA power by 139 municipal and co-operative systems to 743,600 consumers during the fiscal year 1947 brought combined revenues of $51,000,000 and net income of $9,983,000. More than 4,000,000,000 kw.hr. was sold by the local agencies. By the end of 1947, the number of consumers served by 140 local systems approached 800,000.

About 75,000 consumers were added during the fiscal year, chiefly through construction of 6,000 mi. of rural lines, bringing the total to about 38,000 mi. of line serving 250,000 rural consumers, including 150,000 farms. Work was proceeding on an additional 25,000 mi. of line to serve 125,000 farms.

Residential use of electricity in the fiscal year was 2,197 kw.hr. per customer at an average cost of 1.66 cents per kilowatt hour, as compared with national averages of 1,385 kw.hr. and 3.14 cents. Rate reductions totalling $157,000 annually were made by some of the distributors, and in 1947, 27 of the distributing systems were applying resale rate schedules below those established in 1933 and then regarded as markedly low.

About 276,636,000 ton mi. of freight were carried on the Tennessee improved waterway in the first 10 months of 1947, nearly 10% more than in all of 1945, the previous record year. Two new-type articulated, or jointed, barges designed to carry 600 automobiles at speeds up to 17 mi. per hour, delivered several thousand cars to Guntersville, Ala., for distribution to 162 points in the southeast. About 7,000 pleasure craft, worth $2,750,000, were in operation on the lakes, and 100 privately operated boat docks had been established.

At the end of the fiscal year, about 40,300 test-demonstration farmers in 26 states were using TVA concentrated plant nutrients, and reports of state agricultural extension services revealed continued success of the test demonstrations in terms of shifts to soil- and water-holding cover crops, more livestock development, increased production and spread of soil conserving practices. There were 34 large forest-management demonstrations on industrial and institutional lands and 559 woodland management demonstrations on farms. Organized fire protection had been extended to 6,000,000 ac. through co-operative efforts of states, local agencies and TVA.

During the fiscal year, TVA chemical plants at Muscle Shoals, Ala., and Godwin, Tenn., produced about 160,000 tons of phosphate plant nutrients of several concentrations, and more than 154,000 tons of ammonium nitrate fertilizer for test demonstrations and to help meet fertilizer and food shortages. About 400 technical men, mainly from industry, visited the TVA plants to study and obtain information about processes and materials.

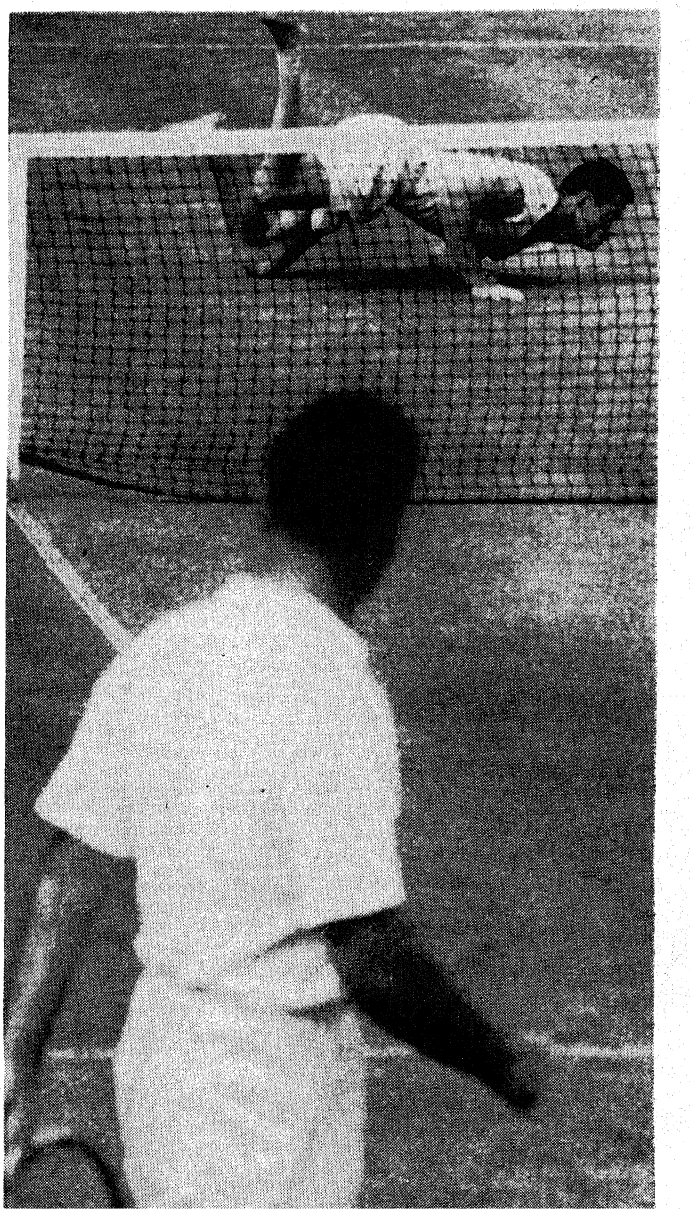
Construction went forward on Watauga and South Holston dams, the 17th and 18th to be constructed by TVA. Both were designed as earth and rock-fill structures—Watauga 320 ft. high and 900 ft. long; South Holston 290 ft. high and 1,500 ft. long. They would add about 1,287,000 ac.ft. of storage to the system.

Total appropriations to June 30, 1948, were $736,223,270. In Dec. 1946 TVA paid about $10,300,000 into the general fund of the U.S. treasury making a total of about $23,000,000 so paid under section 26 of the TVA act. The Government Corporations Appropriation act, 1948, provided that TVA should repay over a period of 40 years about $348,239,000 representing U.S. treasury funds invested in the power system.

The TVA board of directors consisted of Gordon R. Clapp, chairman, Dr. Harcourt A. Morgan and James P. Pope. TVA employees numbered about 14,500. (*See* also DAMS; ELECTRICAL INDUSTRIES; PUBLIC UTILITIES.) (K. R. K.)

Tennis. A review of lawn tennis in 1947 could be summarized in one word—Kramer. Not since 1938, when Don Budge made the only "grand slam" of tennis by winning the four major championships (Australia, England, France and the United States) had an amateur tennis player ruled so supremely as did John Albert Kramer of Los Angeles, Calif., during 1947. In addition to winning the championships in singles and doubles of the United States (indoor and outdoor) and of England,

TED SCHROEDER, playing barefooted, is shown taking a spill during a set with Dinny Pails of Australia, in the deciding match of the Davis cup series at Forest Hills, N.Y., which brought victory to the U.S. team, Sept. 1, 1947



Kramer and his U.S. doubles partner, Frederick R. (Ted) Schroeder, Jr., successfully defended the Davis cup against the challenge of Australia.

Kramer's only serious challenger in championship play was Frank A. Parker, U.S. champion in 1944 and 1945. Twice Parker had the champion down two sets to love (in the final of the southern California championship in May and in the U.S. final at Forest Hills, L.I., N.Y., in September) but Kramer on each occasion won the next three sets. Only twice were the champion's colours lowered, both times in early-season nonchampionship best-of-three sets matches, to William F. Talbert and to Francisco "Pancho" Segura.

Twenty-two nations challenged the United States for the Davis cup. Australia qualified for the challenge round by beating Canada in the only American zone tie and then defeating Czechoslovakia, European zone winner, in the Interzone final, both ties being played at Montreal, Que. The United States defeated Australia 4–1 in the challenge round at Forest Hills stadium. Kramer and Schroeder played in both singles and doubles for the U.S. and John Bromwich, Dinny Pails and Colin Long represented Australia, which scored its lone point when Bromwich and Long defeated Kramer and Schroeder in the doubles.

Five nations, Austria, Hungary, Italy, Finland and Rumania, were readmitted as members of the International Lawn Tennis federation.

Eighteen nations were represented at Wimbledon in the English championships, and players from 16 countries competed for U.S. titles at Forest Hills and Longwood, Chestnut Hill, Mass. The championship of Australia was won by Pails. Joseph Asboth of Hungary won the French title. Other international winners were Jaroslav Drobny of Czechoslovakia, who captured the Pan-American crown, and Frank A. Parker, who won the Argentine singles and doubles (with Drobny).

U.S. women players led in their division of international competition. The women's international team match between England and the U.S. for the Wightman cup was played in the United States for the first time since before World War II. The U.S. team scored its 15th victory since the series began at Forest Hills in 1923. Three California women captured four important championships: Margaret Osborne (duPont)—English, Mrs. Patricia C. Todd—French and Argentine, and Louise Brough—United States. Mrs. Nancye Wynne Bolton won the Australian and Pan-American titles.

Margaret Osborne (duPont) and Louise Brough won their sixth consecutive U.S. doubles title. They lost their Wimbledon crowns to Doris Hart and Mrs. Todd, but beat them in the French championship.

The year saw several of the world's foremost amateur players "turn pro"—Kramer (U.S.), Segura (Ecuador), Pails (Australia), Elwood Cooke (U.S.), Mrs. Sarah Palfrey Cooke (U.S.) and Pauline Betz (U.S.). (E. S. Br.)

Texas. A west south central state of the United States, admitted to the union as the 28th state on Dec. 29, 1845. Soubriquet, "Lone Star State," from the single star in the flag of the Texas republic, 1836–45. Area, 263,644 sq.mi. of land and 3,695 sq.mi. of inland water. Population (1940) 6,414,824. Estimated (1947) 6,850,000. Population characteristics (1940): Urban, 2,911,389; rural, 3,503,435; white, 5,487,545; Negro, 924,391; other, 2,888; native, 6,179,296; foreign-born, 235,528. Capital, Austin with 87,930 pop. in 1940 (112,000 est. in 1947). Other principal cities: Houston, 384,514 (478,000); Dallas, 294,734 (370,000); San Antonio, 253,854 (350,000); Fort Worth, 177,662 (247,000); El Paso, 96,810 (110,000); Galveston, 60,862 (75,000); Beaumont, 59,061 (77,000); Corpus Christi, 57,301 (112,000); Waco, 55,982 (75,000).

History.—The 50th biennial legislature (Jan.–March, 1947) enacted laws regulating strikes under some conditions, strengthening the common school system, establishing Texas State University for Negroes at Houston, revising game conservation statutes, providing state aid for rural road improvement and amending the medical practice act. It also submitted a constitutional amendment, which was adopted by the people on Aug. 23, 1947, providing a $60,000,000 expansion program for state universities and colleges. The explosion of a nitrate-laden ship at the Texas City docks, April 16, 1947, killed 550 persons and did damage estimated at $35,000,000. The principal state officials for the biennium, Jan. 1, 1947, to Jan. 1, 1949, were: governor, Beauford H. Jester; lieutenant-governor, Allan Shivers; attorney-general, Price Daniel; comptroller of public accounts, George H. Sheppard; treasurer, Jesse James; superintendent of public instruction, L. A. Woods; and commissioner of general land office, Bascom Giles. Members of the railroad commission of Texas, which administers transportation laws and those involving oil and gas industries, were: chairman, Ernest O. Thompson; Olin Culberson and William J. Murray. There were no state elections in 1947.

Education.—The state's apportionment for public school support was raised from $35 per scholastic in 1945–46 to $41 in 1946–47, according to the state department of education. Action of the legislature early in 1947 assured $55 for 1947–48. The average classroom teacher's salary was raised from $1,500 in 1945–46 to $1,845 in 1946–47, and was estimated by the state department of education at $2,500 for 1947–48. The scholastic population for 1946–47, ages 6–17, was 1,498,547. Total enrolment was 1,059,623. There were 44,156 classroom teachers, of whom 30,040 were elementary school teachers. Expenditures for public schools totalled $147,000,000, of which $27,000,000 was for debt service and capital outlay. There were 4,357 common school and 983 independent school districts. However, only 2,704 common and 973 independent districts operated schools. This large number of inactive districts arose from rapid consolidation of school activities by transfer of students, in many instances without abolishment of districts. The principal state higher educational institutions were the University of Texas at Austin; the Agricultural and Mechanical college of Texas at College Station; Texas Technological college at Lubbock; Texas State College for Women at Denton. There were 31 senior colleges of which 16 were publicly supported and 15 financed from church and private funds. There were 50 state-locally supported junior colleges.

Social Insurance and Assistance, Public Welfare and Related Programs.—Old-age pension recipients numbered 200,941 on Jan. 1, 1948. The average payment per person during Dec. 1947 was $30.17, which was approximately the average for the year. There were 5,507 drawing pensions for the blind with payments in December averaging $33.62, also the approximate average for the year. Families with needy, dependent children numbered 16,664 (with approximately 40,000 children) with a $38.29 average payment per family in December, about $2 less than the average for 1947. Total public welfare payments for the year approximated $85,000,000. These figures from the Texas department of public welfare included both federal and state funds. Unemployment insurance payments for 1947, through November, totalled $6,700,000 as compared with $14,670,000 for the entire year 1946. Payments declined monthly during 1947 as the number employed mounted to an all-time high of 2,178,000, according to the Texas Employment commission. The state prison system consisted of a central plant at Huntsville and 11 subsidiary plants and farms located in the southeastern part of the state. Homes for delinquent minors were located at Gainesville, Gatesville and Brady. The state expenditure for correctional institutions and law enforcement by state officers approximated $2,200,000 in 1947. The number of prisoners during 1947 averaged 3,300. An extensive prison reform program was initiated late in 1947.

Communications.—Designated highway mileage in 1947 was 26,300, of which 22,780 were hard-surfaced. Total public road mileage, designated and rural, on Jan. 1, 1947, was 197,048. The farm-to-market construction program was expanded during 1947 as a result of legislative action. Total main-line railroad mileage was 15,591. Water-borne commerce through Texas ports (1945) amounted to 15,496,784 tons of foreign exports and 395,888 tons of foreign imports; 33,465,343 tons of coastwise outbound shipments and 4,322,911 of receipts. Petroleum and petroleum products, sulphur, forest products and agricultural products included most of the commodities of commerce. Ten national and international air lines traverse Texas. There were, in 1947, 470 airports of which 3 were class VIII, none class VII and 10 class VI, the remainder being of lower classifications. There were 6,804 civilian aircraft with CAA certificates and 20,700 licensed civilian air pilots. There were 1,041 telephone exchanges and 1,157,990 telephones in Texas Jan. 1, 1947. Of these, 247 exchanges and 928,256 telephones were in the Bell system.

Banking and Finance.—There were 437 national and 431 state banks as of Oct. 6, 1947, with $5,015,784,000 and $1,101,992,000 of resources, respectively; total, $6,117,776,000. Demand deposits of corporations, partnerships and individuals, $3,222,802,000 and $861,657,000 respectively; total, $4,084,459,000. There were, on Jan. 1, 1947, 86 federal savings and loan associations with $103,560,806 of assets and 51 state building and loan associations with $96,034,921 of assets. Receipts to the state government for the fiscal year ended Aug. 31, 1947, approximated $350,000,000, considerably in excess of expenditures. The state's bonded debt

was only $4,100,000, entirely owned by the state's educational endowment funds. A constitutional amendment is necessary for issuance of state bonds in Texas.

Agriculture.—The value of all agricultural crop production, 1947, was $1,446,219,000, the highest value on record. Total harvested acreage, 28,696,000, according to the U.S. department of agriculture. Cash income from crops, $851,000,000; from livestock, $825,000,000 (estimates). Crop conditions in 1947 generally were good. Wheat production of 124,270,000 bu. broke all previous records. There was commercial production from approximately 60 crops. Data for leading crops, 1947, according to the U.S. dept. of agriculture, are shown in Table I.

Table I.—Leading Agricultural Products of Texas, 1947

Crop	Acreage	Production	Value
Cotton lint (bales)	8,273,000	3,360,000	$ 514,080,000
Wheat (bu.)	7,310,000	124,270,000	279,608,000
Corn (bu.)	2,945,000	48,592,000	102,043,000
Sorghum for grain (bu.)	3,801,000	68,313,000	116,815,000
Cottonseed (tons)	...	1,373,000	116,705,000
Rice (bu.)	474,000	23,700,000	67,545,000
Oats (bu.)	1,488,000	31,248,000	28,123,000
Grapefruit (boxes)	...	24,000,000	14,400,000
All other crops harvested	4,405,000	...	206,900,000
Total	28,696,000	...	$1,446,219,000

Table II.—Number and Value of Livestock in Texas, Jan. 1, 1947

Kind	Number	Value
All cattle	8,754,000	$609,278,000
Milk cows only	1,453,000	136,582,000
Hogs	1,716,000	43,930,000
Sheep	8,523,000	76,514,000
Goats	3,112,000	16,805,000
Horses	458,000	22,900,000
Mules	230,000	16,100,000
Chickens	29,178,000	35,597,000
Turkeys	786,000	3,851,000
Total	...	$824,975,000

Manufacturing.—The estimated total value of manufactured products, 1947, was $4,800,000,000; estimated number of wage earners, 238,000; total wages paid, $345,000,000. The principal industry of the state was petroleum refining, which accounted for about 30% of the total value of products, but only about 8% of the wage earners. Other leading industries were lumbering, meat packing, cottonseed crushing, flour and grist milling, oil field machinery and supplies and publishing. The greatest industrial expansion in the state's history occurred between 1940 and 1947. Part of this was for purely military purposes, including ordnance, aeroplane construction and shipbuilding which declined after World War II. Most of the large chemical plants continued production. After a sharp slump in 1945–46, there was an upturn in industrial activity in 1947.

Minerals.—The total value of mineral production in 1947 was $1,744,581,000. Petroleum production of 815,000,000 bbl. contributed $1,100,000,000. Natural gas production was 2,893,553,714,000 cu.ft., valued at $410,000,000 at the wholesale consumption price, according to the Mid-Continent Oil and Gas association, Jan. 1, 1948. Table III shows the production of other leading minerals for the latest available year, as reported by the Mid-Continent Oil and Gas association for gas, and by the U.S. bureau of mines for other minerals. (S. Mc. G.)

Table III.—Leading Mineral Products of Texas

Mineral	Production	Value
Oil, bbl. (1947)	815,000,000	$1,100,000,000
Gas M. cu.ft. (1947)	2,893,553,714	410,000,000
Natural gasoline, gal. (1945)	1,439,069,000	66,590,000
Sulphur, long tons (1946)	3,188,086	51,009,000
Portland Cement, bbl. (1946)	10,712,538	18,600,000
Carbon black, lb. (1946)	754,300,515	33,200,000
Liquefied petroleum gas, gal. (1945)	719,931,000	20,740,000
Salt, tons (1946)	1,098,589	3,356,000
Sand and gravel, tons (1946)	11,188,849	8,086,000
Other minerals (1946)	...	33,000,000
Total (consolidated 1947, 1946 and 1945) as estimated of production in 1947		$1,744,581,000

Texas, University of.

A coeducational institution of higher education at Austin, Tex., with seven schools and colleges on the main campus. The 65th annual session opened Sept. 15, 1947. Emphasis was given to natural sciences, engineering, business, law, social science and graduate work in all fields in which interest was shown by veterans. The university became a member of the Oak Ridge Institute of Nuclear Studies in 1947. Creation of a school of architecture, effective in 1948, was authorized, and appointment of a director of a graduate school of library science, to be inaugurated in 1948, was made. The university's Institute of Latin American Studies enlarged its work in Mexican geography and sociology with assistance of a grant from the Carnegie corporation. The medical school is located in Galveston, Tex.; the dental school and the M. D. Anderson Hospital for Cancer Research are both in Houston, Tex.; the college of mines and metallurgy is in El Paso, Tex., and the J. W. McDonald observatory is near Fort Davis, Tex. All are branches or agencies of the University of Texas. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (T. S. P.)

Textile Industry.

The textile industry in the United States experienced another year of record production and prosperity in 1947. Nevertheless, the industry recognized its vulnerability as durable consumer goods came on the market in 1947 in quantity for the first time since before World War II. These goods offered the beginnings of real competition to the soft consumer goods which had been in much greater relative supply during the war.

An important means of meeting this type of competition was the strengthening of the program of research during 1947. The merged organization of the Textile-Research institute, the Textile foundation and Princeton university was able to operate in its own laboratories in Princeton and to concentrate on improvement of goods for civilian use rather than on military projects.

Textile men, according to observers in the industry, were among the first to receive benefit from developments in atomic research when they adopted radioactive bars to control static electricity which interfered with the processing of the fibres. It was further noted that textile-research men were using "tagged atoms" to measure infinitesimal quantities of finish on yarns and that a whole new field of research had been opened.

Among specific developments resulting from applied research during 1947 were such concrete steps as: (1) extension of the work on nonshrinkable woollens from military channels to civilian uses; (2) development of continuous preparatory and dyeing ranges, claimed to save time and labour and obtain greater uniformity of product; (3) erection of virtually a hermetically sealed plant for full-fashioned hosiery manufacture, constructed for minimum loss of heat and for complete uniformity of temperature and humidity; and (4) increased emphasis on production of "tailor-made" fibres to meet specific demands in the use of yarns or fabrics.

The statistical effect of the latter trend was shown in the fact that the production of synthetic yarns in the U.S. passed the 1,000,000,000-lb. mark in 1947. In the years following World War I, the then-called "artificial silk" (later rayon) production had its first real impetus, but many students expected a collapse when the United States output reached the 100,000,000-lb. mark in 1928. Instead, the advance has continued unabated, until the domestic production in 1947 was ten times the 1928 figure. (D. G. Wo.)

Great Britain.—In 1947 European countries and Japan were once again contributing to the textile needs of the world. There was an abundance of raw materials, but a famine in finished goods. Progress was retarded by labour difficulties, inadequate fuel supplies, re-equipment and replacement of machinery, and the means of international payment. In Great Britain widespread stoppages caused by coal shortage, followed later by the dollar crisis, were the two most disturbing factors which compelled attention to the problems facing industry. Labour still remained the biggest problem in textiles. The wool industry, in general, worked with 75% of its prewar labour force, the cotton industry with 65%, and the silk and rayon, linen, jute and other sections were similarly handicapped. Expense was not spared in efforts to recruit labour, and although most mills were already air-conditioned, development took place in problems connected with dust removal, lighting, interior decoration, noise abatement,

welfare and canteen facilities. Efficient training schemes and also questions of redeployment of labour to ensure maximum efficiency—together with respacing of machinery—received attention.

Machinery development progressed rapidly considering that production of new types had been adversely affected by inadequate labour and shortage of steel. Practical mill research was concerned with operative aids and mechanical handling of materials to increase production by eliminating "bottle-necks" and minimizing operative fatigue.

New features were more efficient methods and machines for the preparatory opening and cleaning in cotton, wool and flax fibre processes. Individual motor drives and variable speed drives for ring spinning frames received attention, also the various efficient high-draft systems for short-cut processing. A remarkable automatic pirn winder and a cone winder were both being built in Britain. High-speed beaming machines with large supply magazine creels found increasing favour, as did a series of new model looms with many improved features.

In the wool industry, carding was a subject of considerable research, and improved tape condensers appeared.

Staple rayon continued to make progress in every section of the textile industry. (*See* also COTTON; RAYON AND OTHER SYNTHETIC FIBRES; WOOL.) (A. DR.)

Thailand: *see* SIAM (THAILAND).

Theatre. U.S.—Mounting general interest in the U.S. theatre was manifested in several directions in 1947. The number of rural summer theatres, for example, reached an all-time high of 124, only 5 of which ended their seasons before schedule. Some of the others were so successful that they extended their operations two weeks beyond the customary closing time, and many of the rest also played frequently to standees and garnered profits unequalled in previous summers. The organization known as the American National Theatre and Academy, founded for the purpose of encouraging and supporting deserving theatrical enterprise, began after an uncertain start to get its plan into some order and, among other activities, helped to operate the so-called Experimental Theatre, Inc., which offered a series of performances of works by playwrights to whom the Broadway producers had turned a deaf ear. And throughout the country universities and colleges amplified their theatrical interests with the increasing presentation of new play scripts and old. Under the auspices of the National Theatre Conference, for example, a company of drama students from seven middle western schools was assembled to tour the college and community playhouses in Illinois, Indiana, Ohio, Michigan and Kentucky.

Towns like Dallas, Tex., set about collecting funds for the building of municipal theatres. Schools on a nonprofit basis for the training and development of actors were set into motion; and the Equity Library theatre assisted in the development of potential legitimate audiences. Prize contests for new playwrights tripled in number. The little Barter theatre in Virginia sent trucks of 60 players and technicians in three separate repertory groups to cover the country in plays by Shakespeare, Wilde and others. And still more significant of the rebirth of interest in the drama was the pursuit, by former stage actors engaged in motion pictures, of the so-called Actors' Lab theatre in Los Angeles, along with the institution in La Jolla, Calif., of a stock company which would permit such actors to express themselves in their former medium.

The clouded side of the professional theatre picture was the enormously increased expense of production, twice as high as 5 years before and, in all, from 4 to 5 times higher than 15 and 20 years before. Demands of the various unions—stagehands, musicians, etc., the cost of scene painting and construction, wages in the business departments, salaries of subsidiary actors, railroad transportation and other such imposed increases took on a threatening aspect which, if not in some way controlled, boded ill for the future.

Among the phenomena of the year were the Pulitzer prize committee's refusal to bestow its annual award on a play, with the implication that nothing meriting the prize had seen production; the decision of the New York Drama Critics Circle to give its accolade to Arthur Miller's inferior *All My Sons* when, in the opinion of many critics, Eugene O'Neill's *The Iceman Cometh* clearly deserved it; the end of the metropolitan run of *Life With Father* establishing an all-time record of 3,213 consecutive performances; and the continuing prosperity of the seemingly inexhaustible musical show, *Oklahoma!*

Though the public interest in the theatre continued apace and though various exhibits achieved large commercial success, the general quality of the new plays offered was far from notable. The plays that enjoyed any approach to critically reputable drama were to be counted on less than the fingers of one hand. The tendency seemed to be toward the kind of plays that promised ready money at the box-office and subsequent motion picture sales. Those which indicated that their producers had something a little loftier in mind were inconspicuous. Among them were such as Robinson Jeffers' fresh, free rendering of Euripides' *Medea,* Theodore Ward's drama dealing with the Negro in reconstruction days, *Our Lan',* and John van Druten's study of a hidebound college professor in conflict with youth, *The Druid Circle.*

There was again reliance upon revivals to fill the gap. John Gielgud exported from England an excellent reproduction of Oscar Wilde's *The Importance of Being Earnest* and followed it with a less excellent but in the main satisfactory bawdy classic of William Congreve, *Love For Love.* Donald Wolfit brought a repertoire of Shakespeare plays and Ben Jonson's *Volpone,* but missed any degree of success save in the instance of the last named. Maurice Evans, now a U.S. citizen, prospered with Bernard Shaw's *Man and Superman.* George Kelly's *Craig's Wife,* though fairly well done, had only a modest run; and the revival of Sidney Howard's and Paul de Kruif's *Yellow Jack* was an instant failure. Katharine Cornell tried her fortune with *Antony and Cleopatra,* hitherto consistently doomed to box-office failure. A duplication of *Alice In Wonderland* by the ailing American Repertory company in association with outside interests, though praised by most critics, could not make enough money to keep going; and a revival of *Rip Van Winkle,* which served Joseph Jefferson for almost half a century and which was purveyed by a young group naming itself the New York Repertory company, closed after a single week's engagement.

If the situation in respect to new plays was gloomy there was some sunshine in the case of new musicals. *Finian's Rainbow* by E. Y. Harburg, Fred Saidy and Burton Lane proved to be a delightfully witty and attractive show which scored a deserved success. *Brigadoon,* by Alan J. Lerner and Frederick Loewe, another success, was a deftly integrated sentimental song and dance festival whose plot so closely paralleled that of the old German classic, *Germelshausen,* that audiences were somewhat surprised that due acknowledgement was not made in the program. An attempt at U.S. folk opera, *Street Scene,* fashioned from the Elmer Rice play of the same name with a score by Kurt Weill, was in general a creditable effort. *The Medium,* a short dramatic opera by Gian-Carlo Menotti treating of a bogus clairvoyant, began as a failure but presently drew audiences and gained a considerable run.



DANCE ENSEMBLE from *Brigadoon*, a fantasy by Alan Jay Lerner and Frederick Loewe, which was selected in April 1947 by the New York Drama Critics Circle as the best musical comedy of the season

The disappointment of the year was the Richard Rodgers' and Oscar Hammerstein's *Allegro*. In view of its authors' previous *Oklahoma!* and *Carousel*, much was expected of it, but what it turned out to be was a pretentious and heavily oversentimentalized book dealing with a young doctor's career and set to music below Rodgers' standard.

The more conspicuous U.S. playwrights were largely *in absentia*. Eugene O'Neill decided to hold over his projected *A Moon for the Misbegotten* until a later date, and Robert Sherwood, S. N. Behrman, Maxwell Anderson, Lillian Hellman and the others preferred to remain in abeyance. The newer playwrights provided little of worth, though W. W. Haines' *Command Decision* had its effective points and contrived what was at least in part a driving melodrama about an air force general in World War II who followed until dismissal his conviction that lives must be fearlessly squandered if future lives were to be spared. The earlier noted *All My Sons*, by Arthur Miller, indicated a measure of dramaturgical competence and managed commercial success on Broadway with its story of a crooked manufacturer of aircraft parts, but in any sound appraisal did not merit the extravagant esteem shown for it in various critical quarters. Donald Ogden Stewart's *How I Wonder* was a juvenile excursion into cosmic philosophy. Tennessee Williams' *A Streetcar Named Desire*, also highly praised, defaulted in various particulars but profited from an all-around excellent production and achieved a large commercial success.

Among the year's notable acting performances were those of Judith Anderson in *Medea*, Donald Wolfit in *Volpone*, Jessica Tandy in *A Streetcar Named Desire*, and the Gielgud company in the two revivals mentioned.

The influx of Hollywood players continued. Of the many who ventured to expose their talents the only ones who presented themselves with any success were the following: June Lockhart in *For Love or Money*, Anne Jeffreys in *Street Scene*, Kim Hunter in *A Streetcar Named Desire*, Stephen Bekassy in *The Whole World Over*, Paul Kelly in *Command Decision*, Roberta Jonay in *Allegro*, and Anthony Quinn in *The Gentleman from Athens*. The others, including such film favourites as James Mason, Claire Trevor, John Loder, Philip Dorn, Helmut Dantine, and K. T. Stevens, got nowhere. (G. J. N.)

Statistics of the Theatre in New York City, 1947 and 1946

	1947	1946
Productions	92	110
Musical comedies	22	28
Plays	70	82
Premières	61	68
Successful productions	19	19
Performers employed	1,707	2,026
Tickets sold	8,200,000	8,600,000
Approximate cost of production	$4,500,000	$5,000,000
Number of shows booked for other cities	81	87

Canada.—After a hiatus of nine years, the Dominion Drama Festival was resumed, during the week of May 5 at London, Ontario. For the first time the festival (begun in 1933) had a Canadian adjudicator, Prof. Emrys M. Jones, head of the drama department, University of Saskatchewan.

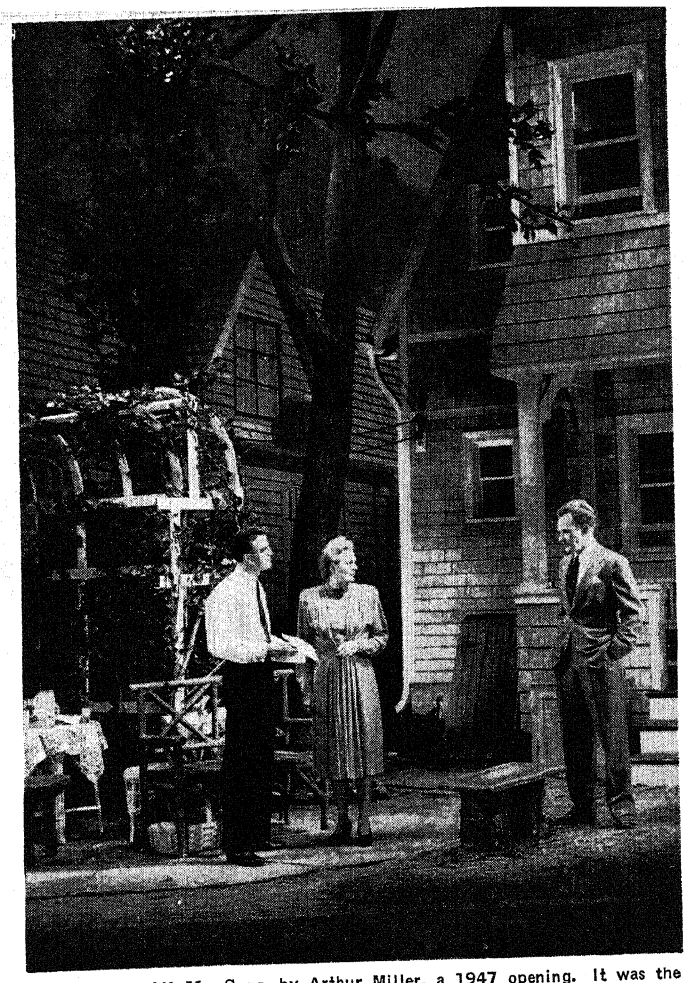
The little theatre movement in Canada continued behind the Dominion Drama Festival. Local drama leagues or organizations controlled the 11 regional competitions. For the first time, 1947 saw each region choosing its own best play. Formerly, it was customary for the Dominion Drama Festival association to send a representative to the regional competitions to pick the entries for the finals.

At the Drama Festival, the Bessborough trophy for the best presentation was awarded to Les Compagnons, Montreal, for its production of the first and second acts of Molière's *Le Médecin Malgré Lui*. The Sir Barry Jackson trophy for best presentation of a play by a Canadian author was won by Le Caveau, Ottawa, for its production of *Maria Chapdelaine*.

The Toronto Children Players, and the Regina Children's theatre, presenting plays not only for children but also in some cases by the children themselves, had an active year. Early in 1947 Jacques Gréber, famed Parisian city planner heading the National Capital Planning commission to remodel Ottawa, announced that plans included a National theatre building. (C. Cy.)

Great Britain.—Continued, even increased, austerity in the material conditions of life naturally assisted those who were providing British people in 1947 with agreeable ways of escape. The large-scale musical show was more in demand than the small and realistic play with an immediate, domestic subject. Londoners flocked to enjoy the vitality, as well as the "far-awayness," of two big U.S. productions, long triumphant on Broadway, *Oklahoma!* and *Annie Get Your Gun*. *Finian's Rainbow*, a somewhat similar importation, was less liked, but the success of the other two intimated plainly that the U.S.A. had, in musical showmanship, a new and a winning deal. The old Ruritanian style of waltz-time romances, their Danubian settings re-equipped with English tenors, sopranos, and drolls, faded away completely before the vigorous attack of the new U.S. model.

One intimate play did, indeed, hold its own amid the favour shown to "escapist" entertainment. That was *The Linden Tree* by J. B. Priestley, a study of a professor's decline and fall in a provincial university town. What took the public sympathy was the portrait of a family group true to the English middle-class in transition; here were the young seeking their own differ-



SCENE from *All My Sons,* by Arthur Miller, a 1947 opening. It was the first choice of the New York Drama Critics Circle for the best play of the season

ent types of refuge in black markets, "Red" politics, Roman Catholicism, or the arts.

Since Sir Laurence Olivier and Sir Ralph Richardson were both engaged in the studios, the "Old Vic" had to find new stars. The choices were Alec Guinness, a master of comedy as well as of pathos, Trevor Howard and Bernard Miles. With them in *Richard II* and *The Taming of the Shrew* the "Old Vic" worthily took its place in London as well as in the Edinburgh festival which, more musical in content than dramatic, was held, in glorious weather and with great *réclame,* in August. It was expected that this attempt of the Scottish capital to become the Salzburg of Britain would be renewed.

There was no Malvern festival in 1947, but one was promised to open on the 92nd birthday of George Bernard Shaw (July 26, 1948) with new plays by Shaw and James Bridie. For Bridie 1947 was a busy year; his piece in the macabre vein, *Dr. Angelus,* had a big London success, with Alistair Sim brilliant as the murderous medico; *A Sleeping Clergyman* was revived with Robert Donat, and a third Bridie play, *John Knox,* aroused considerable controversy when produced at the Citizen's theatre, Glasgow. With Edinburgh and James Bridie thus to the fore, it was a great year for Scotland. (I. Br.)

Theatre Library Association: *see* Societies and Associations.

Therapy: *see* Chemotherapy; Medical Rehabilitation of Disabled Veterans.

Throat: *see* Ear, Nose and Throat, Diseases of.

Thyroid: *see* Endocrinology.

Tibet. A country of central Asia, lying north and northeast of the Himalayas, mainly a high tableland. Nominally a Chinese dependency, it is in practice independent. Area: *c.* 470,000 sq.mi. Estimates of the population vary between 2,000,000 and 3,750,000. The religion is Lamaism, a late form of Buddhism modified by animism and primitive magic, and education is in the control of the many monasteries. The ruler is the 14th dalai lama (born 1933) enthroned in 1940 as Lingerh Lamutanchu.

History.—In April 1947 the ex-regent Jechong was arrested by the regent of the dalai lama on the charge of plotting against the dalai lama. Jechong was blinded and subsequently died in prison. Two other leaders of the revolt were sentenced to 250 strokes and imprisonment for life; it was also ordered that they should be fettered and have their eyes put out. A revolt also broke out in a monastery near Lhasa, the monks declaring themselves for the former regent Jechong, but after a siege lasting nearly two weeks the monastery surrendered to government troops. (J. Ra.)

Tildy, Zoltan (1889–), Hungarian statesman, was born in 1889 at Losoncz and educated at the Protestant college at Pápa where he graduated as Master of Divinity in 1912. He received part of his training at Belfast university and at the beginning of his career as a parson of the Reformed Evangelical (Calvinist) Church, was in contact with west European Protestant student and social movements. A military chaplain in World War I, in 1919 he became managing director of a Budapest publishing firm for Protestant religious literature and editor of the review *Magyar Föld,* an organ of the Smallholders party. In 1930 he was a founder of the Independent Smallholders party, which soon became the principal democratic-liberal opposition force against the autocratic government of General Julius Gömbös. When Tibor Eckhardt, leader of the party, left Hungary in 1941 in order to side openly with the Allied cause, Tildy was elected chairman and leader of the parliamentary group of the Independent Smallholders. Opposing pro-German tendencies, he went underground in March 1944 after the German armed forces had deposed the government of Nicholas Kállay. The elections of Nov. 4, 1945, gave an absolute majority to the Independent Smallholders and Tildy became prime minister and formed a government to succeed General Béla Miklós' provisional government. On Feb. 1, 1946, when the national assembly proclaimed the end of the monarchy, he was elected first president of the Hungarian republic. In June 1947 he denied foreign press rumours of his impending resignation and possible arrest in connection with the conspiracy of General Lajos Veress. (*See* Hungary.) (B. Me.)

Timber: *see* Lumber.

Timor: *see* Netherlands Indies; Portuguese Colonial Empire.

Tin. Production data from many of the major producing countries were lacking during the years of World War II. While the following compilation of the International Tin Research and Development council is more complete than anything else available after 1939, it still includes a number of gaps and estimates.

As can be seen from the data in Table I, the output of the

Table I.—*World Production of Tin, 1941–46*

(In thousands of short tons)

	1941	1942	1943	1944	1945	1946
Australia	3.9	3.3	3.0	2.7	2.5	2.4
Belgian Congo	15.8	14.1	18.8	19.2	17.9	15.8
Bolivia	47.1	42.9	46.5	43.5	47.6	42.4
China	9	4.9	3.6	3.7	3.9	?
Malaya	87.5	18	30	9	?	8.2
Neth. Indies	56	9	16	7	0.4	9.8
Nigeria	16.8	13.4	14.2	14.7	12.3	12.6
Siam	17.1	2.5	1.2	0.1	0.1	?
Others	17.5	12.7	12.5	9.2	9	10
Total	270.7	120.8	145.8	109.1	94	90?

Table II.—*Data of the Tin Industry in the United States, 1941–46*

(In thousands of short tons)

	1941	1942	1943	1944	1945	1946
Imports, total	189.9	62.4	41.0	54.8	47.0	60.1
In concentrates	32.1	32.4	27.5	39.8	37.5	42.7
Metal	157.8	30.0	13.5	14.9	9.5	17.4
Smelter output	2.1	18.1	24.1	34.6	45.3	48.7
Secondary recovery	42.0	38.0	37.9	32.6	39.3	31.0
Consumption, total	150.9	96.0	90.0	100.8	93.6	90.6
Primary	115.5	63.0	51.8	66.3	62.3	61.2
Secondary	35.4	32.9	38.2	34.5	31.3	29.5
Stocks, total	147.5	149.6	130.9	111.8	93.5	80.3
In ore	26.0	41.1	45.1	46.0	36.4	27.6
Metal	121.5	108.5	85.8	65.6	59.0	52.7

years 1942–46 averaged only a little more than 110,000 tons, or much less than half of the peak output of 270,000 tons in 1941. The production facilities destroyed during World War II were being replaced only slowly, but a survey estimated that production capacity could be restored to 138,000 tons in 1947, 191,500 tons in 1948 and 236,000 tons in 1949. The output reported in the first seven months of 1947 topped 75,000 tons, which would seem to make the realization of the 1947 estimate a possibility.

United States.—The salient features of the tin industry in the United States are summarized in Table II.

In 1947 smelter production declined to 37,287 tons, against 48,720 tons in 1946, and secondary recovery also dropped, but imports improved, both as ore and as metal. The net balance showed a drop of 14% in stocks at the end of the third quarter, after the stock figure at the end of 1946 had dropped to below the year's consumption.

Following the removal of price control, the price of tin rose from 52 cents to 70 cents, and in April 1947 to 80 cents, with agitation for another increase as the year drew to a close. (*See* also MINERAL AND METAL PRODUCTION AND PRICES.)

(G. A. Ro.)

Titanium. Because of the development of domestic production during World War II, the United States was able during 1947 to supply about half of its consumption of titanium, but consumption had grown at such a rate that imports were still about as large as before the war when domestic output contributed only 5% of the supply. The development of the supply-consumption picture for both rutile and ilmenite is shown in the accompanying table, in short tons.

Ilmenite	1941	1942	1943	1944	1945	1946
Production	23,297	77,208	203,551	278,610	308,516	282,447
Shipments	21,526	93,397	211,715	280,791	308,518	282,708
Imports	170,689	10,407	78,093	108,948	210,066	242,340
Supply	192,215	103,804	289,808	389,739	518,584	525,048
Consumption	275,106	257,535	302,822	360,941	381,178	404,283
Stocks	352,060	172,611	129,824	167,686	272,598	381,226
Rutile						
Production	3,130	2,648	3,987	6,922	7,179	7,453
Shipments	3,431	2,649	3,941	6,770	6,837	7,514
Imports	6,291	10,525	14,338	10,019	10,602	5,864
Supply	9,722	13,174	18,279	16,789	17,439	13,378
Consumption	6,361	10,616	17,634	14,813	9,791	7,134
Stocks	3,637	5,932	6,173	6,536	10,130	14,808

Ilmenite is used mainly in pigments, and rutile in welding rod coatings; both are used to a limited extent for alloys and carbide. Most of the imported ilmenite comes from India, and the rutile from Australia.

Canada.—Production of titanium ores had almost ceased, dropping from 69,437 short tons in 1943 to 14,147 tons in 1945, 1,406 tons in 1946 and 1,250 tons in 1947. (G. A. Ro.)

Tito: *see* BROZOVICH OR BROZ, JOSIP (TITO).

Tobacco. The U.S. crop of tobacco in 1947 was estimated at 2,167,702,000 lb., about 5% less than the record crop of 2,319,409,000 lb. in 1946. It exceeded all other yearly crops, however, and was much more than the average of 1,548,389,000 lb. for the ten-year period 1936–45. Acreage grown in 1947 was 1,875,300, compared with 1,962,200 in 1946 and an average of 1,592,000 during 1936–45. The average yield also dropped to 1,156 lb. per acre from 1,182 lb. in 1946 but exceeded the ten-year average of 971 lb. Production of flue-cured types approached a new record, but burley and dark air-cured types declined.

The Class 1 flue-cured types grown in Virginia, North and South Carolina and southward to Florida were estimated at 1,345,000,000 lb., almost equal to the high record of 1,352,000,000 lb. in 1946. The stocks of this type on July 1, 1947, were 1,287,000,000 lb., which with the new crop provided a large supply. In view of reduced exports late in 1947, this supply required a reduction in the goal for 1948 and in November the United States department of agriculture recommended that acreage of all types of tobacco be reduced about 19% from the 1947 level, 35% for fire-cured and 25% for air-cured.

The 1947 crop of Class 2 fire-cured types was 97,035,000 lb. compared with 109,355,000 lb. in 1946 and an average of 83,722,000 lb. during 1936–45. The Virginia fire-cured crop was 14% less and Tennessee 11% less than in 1946. The yield of all fire-cured types was 1,020 lb. per acre, compared with 1,157 lb. in 1946 and a ten-year average of 895 lb. Stocks were more than in each of the preceding three years and high compared to domestic consumption and exports. Much of this type is used in snuff, smoking and chewing tobacco, all of which were less than prewar levels. Reduction of exports late in the year seriously affected the markets for these tobaccos.

The burley type crop, estimated at 525,206,000 lb., was 14% less than the record of 1946, chiefly because of reduced acreage; the yield was only 3% off. Maryland's crop was only 34,360,000 lb. compared with 40,560,000 lb. grown in 1946. Kentucky, the leading state in burley production, had a crop of 357,200,000 lb. compared with 427,525,000 lb. in 1946. The carry-over of burley (nearly 1,000,000,000 lb.) combined with the 1947 crop established a new record of supply. Consumption of this type during 1946–47 was greater than in any previous year because of high cigarette consumption and large exports. The surplus of burley was accompanied by a higher support price. Since burley exports comprised only 7%–8% of the total production, the uncertainties of foreign markets had less effect than on the fire-cured types.

The average price ranged around 40 cents per pound, about the same as in 1946. The 1946 price of Maryland tobacco was 44.7 cents per pound compared with 57 cents for the small 1945 crop; in the late fall of 1947 the price was about the same as 1946.

Dark air-cured types were estimated at 42,260,000 lb. or about 6,000,000 lb. less than in 1946, but more than the average. Stocks were large and demand was 20% less than in 1946.

Cigar types of tobacco amounted to 146,850,000 lb., slightly less than was harvested in 1946. Mississippi, Georgia and Florida had larger crops, but Connecticut lost heavily at harvest time because of bad weather. Stocks carried over were lower and consumption of domestic cigars higher than in 1946. Prices were slightly lower for most of the crop, but Connecticut type of cigar binders were near the 1946 average of 72 cents per pound, compared with 58 cents in 1945 and about four times the average of 1934–38. The Louisiana perique crop increased in 1947 to 249,000 lb. compared with 150,000 lb. in 1946 and the 174,000 lb. average for 1936–45.

During the 1946–47 crop year, U.S. exports of tobacco were near the record attained in 1929, but declined sharply during the last quarter of the year. Foreign buyers, short of dollars, curtailed purchases sharply. Great Britain, largest buyer of United States tobacco, stopped buying in November and caused a near panic among United States growers. China, second largest importer in prewar years, suddenly found its dollar ex-

change low and reduced buying.

When the British ceased buying, the Commodity Credit corporation began support of the market at 90% of parity. A proposal for the United States to underwrite British purchases was rejected in London.

U. S. Tobacco Production, 1947 and 1946 and 10-year Average, 1936–45

(In thousands of pounds)

State	1947	1946	10-year Average	State	1947	1946	10-year Average
North Carolina	915,460	927,425	607,802	Ohio	22,210	21,060	24,934
Kentucky	416,167	505,885	337,468	Indiana	12,950	13,610	10,155
Virginia	161,112	178,821	115,744	Massachusetts	11,240	10,314	8,040
South Carolina	153,000	171,825	102,534	Missouri	5,040	7,425	5,746
Tennessee	146,610	171,705	107,937	New York	1,080	1,085	1,187
Georgia	130,132	110,537	80,436	West Virginia	3,625	3,424	2,624
Pennsylvania	61,100	59,124	44,826	Minnesota	720	875	638
Maryland	38,400	47,000	28,499	Kansas	285	345	288
Wisconsin	35,930	41,735	30,158	Alabama	340	288	300
Florida	27,036	22,251	16,780	Louisiana	249	150	174
Connecticut	24,516	24,530	21,488				

World tobacco production for the year ending June 30, 1947, was estimated at 7,122,000,000 lb., compared with 6,654,000,000 lb. in 1946 and an average of 6,560,000,000 lb. during 1935–39. The large U.S. crop accounted for most of the increase. China was second with 1,363,000,000 lb., followed by India 1,050,000,000 lb., Brazil 180,000,000 lb., Turkey 215,000,000 lb. and Burma 100,000,000 lb.

With the high price of U.S. tobacco every country was striving to increase its supply to meet domestic needs, but food shortages restricted expansion of tobacco acreage.

(J. C. Ms.)

Tobago: *see* TRINIDAD.

Togoland: *see* BRITISH WEST AFRICA; FRENCH OVERSEAS TERRITORIES; TRUSTEE TERRITORIES.

Tokyo. The capital and largest city of Japan; situated in a small metropolitan prefecture of the same name at the head of Tokyo bay (at 35° 45′ N., 139° 45′ E.) on the southeast coast of Honshu, largest of the Japanese islands; area, 223 sq.mi. The 1946 census recorded 3,442,000 residents, reflecting a period of repatriation of armed forces and return of refugees who had fled to less congested areas in the last months of World War II. The 1940 census had recorded a population of 6,778,804; in Nov. 1945 it had been 2,777,000.

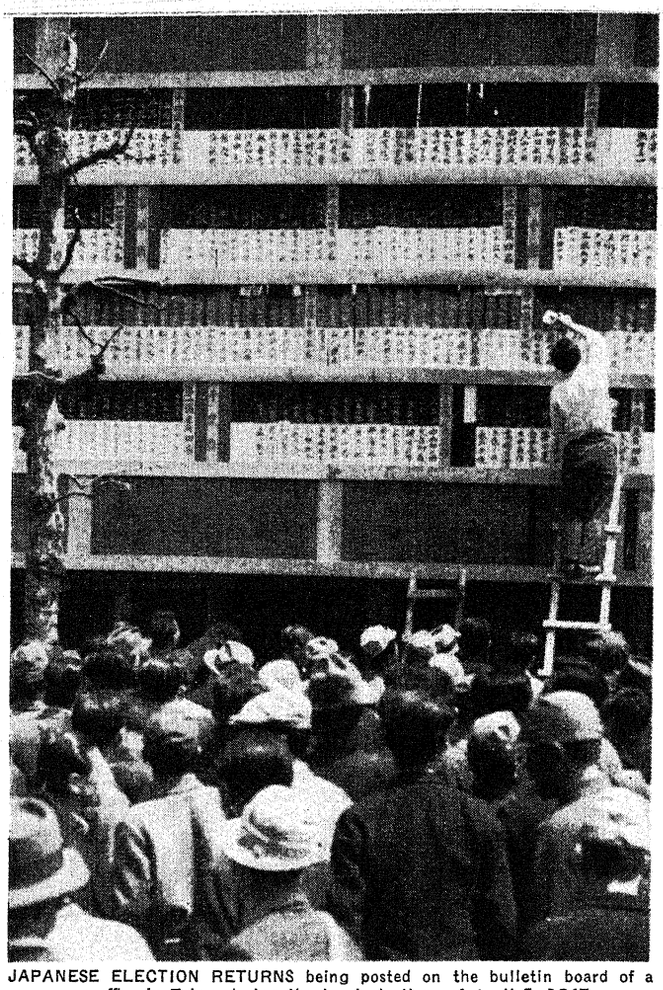
Reconstruction to replace some 750,000 war-destroyed dwellings was reported by July 1, 1947, to have added 93,380 newly built dwellings to the 569,068 remaining after the war.

In elections during April 1947 for the Tokyo governorship, an independent backed by the conservative Liberal and Democratic parties, 57-year-old Seiichiro Yasui, defeated Socialist Daikichiro Tagawa who had moderate and left-wing support. For Tokyo's 22 ward assemblies, the Liberal party obtained a slight plurality of the total 895 posts.

More effective government control measures resulted in better supply of some foodstuffs, such as vegetables and fish, early in the summer, but heavy food imports by the occupation authorities continued to be necessary to complement short domestic production, such imports, for example, comprising 44% of the October staple food ration. While Tokyo rents were held to about 170% of the 1937 figures, price indexes for consumers' goods, staple foods and clothing continued to rise, increasing by Oct. 31 to 316%, 282% and 453% over the preceding year's figures.

In the wake of a severe typhoon on Sept. 16, heavy floods, especially of the Tone river, broke levees and inundated three of Tokyo's most crowded wards (in some places up to 15 ft.). Damage in Tokyo was estimated at $200,000,000 and there were 100,000 refugees.

The Tokyo war crimes trials proceeded slowly throughout the year. The prosecution of the 25 leaders before the seven-nation military tribunal, which had begun eight months before, rested its case on Jan. 24 and the defense phase of the trials occupied the rest of the year in face of little public interest in Japan or abroad till Hideki Tojo, wartime premier and last but one of the defendants to present his case, took the stand on his own behalf on Dec. 26.



JAPANESE ELECTION RETURNS being posted on the bulletin board of a newspaper office in Tokyo during the local elections of April 5, 1947

Diverse indications of social change included the reduction of 51 collateral members of the imperial family to commoner status; the extension of purge techniques from the political sphere to include media of public information and such organizations as labour unions; the widespread appearance, despite police measures to curtail it, of gangsterism and rowdyism on the city streets; the planned and partly completed removal of some 120 monuments and memorials of a nationalistic or militaristic nature. (T. F. M-O.)

Tomatoes. The U.S. tomato crop of 1947 was smaller than the high record crop of 1946 but greater than the average. The crop for processing was only 2% less than that of 1946 and 30% more than the 1934–45 average. The crop for sale in the fresh vegetable markets was about one-sixth less than the crop of 1946 but more than the ten-year average. Acreage of tomatoes grown for juice and canning was more than double the area grown for sale on the fresh market. Tomato juice output had increased from fewer than 5,000,000 cases in 1936 to approximately 30,000,000 cases.

Tomato pulp production also increased from 3,000,000 cases to 9,500,000 cases.

The commercial crop for fresh market was estimated at 28,830,000 bu. in 1947, compared with 34,229,000 bu. in 1946 and the 10-year average of 26,099,000 bu. Acreage declined almost 50,000 ac. from 1946, but the yield was 118 bu. per acre com-

pared with 116 bu. in 1946 and 117 bu. average. There was a decline in acreage in both early and summer crops. Prices at the same time were higher than in 1946, but a glut in the August markets caused prices to break below the level of Aug. 1946. Average price in 1947 was $3.02 per bushel, compared with $2.87 in 1946 and $1.92 average.

U.S. Tomato Production for Fresh Market, 1947, 1946 and 10-year Average

(In bushels)

Crop	1947	1946	Average 1936–45
Winter	949,000	1,964,000	1,777,000
Spring	8,905,000	11,381,000	7,615,000
Summer	14,876,000	15,029,000	13,278,000
Fall	4,000,000	5,855,000	2,599,000

The tomato crop for processing was estimated at 3,327,900 tons compared with 3,380,900 tons in 1946 and 2,442,100 tons average. The acreage was smaller than in 1946 but yields were high. Prices received for the 1947 crop were slightly less than in 1946. While much of the tonnage was grown on contract at about the same prices as a year earlier, a large amount of uncontracted tonnage in the eastern states sold at lower prices. The hurricane that crossed Florida in September destroyed about 50% of the 5,000 ac. then growing. Only a part was replanted.

Stocks of canned tomato juice were about twice the average on Aug. 1, 1947, because of the increased rate of consumption. Supplies of canned tomatoes, while four times the quantity available a year earlier, were less than half the average carryover. (*See* also VEGETABLES.) (J. C. Ms.)

Tongan Island Protectorate: *see* PACIFIC ISLANDS, BRITISH.
Tongking: *see* FRENCH OVERSEAS TERRITORIES.
Tornadoes: *see* DISASTERS.

Toronto. In 1793, in colonial days, the British governor, John Graves Simcoe, laid out the present site of Toronto as the capital of the province of Upper Canada (now Ontario) and named it York. Earlier the British settlement had succeeded a French trading post called Fort Rouillé. In 1834 it was incorporated as a city and its name changed to Toronto, the old Indian name, meaning "a place of meeting." The city grew steadily and soundly until in 1947 it covered about 35 sq.mi. and had a population of about 700,000 persons. Toronto manufactures and distributes goods in a large way, having excellent advantages in location and communications; it is also the centre of the great mining industry of Ontario. The city corporation, in addition to the usual municipal services, owns and operates through commissions the city and suburban street railway and bus system and the local hydroelectric system, with exclusive distribution of electricity for light and power. The Canadian National exhibition, inaugurated in 1878 and held annually until 1941 when its entire facilities were turned over to the armed services, resumed operations in 1947. The exhibition of 1947, lasting for two weeks, was highly successful and attracted a paid attendance of 2,360,500 persons. In 1946 the assessment of values on which the tax rate was levied was $964,830,522; the tax rate was 38.10 mills on the dollar for public school supporters, 40.85 for separate school supporters. The net debt was $56,011,706.68 of which $27,852,989.44 was revenue producing and specially rated. (G. R. G.)

Toronto, University of. A provincial institution in Toronto, Ontario, Canada. In addition to the more than 17,000 students enrolled in 1947, which was more than double the prewar peak, another 13,199 persons took extension courses and 8,000 registered with the Royal Conservatory of Music. The school of graduate studies began its 26th year under a revised statute designed to retain the initiative and resourcefulness of departments while developing a greater degree of unity. Of 1,100 in this school almost half had done their undergraduate work at the University of Toronto. The others were graduates of 22 institutions in Canada, 36 in the United States, 6 in the British Isles, 13 in India, 6 in China, 3 in continental Europe, 2 in South America, and 1 each in Australia, New Zealand, Mexico and Palestine. The board of governors allocated more than $100,000 for direct support of research and publication in the physical and biological sciences, the humanities and social sciences. The University of Toronto Press published 17 scholarly works including: *Democratic Government and Politics,* by J. A. Corry; *Democracy in the Dominions,* by A. Brady; *Monopolies and Patents,* by Harold G. Fox; *Godwin's Enquiry Concerning Political Justice,* in three volumes edited by F. E. L. Priestley; *The Virtues Reconciled: An Iconographical Study,* by S. C. Chew. At special convocations the degree of doctor of laws (*honoris causa*) was conferred on Lord Beaverbrook, Sir Alexander Cadogan, Dr. Harold Willis Dodds, Prof. D. A. L. Graham, Lawrence Hunt, Ray Lawson, George McCullagh, Lieut. Col. W. E. Phillips, Helen Ogden Reid, Thibaudeau Rinfret, and Mgr. Ferdinand Vandry. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.)

(S E. SH.)

Torpedoes: *see* MUNITIONS OF WAR.
Totalitarian State: *see* COMMUNISM; FASCISM; SPAIN; UNION OF SOVIET SOCIALIST REPUBLICS.

Town and Regional Planning. In 1947 many comprehensive and detailed plans were developed in those nations of the western world where peace permitted civil planning. The final report of the 18th International Conference on Housing and Town Planning, held at Hastings, Eng., in 1946, appeared in 1947. The International Housing and Town Planning association announced the next biennial conference for June 1948 in Zurich, Switz.

Plans were advanced in 1947 for the United Nations headquarters in New York, and most of the site was cleared.

In the United States, under state authorizing acts, some progress was made in realizing urban redevelopment plans, notably in Indianapolis, Ind., Providence, R.I., San Francisco, Calif., and Washington, D.C. Many planning reports were issued. Because of curtailed federal appropriations and the failure of congress to pass the Taft-Ellender-Wagner Housing bill there was little construction of public housing. The activities of the Bureau of Community Facilities in the Federal Works agency were terminated June 30, 1947, but the agency continued to maintain contact and interest in urban redevelopment programs throughout the United States. Through the Public Roads administration, it co-operated with local planning commissions in the location and design of the through federal-aid highways authorized by congress in urban areas, and through the Public Buildings administration it co-operated with local planning commissions in the location and design of federal buildings.

The ambitious Philadelphia exhibit presented graphically the comprehensive plans of the commission and was visited by many thousands of citizens of the area and by planners from all parts of the U.S.

A number of significant planning conferences were held. The American Institute of Planners met in Providence, R.I., in January and held regional conferences in Milwaukee, Cincinnati and Philadelphia. The American Planning and Civic associa-

tion held its annual Citizens Planning conference in Milwaukee April 28–30, 1947. The American Society of Planning Officials met in Cincinnati May 5–7, 1947. The chamber of commerce of the United States held a Businessmen's Conference on Urban Problems in Washington, D.C., on Sept. 11–12.

An increasing number of smaller cities and towns published plans, including Ann Arbor, Mich., Dedham, Mass., Cheshire, Conn., Highland Park, Ill., La Jolla, Calif., Stockton, Calif., and Wichita, Kan.

Canada.—Canadian cities active in planning, included Hamilton, Montreal, St. Johns, Vancouver and Winnipeg. A National Conference on Community Planning, sponsored by the Community Planning association of Canada, was held Oct. 2–4, 1947.

Great Britain.—Plans were carried forward under the New Towns act passed in 1946. A number of planning books and reports were issued during 1947. Planning reports were issued for cities in Australia. In Pretoria, S. Af., a plan was published as a pilot survey to guide native towns.

Europe.—The Netherlands was active in planning and issued a number of reports, including one on the Replanning of Rotterdam. Germany issued a new planning bulletin from Stuttgart. (*See* also HOUSING.)

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Track and Field Sports.

Aiming at the 1948 Olympic games with their first full charge of post World War II athletic prowess, United States athletes broke or flirted with more than a half dozen world records during 1947. As was the case the year before, the outstanding performances were offered by two Negro stars—Herbert McKenley of the University of Illinois, Urbana, and Harrison Dillard of Baldwin-Wallace, Berea, O.

McKenley shattered the world 440-yd. record in the National Collegiate Athletic association championships at Salt Lake City, Utah, lowering the mark by .2 sec. with a time of 46.2 sec. Later, in the dual meet between the Big Nine and Pacific Coast, he registered 46.3 sec. for the quarter-mile distance. Dillard negotiated the 220-yd. low hurdles in 22.3 sec. or .2 sec. under the previous mark.

Steve Seymour of Los Angeles, Calif., set a national javelin record with a toss of 248 ft. 10 in. in the National Amateur Athletic union championships at Lincoln, Neb. Miko Hietanen of Finland, the European marathon champion, set a U.S. mark of 1 hr. 21 min. 45.3 sec. for the 15-mi. run at New York city and a Swedish team set a world record of 7:29 for the 2-mi. relay, in Stockholm.

The annual Boston marathon, in its 51st running, was won by a 115-lb. Korean, Yum Bok Suh, a sophomore at Seoul university, Korea, in the record time of 2:35.39. His mark bettered the previous low for the 26-mi. 385-yd. distance by 1 min. 12 sec.

The University of Illinois highlighted the team competition by winning the National Collegiate tournament with $59\frac{2}{3}$ points. The Illini also won the Western conference track and cross-country titles, and dominated the Penn relays. New York university won the Intercollegiate A.A.A.A. outdoor crown, while the New York Athletic club captured the National A.A.U. championship with $76\frac{1}{4}$ points to $63\frac{5}{8}$ points for the Los Angeles Athletic club. The Big Nine easily outclassed the Pacific Coast, $94\frac{1}{2}$–$37\frac{1}{2}$, in their annual meet.



HERB McKENLEY, University of Illinois track star, shown at the Big Nine-Pacific Coast all-star meet as he set a new world record of 46.3 sec. for the 440-yd. event. The meet was held at Berkeley, Calif., on June 28, 1947

Irving Mondschein of the New York Pioneer club won his

Outstanding U.S. Track and Field Performances (Outdoor), 1947

100 Yards

9.4 sec.—Patton, U.S.C.
9.5—Conwell, J.C.B.R.; Martinsen, Baylor; Fox, San Francisco State Col.; Jay, Texas A. & M.; Davis, Kempt, Tex., H.S.

220 Yards

20.4 sec.—Patton, U.S.C.
20.7—McKenley, Illinois
20.8—LaBeach, Unattached, Wisconsin
20.9—Parker, Texas; Fowler, Arkansas; G. Davis, U.S.M.A.; Peters, Indiana

440 Yards

46.2 sec.—McKenley, Illinois
47.2—Bolen, Colorado Univ.
47.5—McDonnell, Fordham; Guida, Villanova

880 Yards

1 min. 50.8 sec.—Clifford, Ohio State
1:51.5—Pearman, N.Y.U.
1:52.9—Barten, Michigan
1:53.1—Grosholtz, Haverford

One Mile

4 min. 9.2 sec.—Dodds, Boston A.A.
4:11.6—Karver, Penn State
4:12.5—Quinn, New York A.C.
4:14.6—Rehberg, Illinois

Two Mile

9 min. 11.8 sec.—Stone, Penn State
9:14.9—Sink, U.S.C.
9:22.2—Thompson, Texas
9:31.2—Quinn, New York A.C.

120-Yard High Hurdles

13.9 sec.—Dillard, Baldwin-Wallace
14—Dixon, U.C.L.A.; Porter, Northwestern
14.2—Scott, Arkansas; Connor, Bradley

220-Yard Low Hurdles

22.3 sec.—Dillard, Baldwin-Wallace
22.7—Porter, Northwestern
23—Clark, Washington Univ.; D. Frazier, U.S.C.

440-Yard Low Hurdles

53 sec.—Smith, U.S.C.
53.1—Kirk, Penn
54.5—Ault, Missouri
54.8—Ross, Elizabeth, N.J.

High Jump

6 ft. 8 in.—Vessie, Columbia
6:7⅝—Scofield, Kansas
6:7⅛—Hanger, California
6:7—Steers, Multnomah, A.C.

Broad Jump

26 ft. 8 in.—Steele, San Diego State
25:9½—Wright, Wayne
24:8¾—Lacefield, U.C.L.A.
24:7⅜—Johnson, Michigan State

Pole Vault

14 ft. 7⅜ in.—Smith, San Francisco Olympic Club
14:3—Morcom, New Hampshire State; Meadows, Los Angeles A.C.
14:2½—Bennett, Wisconsin

16-Pound Shotput

54 ft. 10⅞ in.—Fonville, Michigan
54:9⅝—Thompson, Los Angeles A.C.
54:3¼—Wasser, Illinois
54:2¼—Gordien, Minnesota

Discus Throw

177 ft. 8½ in.—Fitch, Unattached, Minn.
174:1½—Gordien, Minnesota
163:9½—Sheehan, Missouri
162:7—Kadera, Texas A. & M.

Javelin

248 ft. 10 in.—Seymour, Los Angeles A.C.
226:5⅛—Biles, San Francisco Olympic club
212:10—Held, Stanford
210:4—Grote, Nebraska

16-Pound Hammer

180 ft. 11 in.—Bennett, Brown
172:11½—Fisher, Harvard
172:5—Felton, Harvard
170:10¾—Styrna, New Hampshire State

56-Pound Weight

36 ft. 7½ in.—Budd, Shore A.C., Branch, N.J.
36:4½—Berst, New York A.C.
35:11½—Dreyer, New York A.C.
33:7½—Bennett, R.I.

One-Mile Relay

3 min. 12.8 sec.—Los Angeles A.C.
3:12—U.S.C.
3:14—Ohio State
3:14.3—U.S. Military academy

Hop, Step and Jump

46 ft. 5¼ in.—Beckus, Unattached, Los Angeles
45:5½—Ganslen, Shore A.C.
45:4—Theriot, A.A.F.
44:9—Robertson, San Antonio A.C.

third straight National A.A.U. decathlon championship with 6,715 points, just 10 points more than recorded by Lloyd T. Duff of Ohio State university, Columbus. John Voight of Baltimore, Md., 20-year-old Oklahoma A. and M. (Stillwater) freshman, captured the national pentathlon crown. He scored 2,927 points to 2,626 points for Charles Covino of the New York Athletic club.

Indoor Track.—Gilbert Dodds, returning to the mile and two-mile grind after a two-year layoff, completely dominated the indoor season. He won 12 straight races, including the National A.A.U. championship mile. His indoor record included 9 mile and 3 two-mile victories, and reached its peak with a 4 min. 6.8 sec. mile in the Chicago relays. Coupled with his victories in 1943 and 1944, prior to his layoff, the Boston preacher won 23 successive indoor races.

New York university won both the National A.A.U. and Intercollegiate 4-A indoor crowns, outlasting Manhattan college in each meet. The Violets won the A.A.U. title, 18½–15, over Manhattan and gained the I.C.4-A crown, 35–30.

Women.—Continued success of three veteran campaigners—Stella Walsh of Cleveland, Alice Coachman of Albany State college, Ga., and Nancy Cowperthwaite of the German-American A.C.—marked the women's National A.A.U. championships. Although without the aid of Miss Coachman, Tuskegee institute, Ala., easily won the team title with 106 points.

Both Miss Coachman and Dorothy Dodson of Chicago, the only triple winners of 1946, settled for two firsts and a second in 1947. Miss Walsh, on her 17th year of national competition, defended her 200-m. title. (M. P. W.)

Trade Agreements: *see* INTERNATIONAL TRADE; TARIFFS.
Trade Commission, Federal: *see* FEDERAL TRADE COMMISSION.
Trade Unions: *see* LABOUR UNIONS.
Traffic Accidents: *see* ACCIDENTS.

Trans-Jordan. An Arab kingdom of the middle east bounded by Palestine (west), Saudi Arabia (south and southeast), Iraq (northeast), and Syria (north). Area: 34,750 sq.mi. Pop. (est. 1944) *c.* 340,000; pop. (est. 1946) 370,794. Religion: Arab Moslems (Sunnis) 300,000; Caucasian Moslems (Shi'ites) 10,000; Christians 30,000. Capital: Amman, the ancient Rabbat Ammon. Chief cities: Amman (45,000); Es-Salt (14,500); Ma'an (8,000). Ruler: King Abdullah ibn Hussein.

History.—During 1947 Trans-Jordan's economic development continued, and the country was unaffected by the disturbed state of Palestine. King Abdullah granted permission for the projected new pipe line from Saudi Arabia to pass through his country.

King Abdullah was not only the ruler of Trans-Jordan, but also the head of the royal Hashemite house, which ruled in Mecca until expelled by King Ibn Sa'ud and for a brief period after World War I in Damascus, whence King Feisal was ejected by the French. Hashemites now reign in Trans-Jordan and Iraq. King Abdullah's activities and pronouncements therefore bore a double significance, and exercised a wider effect on Arabian politics than the size and importance of Trans-Jordan alone would warrant. In April 1947 the prince regent of Iraq (King Abdullah's nephew) visited Amman, and an Iraqi-Trans-Jordan treaty was the outcome of the visit. (*See* IRAQ.)

King Ibn Sa'ud was alarmed by what he conceived to be a Hashemite bloc aimed at himself, and protested that the treaty would interfere with free communication between his kingdom and Syria through a "corridor" which he claimed existed, though in fact the territories of Syria and Saudi Arabia were nowhere contiguous.

King Abdullah called forth further protests from Ibn Sa'ud during the summer, by his renewed advocacy of "Greater Syria"; *i.e.*, the union of Syria and Trans-Jordan under King Abdullah. King Ibn Sa'ud made the point that it was unpatriotic of King Abdullah to raise an issue which must divide Arab opinion, just when it should be united in support of the Palestine Arabs' case before the United Nations. Official Syrian reaction was, naturally enough, even more pronouncedly hostile. King Abdullah's renewal of his claim to a Syrian throne caused a worsening of Syria's relations not only with Trans-Jordan but with the Hashemites in general, and accentuated the division of Arabian political forces into two parties, the Hashemites (Trans-Jordan and Iraq) on one side, and Syria and Saudi Arabia on the other. (F. ST.)

Education.—1944: government schools, Moslem scholars, boys 6,811, girls, 1,617, Christian scholars, boys 939, girls 240; nongovernment schools, Moslem scholars, boys 1,492, girls 268, Christian scholars, boys 2,101, girls 1,733.

Finance, Trade and Communication.—Revenue (1945) £P.926,204, grants in aid, £P.1,610,000; expenditure, ordinary, £P.2,731,899, extraordinary, £P.81,000. Imports (1944) £P.2,986,296; exports £P.1,792,255. (Palestine £ = British £ = 403 U.S. cents). Railways open to traffic (1945) 226 mi. All-weather roads (1944) 371 mi. Telephones (1946) 1,354; motor vehicles (1938) cars 335; buses 24; trucks 320.

Agricultural Production.—(1944) in short tons: wheat 121,253; barley 44,092; grapes and raisins 23,148; millet 7,165; lentils 13,228; (1943) kersennah 10,200; melons 23,000; tomatoes 16,000; beans and peas 2,400; tobacco 10.

Transportation: *see* AVIATION, CIVIL; ELECTRIC TRANSPORTATION; MOTOR TRANSPORTATION; RAILROADS.
Transylvania: *see* HUNGARY; RUMANIA.

Trap-shooting. A record entry of 1,786 fired away at the Grand American handicap at Vandalia, O., with another newcomer to the championship circle—Hugh Crossen of Gardiner, Mont.—capturing the title. Crossen, a 41-year-old rancher, sporting goods dealer and tavern operator, won the 48th championship with 99 targets out of 100 in a brisk wind at 22 yd. It was his sixth attempt for the Roaring Grand, and netted him approximately $5,000. Fifteen shooters were tied for second with 98.

Kenton Sargent Stewart, 31-year-old Wichita, Kan., paving contractor, won the preliminary handicap with a possible 100. Cliff Doughman, 36, of Morrow, O., won the North American amateur with 249 out of 250 in a shoot-off with 10 others. The original 11 leaders were tied at 200 out of 200.

D. Lee Braun, 36, of Dallas, Tex., won the professional North American clay target championship as well as the national skeet title, and set a record of 546 out of 550 in the latter event and ran 491 in a row. The veteran Joe Hiestand of Hillsboro, O., won the champion of champions event for state titleholders. Ohio won the team title with 497 out of 500. Members of the Ohio team were: Doughman, Heistand, Ralph Smith of Dayton, Don Englebry of Vermilion and P. O. Harbage of West Jefferson.

Rudy Etchen, 24, of Dallas, Ia., topped the field in both the Grand American professional singles and doubles. He won the singles with 95 out of 100 and the doubles with a 20 out of 20 shoot-off with Braun and John Jahn of Spirit Lake, Ia., after the 3 were tied at 94 out of 100 in the regular shoot.

Other men's winners were: 16-yd. North American—Cliff Doughman, 200 out of 200; veterans—H. B. Greenamyer of Piqua, O., 99 out of 100; junior—Fred David Waldock of Sandusky, O., 100 out of 100; class AA—Earl Colson, Tacoma, Wash.; class A—Edward W. Castanedo, Shreveport, La.; class C—Allen Tomnitz, Sioux Falls, S.D.; class D—Al Nock, New Richland, Minn.; doubles—Homer Clark, Jr., Alton, Ill.

Mrs. Roy Meadows of Grimes, Ia., won the women's Grand American in a shoot-off with Mrs. Reba Peters of Springfield,

O. They were tied at 95 out of 100, after which Mrs. Meadows won the shoot-off with 48 out of 50 to 46 out of 50. Mrs. Lela Hall Frank of Sierra Madre, Calif., won her seventh women's North American title with a 25 out of 25 score in a shoot-off with Florence Mos of Wichita, Kan., and Helen O'Dell of La Grange, Calif. The trio was tied at 197 out of 200.

Mrs. George P. Fairchild of Reading, Pa., won the women's preliminary in a shoot-off with Mrs. Clyde King, Jr., of Atlanta, Ga., and Mrs. Meadows. (M. P. W.)

Treason: *see* FEDERAL BUREAU OF INVESTIGATION.
Treasury, U.S. Department of: *see* GOVERNMENT DEPARTMENTS AND BUREAUS.

Trieste, The Free Territory of.

A small state at the northern end of the Adriatic sea, between Italy and Yugoslavia, demilitarized and neutral, whose integrity and independence were assured from Sept. 15, 1947, by the Security council of the United Nations. Area: 258.18 sq.mi., pop. (1947 est.): 341,000, composed of 85% Italians, 10% Yugoslavs and 5% others. Military governors under provisional regime: British-American zone (known as B.U.S.Z.): Major-General T. S. Airey (British); Yugoslav zone (known as J.A.Z.): Lieutenant-General Danilo Lekić.

History.—At midnight on Sept. 15–16, 1947, Trieste formally became a free territory. At the same time, the previous division of the former Italian province of Venezia Giulia by the so-called Morgan line into two zones—zone A under Anglo-American occupation and zone B occupied by the Yugoslavs—came to an end. North of Trieste troops of the Yugoslav 4th army under Lt.-General Lekić moved from the Morgan line to the new frontier, and the Italians re-entered the area Gorizia-Monfalcone, about one-twelfth of all the territory round Trieste that they had taken from Austria-Hungary after World War I and had had to evacuate in May 1945 when the area came under Anglo-American occupation.

The free territory proper, as defined by Article 21 of the peace treaty with Italy (ratified on Sept. 15), was temporarily divided into two zones: 5,000 British and 5,000 Americans under Major-General Airey held the coast from Duino to Muggia with the city of Trieste, and 5,000 Yugoslavs were in occupation of the coastline from Muggia to Cittanuova and of the countryside south of Trieste.

Annex VI of the peace treaty, containing the permanent statute of Trieste, stated that a governor of the free territory (who must not be an Italian or Yugoslav citizen) was to be appointed by the Security council of the United Nations after consultation with the Italian and Yugoslav governments at the earliest possible moment after the ratification of the peace treaty. The governor, officially described as the representative of the Security council, was to select a provisional council of government and a director of public security, who also could not be an Italian or Yugoslav citizen, to reorganize the police. The 15,000 foreign soldiers were to remain at the disposal of the governor for 90 days after he assumed office and be withdrawn in 45 days from then unless he advised otherwise. Four months after his assumption of office the governor was to organize free elections, with proportional representation, to a constituent assembly which was to adopt the constitution of the free territory by a two-thirds majority; the council of government was to be formed by, and be responsible to, the assembly.

Although several candidates had been proposed for the governorship at the council of foreign ministers in New York in the autumn of 1946, no agreement had been reached. The deadlock was not solved on Sept. 24, 1947, when the Security council of the United Nations discussed new candidatures at a secret session at Lake Success, Long Island, N.Y. At the end of December no governor of Trieste had been appointed and—according to Annex VII of the peace treaty dealing with the provisional regime—the free territory, pending the assumption of office by the governor, was still administered by the Allied military command, within their two respective zones.

The Anglo-American military command was unwilling to yield to the constant pressure exerted by the Communist-controlled Slovene-Italian antifascist union with the avowed aim of setting up in Trieste a popular front on the Yugoslav pattern, and the integration of the free territory within a federation of similar popular fronts. It was announced on Nov. 9 that the Yugoslav government had informed the Security council that it was discontented with the present administration of the Anglo-American zone of the free territory. (K. SM.)

Trinidad.

An island and British colony lying a few miles off the South American continent north of the Orinoco river delta. The separate island of Tobago, situated northeast of Trinidad, forms part of the colony. Area (including Tobago): 1,980 sq.mi.; pop. (1946 census): 558,413, of which a large proportion, estimated at approximately one-third, consists of East Indians. Chief towns: Port of Spain (cap., 92,782); San Fernando (28,830). The Christian churches, both Protestant and Roman Catholic, exercise great influence in the colony. Executive authority is vested in a governor appointed by the British crown and assisted by an executive council and by a legislative council containing a substantial elective element. Governor: Sir John Shaw (appointed 1946).

History.—Trinidad was among the colonies represented at the conference held in Jamaica in Sept. 1947 to consider the question of West Indian federation. The Trinidad delegation to the conference took a strong stand in favour of immediate federation as against the view, held in some quarters, that federation might retard the advance toward responsible government in individual colonies. On the economic side a memorandum surveying the general progress of the development program of the colony was laid before the Trinidad legislative council in Jan. 1947. Two reports of some importance from Trinidad received consideration during the year. The first, prepared by the social welfare officer, dealt with the general question of social welfare in the island. The second related to new measures for the control of leprosy. As a result of experiments in the use of sulfone drugs, there was reason to hope that a new era was beginning in the treatment of what was once regarded as an incurable disease.

Finance and Trade.—British currency and Trinidad government notes are legal tender. Accounts are kept in dollars ($1 = 4*s.* 2*d.* or 85 cents U.S.); the coinage in circulation is almost exclusively British silver and bronze. Revenue (1946) £8,602,000; expenditure £6,411,000. Imports £15,709; exports £12,849,000. Sugar and cocoa are the most important agricultural products; but Trinidad differs from the majority of British colonies in possessing considerable mineral, as well as agricultural, resources. The island is the largest producer of mineral oil within the British colonial empire and also contains an extensive deposit of natural asphalt known as the "Pitch Lake," situated in the ward of La Brea. The principal exports of the colony include sugar-cane products, cocoa, oil and asphalt. (J. E. SH.)

Tripoli: *see* ABRASIVES.
Trolley Coaches: *see* ELECTRIC TRANSPORTATION.
Trucial Sheikhs: *see* ARABIA.
Truck Crops: *see* VEGETABLES.
Trucks: *see* AUTOMOBILE INDUSTRY; MOTOR TRANSPORTATION.

Truman, Harry S.

(1884–), 33rd president of the United States, was born on May 8 in Lamar, Mo. See *Encyclopædia Britannica* for an extended biography.

President Truman reversed his political field in a startling

manner during 1947. Whereas he began the year as a middle-of-the-roader with respect to major appointments and policies, he ended it in such a way that hostile and friendly critics alike characterized him as a more earnest New Dealer than Franklin D. Roosevelt.

Late in 1946 and early in 1947, largely because of Democratic defeats in the 1946 congressional elections, he scrapped many of his predecessor's domestic policies. He lifted many irksome wartime controls from the domestic economy, defied and fought various segments of organized labour and urged a cut in government costs. Although he advocated extension of federal aid in such fields as housing, health and social security, he was not earnest or energetic enough to satisfy left-wing elements of the Democratic party. Moreover, he looked to the more conservative members of the cabinet and congress for advice.

As the year closed, however, Truman had aligned himself further "left of center" than F.D.R. ever stood. He advocated new and expensive government supports and services in almost every human field. He urged upon congress higher minimum wages, extension of social security and unemployment insurance on the basis of higher payments, a national medical program, crop insurance and continued subsidy of farm prices.

He held out the promise of federally financed homes, schools, public works and a "public power" system that envisaged a series of TVA's across the country. He urged an end to "segregation," especially in the realm of education. He asked for reimposition of selective controls on wages, prices and allocation of basic materials like steel, lumber and oil.

Abandoning his former attitude that there should be no tax reduction for fear of its inflationary effect, he proposed a "cost-of-living" deduction of $40 annually for each individual taxpayer and his dependents. Estimating that this scheme would eliminate 10,000,000 low-income taxpayers from the list at an annual cost of $3,200,000,000, he proposed that this revenue loss be made up through higher taxes on corporations.

Truman's critics declared that he had "out-Wallaced Wallace" following the former vice-president's announcement that he would run as a third-party candidate in opposition to the administration's domestic and foreign program. It was the consensus of political and editorial opinion that in order to outflank Wallace and prevent his candidacy from making certain a Republican presidential victory in 1948, the president had veered sharply to the left, definitely and deliberately.

The Truman strategy seemed to have the desired effect. Powerful labour unions once friendly to Wallace—steel, automobile, garment workers, etc.—deserted him on the theory that his entry might elect a Republican president. The Roosevelt wing, including Eleanor Roosevelt and Franklin D., Jr., declared their support of Truman, and in their writings and speeches depicted the rebellious Iowan as a politician "more to be pitied than scorned." The Democratic high command planned to brand the insurgent as a "Stalin stooge," if he carried out his plan of running as a third-party candidate.

In foreign affairs, Truman was forced by Russian hostility and recalcitrance to scrap his predecessor's friendly attitude toward Moscow. In the spring he sprang a surprise by asking congress for $400,000,000 to aid Greece and Turkey in resisting Communist attempts to bring those nations within the soviet orbit. Subsequently, he requested congressional approval of the Marshall plan, a four-year, $17,000,000,000 program to rehabilitate 16 nations of western Europe so that they would not fall under the influence of the U.S.S.R. and communism.

Moscow, naturally, set out to wreck this recovery scheme. In eastern Europe, Germany, the Balkans, the middle east and in the orient, the United States and the U.S.S.R. engaged in what became known as the "cold war." It seemed to mark the end of



"HOW DO I LOOK?" was President Truman's query in this cartoon by Burck in the *Chicago Times*, as the 80th U.S. congress convened in Jan. 1947, with a Republican majority in both houses

joint hopes and efforts for world recovery through the United Nations, the Conference of Foreign Ministers or any other agency. The sacrifices and burdens involved in the contest threatened to jeopardize the U.S. economy in the form of continued scarcities of commodities, high taxes, an inflated cost of living and general social, political and economic unrest.

Although Capitol Hill Republicans generally agreed to the need for an approximation of the Marshall plan, they disagreed over the amount involved and the details of its operation. These differences, together with disputes over Truman's expanded domestic program, brought to an abrupt end the honeymoon which had existed between the White House and congress. Another factor in breaking off friendly relations was the approach of the 1948 presidential campaign.

Truman made several moves to consolidate the western hemisphere, as if in preparation for an ideological, economic or military conflict with the U.S.S.R. He continued F.D.R.'s "good neighbour" policy. He made a state visit to Mexico City, where he was widely acclaimed, and President Miguel Alemán of Mexico repaid the compliment with a journey to Washington. Truman also attended the signing of a draft of a defense treaty for the western hemisphere at Rio de Janeiro, Brazil. It provided for the use of U.S. weapons and training methods by Latin-American armies and navies.

President Truman became chief executive and boss of the Democratic party in his own right during 1947. In his press conferences, meetings with congressional leaders and in his day-to-day relationships, he assumed a more positive, even aggressive attitude. He fixed policy, especially in the domestic field, without consulting his advisers. He got rid of many Roosevelt holdovers in high office, replacing them with men of his own choosing. He even proposed the addition of a new balcony on the rear White House portico so that he could enjoy more privacy on hot summer evenings—a suggestion which drew

criticism from artistic and historical groups.

Truman placed his own man in charge of the Democratic National committee. When Robert E. Hannegan resigned, he named Senator J. Howard McGrath of Rhode Island as successor. There was some significance to this shift. Although Hannegan was a Missouri man, he was an important political figure there when Truman was only a mere beginner. Moreover, Hannegan was a Roosevelt appointee. In Senator McGrath, an old Capitol Hill crony, the president picked a man without any allegiances or obligations save to the man in the White House.

President Truman's 1947 activities convinced every observant politician, Democrats and Republicans alike, that he was an extremely active candidate to succeed himself. In their opinion, he had outlined the pattern of expected victory—a coalition of labour, leftists, racial and religious groups in the great metropolitan centres, and dyed-in-the-wool Democrats. His shift from right to left of centre during the year was interpreted as evidence of his ambition.

So, National Chairman McGrath caused some surprise when, in addressing various groups of Democrats throughout the country, he quoted President Truman as follows: "I don't care whether I am President of the United States again. If only I see the day of peace that Franklin Roosevelt fought so hard to achieve, and the brotherly love he fought to get, I'll be happy. It wouldn't make any difference who is President of the United States then!" (*See* also UNITED STATES.)

(R. TU.)

Truman Doctrine: *see* GREECE; TURKEY; UNITED STATES.

Trustee Territories. The first session of the Trusteeship council of the United Nations opened at Lake Success, Long Island, N.Y., on March 26, 1947. Nine members attended, Australia (trustee for New Guinea), Belgium (Ruanda-Urundi), China, France (Cameroons and Togoland), Iraq, Mexico, New Zealand (Western Samoa), Great Britain (Tanganyika, Cameroons, Togoland) and the U.S.A. (Japanese mandated islands in Pacific). The U.S.S.R. was not represented at the first session, maintaining the view that the trustee agreements did not go far enough and would tend to slow down the progress of the peoples toward independence.

The agenda was concerned with rules of procedure, the details of the questionnaires on political, social and educational advancement of the inhabitants of each trusteeship territory, and the consideration of petitions already presented. A final set of rules was adopted at the 22nd meeting. A committee was chosen to examine the various drafts and formulate a model questionnaire, to be the basis of the annual reports of administering authorities. A final model was sent to these authorities, open to revision in special cases at the second session of the trusteeship council in Nov. The petitions came from Western Samoa, with a request for self-government, and from a number of German and Italian residents or former residents in Tanganyika requesting that they should be allowed to remain, or return to Tanganyika. In the latter cases the council decided that no action on their part was called for, and approved the action of the administering authority. At its 23rd meeting it decided to send a visiting mission to Western Samoa, consisting of the representatives of the U.S.A., Belgium and Iraq. In Oct. the commission reported unanimously in favour of a considerably larger measure of self-government.

The trusteeship system came up before the second U.N. general assembly, which opened in New York on Sept. 16, when South Africa's refusal to transform its mandate over South-West Africa into a trusteeship was again discussed. During 1947 a second consultation of the native population had been held, resulting in a very large majority for maintaining close relations with the Union. Faced with this situation the second general assembly firmly maintained its earlier recommendation that South Africa should, following the example of other administrators of League of Nations mandates, submit a trusteeship agreement for South-West Africa for the assembly's third session. The trusteeship committee accepted a ninth trusteeship agreement, for Nauru; administering powers being shared between Great Britain, Australia and New Zealand. (*See* also INTERNATIONAL LAW; OCCUPIED AREAS, ADMINISTRATION OF; PACIFIC ISLANDS UNDER TRUSTEESHIP.) (M. FE.)

Trustee and Mandated Territories, Dec. 1947

Territory	Area	Date of League of Nations Mandate	Date of United Nations Trusteeship	Administering Authority
*South-West Africa, including Caprivi Zipfel, formerly part of Bechuanaland protectorate	317,725 sq.mi.	Dec. 17, 1920	—	Union of South Africa
Togo, comprising				
(1) Togoland; *i.e.*, western section, excluding the seaboard	13,041 sq.mi.	July 20, 1922	Jan. 25, 1947	Great Britain
(2) Togo; *i.e.*, eastern section and seaboard	20,463 sq.mi.		Jan. 25, 1947	France
Cameroons, comprising				
(1) Cameroons adjoining Nigeria	34,081 sq.mi.	July 20, 1922	Jan. 25, 1947	Great Britain
(2) Cameroons adjoining French Equatorial Africa	169,436 sq.mi.		Jan. 25, 1947	France
Tanganyika	362,688 sq.mi.	July 20, 1922	Jan. 25, 1947	Great Britain
Ruanda-Urundi	20,120 sq.mi.		Jan. 25, 1947	Belgium
†Palestine	10,159 sq.mi.	Sept. 29, 1923	—	Great Britain
New Guinea, Territory of, comprising: (1) Northeastern New Guinea (*i.e.*, the northern section of southeast New Guinea) (2) Bismarck archipelago (New Britain, New Ireland, the Admiralty Isles, etc.) (3) Certain of the Solomon Islands (Bougainville, Buka, etc.)	93,000 sq.mi.	Dec. 17, 1920	Jan. 25, 1947	Commonwealth of Australia
Western Samoa, comprising Savaii, Spola, etc.	1,133 sq.mi.	Dec. 17, 1920	Jan. 25, 1947	New Zealand
Nauru	8 sq.mi.	Dec. 17, 1920	Nov. 15, 1947	British empire—Great Britain New Zealand and Australia (the present administrator)
Pacific Islands North of the Equator, comprising: (1) Marianas or Ladrone Islands (except Guam) (2) Caroline Islands, comprising the Eastern Carolines and Western Carolines, together with Yap Island and Pelew (3) Marshall Islands	830 sq.mi.	Dec. 17, 1920	April 2, 1947	U.S.A. (formerly Japanese mandates)

*Controversial status.
†Under League of Nations mandate; see Palestine.

Tsaldaris, Constantin (1884–), Greek politician, was born in Alexandria, Egypt. Graduated from the University of Athens law school, he studied law and political science at universities in France, England and Germany. He entered the government as minister in Crete (1920–22). A royalist by conviction, he was imprisoned in 1926 for plotting against the republic. Elected to the Greek parliament in 1932, he was re-elected in 1933 and 1935.

Tsaldaris fled to Egypt during the German occupation. Returning to his homeland toward the end of World War II, he became a leader of the proroyalist Populist party and formed his own government on April 18, 1946. The Tsaldaris government's suspension of civil liberties and trade union activities fanned leftist hostility, and the outbreak of civil war in the Greek border areas added to his difficulties. In early 1947, the government was reshuffled, and Demetrios Maximos became premier, although Tsaldaris was retained as vice-premier and foreign minister. But the Maximos government was unable to sur-

vive the stress and strain of civil war, and Tsaldaris formed a new government on Aug. 29. Tsaldaris' ultraconservatism resulted in his own downfall, Sept. 7, and he was replaced as premier by Themistocles Sophoulis; however, Tsaldaris again retained the key posts of vice-premier and foreign minister in the Sophoulis regime. In a statement before the U.N. general assembly (Sept. 29), he appealed to the U.N. to save Greek independence and expressed the hope that British troops would remain in Greece to protect that country against "external pressure."

Tuberculosis. The Committee on Tuberculosis of the American Student Health association reported in 1947 that 17.6% of more than 127,000 students in 184 U.S. colleges reacted to tuberculin. In 362 colleges (50 more than in 1946), some kind of a tuberculosis control program was in effect. These schools reported 508 cases of tuberculosis among their students.

E. R. Long pointed out that by Aug. 1, 1945, approximately 15,065,000 Selective Service registrants had been examined at local boards and induction stations. Because of tuberculosis, 129,900 were rejected as physically unfit; this was 2.7% of all persons in the IV-F class. Discharges from the army because of tuberculosis totalled approximately 15,000 men in the years 1942–45. The examinations on separation from the service revealed a large number of cases of minimal tuberculosis. New infections apparently were acquired in greater numbers overseas than at home.

Diagnosis and Case Finding.—M. R. Lichtenstein reported that among 11,749 cases admitted to the Municipal Tuberculosis sanatorium in Chicago from 1932 to 1946, omitting cachectic and senile patients, only 142 nonreactors were found, 138 of whom were proved to be nontuberculous. In Lancashire, Eng., F. C. S. Bradbury reported that among 74,208 persons examined many had X-ray shadows but only 239 active cases of tuberculosis were found. Following this work he advocated that mass X-ray inspection of the chest not be extended to the general population but that it be concentrated on contacts of tuberculous persons.

The division of tuberculosis control of the U.S. public health service, co-operating with medical societies, tuberculosis societies and health departments, extended its chest X-ray survey work during 1947. Photofluorograms were made of the chests of approximately 175,000 persons in Milwaukee, Wis. From May 5 to Aug. 25, the 400,000 citizens of Minneapolis, Minn., beyond the age of 15 years were offered free photofluorographic inspections of their chests. This was the largest city in the U.S. in which such a survey had ever been attempted. The total number from whom satisfactory films were obtained was 301,513. No final diagnoses were attempted from shadows; those whose X-ray films revealed abnormalities were referred to physicians or clinics of their choice, where the various necessary phases of the examination were performed to determine the cause of the disease casting the shadow. In October a similar survey was begun in St. Paul, Minn. The division of tuberculosis control of the U.S. public health service hoped that similar surveys could be conducted in every U.S. city of 100,000 or more during the coming years.

The controversy over the cause of deposition of calcium in the lungs was less intense during 1947 than in former years. It now appeared that in the eastern central part of the U.S. far more of the deposits of calcium are due to some cause other than tuberculosis, probably the fungus infection known as histoplasmosis. E. M. Medlar found at postmortem examination that many so-called scars in the apices of the lungs usually regarded as due to tuberculosis actually do not represent this disease.

H. E. Hilleboe published a *Guide for the Disposition of Persons with Abnormal Lung Findings on X-ray Films,* intended to prevent indiscriminate diagnoses of pulmonary tuberculosis on the basis of X-ray inspection alone. Extensive studies revealed that photofluorograms, 14x17 in. paper and celluloid films, are equally valuable in determining the location and extent of shadows in the lungs.

G. N. Scatchard and D. O. Duszynski made X-ray inspections of the chests of patients admitted to the Edward J. Meyer Memorial hospital in Buffalo, N.Y. Shadows of lesions previously unsuspected were found in 3.7% of the cases, and 1.8% proved to be due to tuberculosis. J. V. Sherwood reported the results of a community tuberculosis control program in Grand Rapids, Mich., where the tuberculin test, X-ray film of the reactors and complete examination of those with shadows was in progress. The mortality rate dropped from 103 in 1905 to 15.9 in 1945—the lowest rate of any city of 100,000 population or more in the U.S. In 1929, 25% of the high school students reacted to tuberculin, but in 1946, only 8%. In 1920, 105 deaths occurred outside the sanatoriums, but only 7 in 1944. The Alabama legislature enacted a statute authorizing the state health department to order tuberculosis examinations for persons between 13 and 50 years of age in any or all counties. In Buenos Aires, Argentina, an X-ray inspection of the chest of every pregnant woman, without cost to the patient, was made obligatory. The problem of tuberculosis among the aged was under consideration in many places. E. M. Medlar emphasized that in those over 50 years of age many cases of tuberculosis are overlooked clinically and, thus, insufficient precautions are taken to prevent the spread of tuberculosis.

Treatment.—No other treatment for tuberculosis had ever created as much interest, activity and expenditure of large sums of money over such a short period of time as did streptomycin.



ANTI-TUBERCULOSIS poster warning residents of Berlin to submit to examination in cases of persistent coughing or excessive fatigue, as part of a 1947 drive to combat the high rate of infection in the city

It was studied extensively by the tuberculosis control division of the U.S. public health service, the Mayo clinic and others. Tuberculous sinuses draining on the surface of the body from deeper areas of disease usually close quite promptly on streptomycin treatment. Areas of disease in the tongue, tonsils, intestines, larynx, trachea and bronchi with frank ulceration usually respond well. In generalized miliary tuberculosis some remarkable results were observed. Moreover, the lives of a sizable number of persons with tuberculous meningitis were prolonged.

As far as was known in 1947, streptomycin does not destroy tubercle bacilli in the human body but does suppress their activities. In tuberculosis of the lungs, significant improvement was not observed in chronic disease of long standing. In recently developed lesions, however, progress seemed to be retarded, but the drug alone usually was not found adequate to control the condition. Streptomycin administered before and immediately after surgery was believed to be helpful in preventing the spread of the disease. The long duration of life of tubercle bacilli in the human body and the vicissitudes of the disease made it impossible to draw more than tentative conclusions regarding the effectiveness of this antibiotic.

Some strains of tubercle bacilli are resistant to streptomycin and others may become so. Wherever a preponderance of such organisms exists or develops, streptomycin obviously is not effective. Because of certain toxic effects, great care in administration of the drug and close observation of the patient are required. A considerable percentage of patients develop vertigo and some suffer impairment of hearing. The occasional person is sensitive to streptomycin. Appearance of any toxic manifestation may require reduction in dosage or complete withdrawal of the drug. There was some evidence that smaller doses of streptomycin are as effective as the larger, and reduce the likelihood of toxic effects.

J. R. Haserick and H. E. Michelson and others reported that vitamin D_2 (calciferol) played an important role in controlling tuberculosis of the skin. R. Heller concluded that cases of minimal tuberculosis are less likely to relapse following treatment if collapse therapy is instituted. Large numbers of the usual collapse procedures, such as pneumothorax and extrapleural thoracoplasty, were done. R. H. Overholt and associates presented an analysis of 88 patients, of whom 55 had an entire lung and 33 had one or more lobes removed between 1934 and 1944. When the report was made, 48.1% of those with lungs removed and 42.4% of those with lobes removed were clinically well and noncontagious, while 41.2% of those with lungs removed and 18.2% with only lobes removed, were dead. The operative fatality rate for both of these operations in 1947 was approximately 5% for patients regarded as reasonable risks, but it was nearly 44% in the desperate risk group.

Immunization.—The Oxford, Eng., investigators of the vole bacillus vaccine concluded that a controlled experiment in tuberculosis vaccination in humans was so difficult as to be practically impossible. This belief was supported by the fact that approximately 7,000,000 humans had received BCG (Bacillus-Calmette Guérin) vaccine, and still there was no unanimity of opinion with reference to its efficaciousness. In Norway it was recommended that administration of BCG be made compulsory for all children who did not react to tuberculin at the time of leaving school. K. Birkhaug reported that in Scandinavia this substance had been given to several hundred thousand people. K. A. Jensen demonstrated that there were variations in virulence and so-called immunizing properties of BCG vaccine. This cast suspicion on the often-made statement that BCG is safe. C. Cameron and I. A. Purdie called attention to this apparent instability of BCG and suggested that if the vole tubercle bacillus met certain qualifications it would have obvious advantages over BCG. J. B. Amberson declared there was reason to hope that an immunizing agent without living organisms might be developed, and urged further research. The important question yet unanswered in 1947 was whether BCG, vole bacillus or any other preparation made from tubercle bacilli of any kind might be capable of producing dependable immunity. The division of tuberculosis control of the U.S. public health service began a study in Atlanta, Ga., applied to a limited group, carefully controlled and scientifically observed. Many years would be required, however, before fundamental facts could be established either for or against the use of BCG.

Tuberculosis in Animals.—At the end of the fiscal year 1947, 296,002,872 tuberculin tests had been administered to cattle in the U.S. since 1917, and 3,928,080 animals with the tuberculin reaction had been destroyed. During the fiscal year 1947, 8,312,919 cattle were tested, and only 0.2% reacted. At the points of federal inspection, only 939 carcasses were condemned as unfit for food. H. M. O'Rear presented convincing figures pertaining to the relationship between tuberculosis among cattle and people. Further progress was made in controlling tuberculosis among swine and poultry, as well as other domestic animals. Although B. Bang had devised methods of controlling tuberculosis among the cattle of Denmark in 1892, apparently this work was not continuously prosecuted, since in 1937 the disease had been stamped out in barely half the herds. A later systematic campaign, however, resulted in 95% to 100% of the dairy herds being tuberculosis-free. Apparently the control of the disease among cattle contributed largely to the marked decrease in incidence of infection among children.

K. Habel found tuberculosis a highly fatal disease in a laboratory monkey colony. However, it was readily controlled by repeated tuberculin testing with removal of the reactors. As in cattle and other animals, he demonstrated a close correlation between tuberculin reactions and autopsy evidence of tuberculosis in these animals. (*See* also PUBLIC HEALTH SERVICES; X-RAY AND RADIOLOGY.)

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Tulane University. Founded in New Orleans, La., in 1834 as the Medical College of Louisiana, this privately endowed, coeducational institution was renamed the Tulane University of Louisiana in 1882 in honour of Paul Tulane, New Orleans philanthropist and the university's first benefactor.

The university includes the colleges of arts and sciences, commerce and business administration, engineering, law, Newcomb college (women's division), University college (night division), school of social work, graduate school, school of medicine, division of graduate medicine, the summer session and the Middle American Research institute.

Beginning with the 1947–48 school year, six additional programs leading to a doctor of philosophy degree were added to the curriculum of the graduate school. They include English, Spanish, French, German, mathematics and history. This brought the total programs in the Ph.D. field at the university to 13.

Among other additions to the curriculum in 1947 were the establishment of the biophysics research program; combination of the departments of tropical and preventive medicine making possible a graduate degree in public health; establishment of an

army reserve officers training corps, composed of transportation and air units and an affiliation between the university and Le Pétit Théâtre du Vieux Carré.

To take care of an increase in enrolment, a social studies building and a geology building were constructed and a two-story wing was added to the college of commerce. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (H. C. R.)

Tung Oil: *see* VEGETABLE OILS AND ANIMAL FATS.

Tungsten. Table I shows the output of tungsten concentrates in the major countries of the world.

Table I.—*World Production of Tungsten Concentrates, 1939–46*

(In short tons, 60% tungstic acid [WO_3])

	1939	1941	1942	1943	1944	1945	1946
U.S.	4,287	6,567	9,333	11,945	10,283	5,715	5,534
Canada	4	35	269	681	236	...	...
Mexico	253	201	203	569	371	148	105
Argentina	1,443	1,896	2,331	2,635	2,252	551	?
Bolivia	3,678	4,798	6,180	7,608	8,747	4,245	2,337
Brazil	8	39	10	1,393	2,448	2,416	1,789
Peru	187	371	562	796	700	577	562
Portugal	4,245	6,431	5,754	8,242	4,506	...	694
Spain	406	457	1,612	4,301	2,638	312	400
Sweden	174	251	294	319	369	455	?
Burma	9,081	?	?	?	?	?	?
China	14,188	14,923	14,288	10,950	3,860	3,229	2,966
Indo-China	558	367	235	118	91	8	?
Japan	329	662	901	808	634	213	65
Korea	4,375	5,126	6,682	7,641	9,262	?	?
Belgian Congo	...	136	347	515	477	565	437
So. Rhodesia	298	291	556	888	835	316	58
Australia	1,134	1,259	995	999	754	1,265	1,160
Total	46,800	57,300	56,100	67,200	54,000	25,400	21,000

The heavy prewar outputs of Burma and China had not been re-established by 1947, and most of those expanded to meet war demand had dropped back to below their 1939 level. World production in 1946 was less than a-third of the 1943 peak and less than half of the 1939 total. Of the prewar major producers, the United States was the only one whose 1946 output was greater than in 1939.

United States.—Salient data of the tungsten industry in the United States are shown in Table II.

Table II.—*Data of the Tungsten Industry in the U.S.*

(In short tons of metal content)

	1939	1941	1942	1943	1944	1945	1946
Production	1,715	3,210	4,489	5,736	4,882	2,694	2,336
Shipments	2,040	3,125	4,441	5,684	4,893	2,633	2,471
Imports							
General	1,556	6,576	7,705	9,339	9,119	4,320	3,406
For Consumption	743	5,761	7,163	9,723	9,198	2,387	3,435
For re-export	295	14	3	...	...	166	...
Stocks	1,548	5,393	6,652	11,988	14,920	12,473	1,990
Producers	142	132	178	229	218	279	143
Consumers	1,334	1,202	1,708	1,230	755	1,892	1,847
Government	72	4,059	4,766	10,529	13,947	10,302	?
Consumption	?	8,350	8,695	9,657	9,583	7,073	3,229

Domestic production declined throughout 1946, but responded to an upturn in consumption in the latter part of the year, and increased somewhat in 1947. The output during the first three quarters of 1947 was 2,178 short tons of 60% concentrates, against 4,908 tons in 1946. Imports in the same period were 3,995 tons, against 6,968 tons for all of 1946. The major improvement was in consumption, totalling 6,134 tons in nine months of 1947, as compared with 6,784 tons in 12 months of 1946.

Canada.—Production of 288 short tons of concentrates was reported in 1947. (*See* also MINERAL AND METAL PRODUCTION AND PRICES.) (G. A. Ro.)

Tunisia: *see* FRENCH OVERSEAS TERRITORIES.

Tunnels. Tunnelling operations throughout the world advanced in 1947, but projects outside the United States were handicapped by shortages in equipment, such as drills and compressors.

Driving of the twin-tube Brooklyn-Battery vehicle tunnel extending 1.2 mi. under New York bay was plagued by labour trouble throughout the year, and work was shut down for an indefinite time early in November because of strikes. At the time of the shut-down the Governors Island ventilating shaft had been sunk to tunnel level, and shields in both Manhattan and Brooklyn headings were advancing through enlarged sections.

In Chicago, Ill., work was resumed at the south end of the Dearborn street subway tunnels, extending them to and westward into Congress street for operation of the subway system. Driving of the 23,000-ft., 12x20-ft. intercepting sewer tunnel in the stockyards area was about completed, though this project would continue into a 17,000-ft. section.

Sinking of two shafts on the 5.5-mile City tunnel for Boston's water supply was completed, and driving of the tunnel was scheduled to start shortly. Seven tunnels, from 500 ft. to 5,700 ft. long, were finished and put in service on the San Diego, Calif., aqueduct. On the Colorado-Big Thompson irrigation project in Colorado, the 13-mi. Alva B. Adams tunnel under the continental divide went into service, the Rams Horn and Prospect mountain tunnels neared completion, and the Horse Tooth Mesa reservoir tunnel was started.

Two new tunnels were started in the western United States—the single-track Aspen tunnel, 6,700 ft. long, for the Union Pacific railroad in Wyoming, and the 8.1-mile Electra hydro tunnel on the Mokelumne river in California, both scheduled to be completed in 1948. Work continued on the 23-ft. Bacon tunnel, 1.9 miles long, on the Columbia basin irrigation project in Washington. Work also progressed on a 2-mi. tunnel for the Baltimore, Md., water supply.

In the United Kingdom, several tunnels were being driven for the North-of-Scotland Hydro-Electric board for power development, including the Loch Mullardoch-Loch Benevean, Loch Benevean-Fasnakyle station, Ben Vorlich, Loch Tummel-Clunie, and Fannich tunnels. These bores ranged from 10 ft. to 23 ft. in diameter and up to $3\frac{1}{4}$ mi. long. Work was resumed in 1947 on two subaqueous projects delayed by World War II—the Dartford-Purfleet vehicle tunnel under the Thames 15 mi. below London; and the pedestrian and cycle tunnels under the Tyne (Jarrow), to be followed by a vehicle tunnel. Plans were announced for $49\frac{1}{2}$ mi. of tunnels in London for suburban train service.

A big hydroelectric program on the Ashni Nadi river, Patiala, India, was approved late in 1947, to include an 8-ft. tunnel, $5\frac{1}{2}$ mi. long, developing 16,000 kw. under an 860-ft. head.

In Italy, surveys revealed that out of 1,849 railroad tunnels with total length of 566 mi., 346, totalling 117 mi. in length, were destroyed during World War II. Most of these were restored in 1946 and 1947. The new double-track Granaralo tunnel, 9,842.4 ft. long, was nearing completion near Genoa on the Genoa-Turin line. Two long sections of tunnels on the Peschiera Hydro project were also about complete. One section, 16.16 mi. long, 7.87 ft. diameter, led to Solisana power station. The other, 35.42 mi. long, from 8.2 ft. to 10.33 ft. diameter, led to Monte Mario in Rome.

Considerable reconstruction of war-damaged railroad tunnels was under way in Greece as part of the United States rehabilitation aid program.

The largest tunnel under construction in the world during 1947 was the 50-ft. semicircular vehicle tunnel through Croix-Rousse hill in Lyon, France, to be more than a mile long.

In Mexico work on two long tunnels, the 10-mi. Lerma aqueduct for Mexico City and the 7-mi. Lerma sewer tunnel neared completion, with 12-ft. and 9-ft. bores, respectively. The 7-mi.

El Nuiado irrigation tunnel near Pueblo went into service in 1947.

The Rio de Janeiro Tramway, Light & Power company hydro project, west of the city, got under way in 1947. Included were two tunnels, the 30x25-ft. Santa Cecilia tunnel, 3 mi. long, and the 1-mi. twin-bore Vigario tunnel.

Work continued on the 5½-mi. tunnel for the Canon del Pato hydro project on Rio Santa in Peru, where five 6-ft. drop shafts were being sunk 1,435 ft. through solid rock.

In the U.S.S.R., the 12.5-mi. Moscow Loop subway was still under construction at the end of 1947. It was expected that the first section would be opened late in 1948, but that the entire route, known as Subway no. 4, would not be completed until 1952. (H. W. Rn.)

Turbojets: *see* Jet Propulsion.

Turkestan, Chinese: *see* Sinkiang.

Turkey. A republic in the southeastern Balkans and Asia Minor, bounded on the west by the Aegean sea, on the northwest by Greece and Bulgaria, on the north by the Black sea, on the northeast by the U.S.S.R., on the east by Iran and on the south by Iraq, Syria and the Mediterranean. Area: 296,185 sq.mi.; pop. (census 1945) 18,861,609. Chief towns (pop. census 1945): Ankara (cap., 226,712); Istanbul (845,316); Izmir (Smyrna; 200,088); Seyhan (Adana; 100,367). Religion: predominantly Moslem (97.9% in 1935). President: General Ismet Inönü; prime minister (appointed Sept. 9, 1947): Hasan Saka.

History.—At the beginning of 1947, Recep Peker's government was in the saddle, four months after the publication of the "decisions of Sept. 7," by which the *lira* or Turkish pound was devaluated by 40% and many wartime regulations were lifted. The commercial world was watching with keen interest the development of events, the general public impatiently waiting for the promised reduction in the cost of living.

The novel influence of party government was being felt; the young Democratic party, led by Celal Bayar, a former prime minister, had been in existence as an organized opposition only six months, but was becoming more and more vocal. In 1945 President Inönü had made it clear that, after 22 years of single-party government, the time had come to introduce plural parties, but political inertia and tradition continued to support the Republican People's party, with its elaborate ramifications and highly organized discipline. The task in front of the Democratic party was, therefore, no easy one, and consisted largely in educating the masses politically. It accused the government of fascist methods and of making use of government organs for political purposes. The controversy ranged over finance, commerce, press, electoral laws and administration with increasing acerbity. There was unity, however, on questions of foreign policy.

In his speech of June 12 President Inönü pointed out that there should be absolute equality of treatment of the two parties. This was interpreted as a reproof to the Peker administration, but the president was criticized because he was himself permanent president of the Republican People's party; shortly afterward he divested himself of this chairmanship, which was taken over by Shükrü Saracoglu, a former prime minister (1942–46). Thus the president became supreme arbiter between the two parties in his position as head of the state. In a tour in the eastern provinces in the late summer he paid marked attention to the local Democratic organizations.

On Sept. 6 Peker dismissed six of his ministers without explanation. This action was loudly criticized by the Democrats, who called upon him to resign, pointing out that in a true democracy the dismissal of nearly half the cabinet was tantamount to a resignation of the whole. Four days after nominating his new ministers, Peker abruptly resigned, again without explanation. It was generally believed that the government felt the weight of the president's snub and of the increasing Democratic opposition and popularity.

A new government was formed on Sept. 11 by Hasan Saka, who had been foreign minister during World War II. It did not enjoy a popular press and seemed to be generally regarded as a stopgap. The prime minister was looked upon rather as a safe than as an adventurous politician, but on a vote of confidence he secured 362 votes against 49.

Early in October two secret sessions were held of the parliamentary group of the Republican People's party, in which proceedings were apparently stormy: the news leaked out that 35

TURKISH STUDENTS at work in 1947 on a drainage ditch for their school near Erzurum. The school was part of a national program for training instructors qualified to teach formal and practical subjects to youth and adults in rural areas



members had voted in opposition. A sensation was caused by the publication in the opposition press of an alleged political plot by extremist members of the party, the object of which was to by-pass the president and vest all power in Peker. It seemed clear that the People's party was again divided into a right and a left wing, as it had been in 1945, when the left wing seceded and formed the Democratic party.

The policy of the Democratic party was summed up by Bayar as the substantial reduction of state trading and industry with the encouragement of private enterprise and the abolition of the surviving antidemocratic laws, in particular the electoral and press laws.

In foreign affairs Turkey did not deviate from the policy already long laid down of maintaining friendly relations with all foreign powers, especially with the western democracies, and at the same time of defending its territory at any cost against the slightest infringement of its sovereignty.

The war of nerves unleashed by Moscow immediately after World War II made no impression upon the Turks. Their firm attitude to Russian demands for control of the Straits and resistance to any claims for territorial readjustment was as unshaken in 1947 as in previous years. In October the soviet government protested against Turkey's admitting refugees of Turkish race and Moslem faith but foreign political status. The Turks replied that they had not taken any initiative in the matter, but were acting at the request of the International Organization of Refugees attached to the United Nations, a request parallel with that addressed to other countries: the protest, therefore, should have been addressed to the United Nations. On May 28 the government voted an extension for another six months of the state of martial law, in force after 1940, in the areas of the Dardanelles, Istanbul and Turkish Thrace. On May 5 it was announced that a permanent delegation to the United Nations would be established under the leadership of Selim Sarper, the ambassador to Italy. A treaty of friendship with Trans-Jordan was concluded in January.

The U.S. grant to Turkey of $100,000,000 under the Truman doctrine for military aid and essential rehabilitation projects, announced in March, was met with satisfaction and relief throughout the country. A U.S. mission headed by Major-General Lunsford Oliver arrived in Ankara on May 23 to supervise the carrying out of the grant. Economic aid from Britain came to an end in March. Turkey also participated in the European Economic conference held in Paris in July for discussions on the proposed U.S. aid to Europe. (MA. B.)

Education.—On July 2, the government sanctioned the opening of schools for instruction in the Islamic faith. Primary schools (1946) 14,981; scholars 1,357,200; secondary schools (1944) 325, scholars 104,225; universities (Istanbul and Ankara) and colleges (1944) 26. Expenditure on education in 1947 £T100,716,321.

Trade and Communication.—Foreign trade: imports (1946) £T224,400,000; exports (1946) £T432,000,000. Communications: roads *c.* 103,600 mi.; railways (1945) 4,462 mi.; (1945–46) passenger mi. 1,331,760,000; short ton mi. 1,446,035,000; radio receiving sets (1947) 195,221.

Finance.—Revenue (est. 1947) £T1,109,000,000; expenditure (est. 1947) £T1,133,000,000; notes in circulation (June 1947) £T929,000,000; gold reserve (July 1947) U.S. $185,000,000; commercial bank deposits (May 1947) £T703,000,000. Currency: the *lira* or Turkish pound (£T). Rate of exchange (May 1947) £T=35.34 U.S. cents.

Agricultural and Mineral Production.—(1946), in short tons: coal 4,218,000; lignite 491,900; copper, 11,100; cement 358,300; cotton yarn 29,500; wool yarn 7,140; wheat 4,055,000; barley (1945) 1,029,500; oats (1945) 282,000; maize (1945) 324,800.

Turkeys: *see* POULTRY.
TVA: *see* TENNESSEE VALLEY AUTHORITY.
Twentieth Century Fund: *see* SOCIETIES AND ASSOCIATIONS.
Uganda: *see* BRITISH EAST AFRICA.
Ulcer: *see* ALIMENTARY SYSTEM, DISORDERS OF.
Unemployment: *see* EMPLOYMENT.
Unemployment Insurance: *see* SOCIAL SECURITY; VETERANS' ADMINISTRATION.
Unemployment Relief: *see* RELIEF.
U.N.E.S.C.O. (United Nations Educational, Scientific and Cultural Organization): *see* UNITED NATIONS (U.N.).
Unfederated Malay States: *see* MALAYAN UNION AND SINGAPORE.
Union of South Africa: *see* SOUTH AFRICA, THE UNION OF.

Union of Soviet Socialist Republics.

The former Russian empire, an Eurasian state covering the whole of eastern Europe and northern Asia and much of central Asia, is a federation of soviet socialist republics. Area (Sept. 17, 1939): 8,173,557 sq.mi., pop. (Jan. 17, 1939, census): 170,467,186. The union then consisted of 11 republics of which the Russian Soviet Federated Socialist Republic was by far the largest (78% of the whole territory and 64% of the population). Of the remaining 36% of the population, almost one-half lived in the Ukrainian Soviet Socialist Republic (2% of the territory) and the other half in the nine other republics of the union. The Soviet Union is inhabited by almost 100 different nationalities speaking different languages. In Jan. 1939 Great Russians constituted 58.4% of the population, Ukrainians 16.6% and Byelorussians 3.1%. None of the other nationalities, all of them non-Slav and most of them non-Europeans, reached 3% of the total. In 1939 the U.S.S.R. consisted of the following republics: Russian S.F.S.R. (cap. Moscow; area 6,372,860 sq.mi.; pop. 109,278,614); Ukrainian S.S.R. (Kiev; 171,777 sq.mi.; pop. 30,960,221); Byelorussian S.S.R. (Minsk; 49,022 sq.mi.; pop. 5,567,976); Azerbaijan S.S.R. (Baku; 33,196 sq.mi.; pop. 3,209,727); Georgian S.S.R. (Tiflis or Tbilisi; 27,020 sq.mi.; pop. 3,542,289); Armenian S.S.R. (Erivan; 11,580 sq.mi.; pop. 1,281,599); Turkmen S.S.R. (Ashkhabad; 171,384 sq. mi.; pop. 1,253,985); Uzbek S.S.R. (Tashkent; 145,908 sq.mi.; pop. 6,282,446); Tadzhik S.S.R. (Stalinabad; 55,584 sq.mi.; pop. 1,485,091); Kazakh S.S.R. (Alma-Ata; 1,059,184 sq.mi.; pop. 6,145,937), Kirghiz S.S.R. (Frunze; 76,042 sq.mi.; pop. 1,459,301).

In the years between 1939 and 1945 the U.S.S.R. expanded its territory considerably. It annexed in Europe the three Baltic republics of Estonia (cap. Tallinn; 18,371 sq.mi.; pop. 1,222,000), Latvia (Riga; 25,016 sq.mi.; pop. 1,995,000) and Lithuania (Vilnius or Wilno; 22,959 sq.mi. [including Vilnius, but excluding Memel]; pop. 2,879,000), and acquired from Finland 16,173 sq.mi. with a pop. of *c.* 500,000, from Poland 66,788 sq.mi. (excluding 3,219 sq.mi. of the Vilnius area) with a pop. of *c.* 10,279,000, from Rumania 19,300 sq.mi. (Bessarabia and northern Bukovina) with a pop. of *c.* 3,500,000, from Czechoslovakia 12,617 sq.mi. (sub-Carpathian Ruthenia) with a pop. of 725,400 and the northeastern part of East Prussia from Germany (*c.* 7,000 sq.mi. with a pop. of *c.* 1,000,000). From Japan the U.S.S.R. acquired Karafuto (southern Sakhalin), an area of 13,935 sq.mi. with a pop. (1935 census) of 331,943, and the Chishima or Kurile Islands (3,994 sq.mi.). In addition the formerly "independent" republic of Tannu Tuva in Outer Mongolia (64,000 sq.mi.) was annexed to the union. As the result of this territorial expansion the U.S.S.R. formed after World War II a federation of 16 republics. The five new ones were: the Karelo-Finnish S.S.R. consisting of the territory ceded by Finland and of the former autonomous soviet Karelia; the Moldavian S.S.R. consisting of most of Rumanian Bessarabia and the former autonomous soviet Moldavia; and the three Baltic states transformed into soviet republics. Total *de facto* area (1947): 8,443,710 sq.mi., total pop. (1945 est.) 192,900,000. Chief towns (1939 census): Moscow (cap., 4,137,018); Leningrad (3,191,304); Kiev (846,293); Kharkov (833,432); Baku (809,347); Gorki, formerly Nizhni Novgorod (644,116); Odessa (604,223); Tashkent (585,005); Tbilisi (519,175);

Rostov-on-Don (510,253); Dnepropetrovsk (500,662). Chairman of the presidium of the supreme soviet of the U.S.S.R. (president of the union): Nikolai M. Shvernik; chairman of the council of ministers: Marshal Joseph V. Stalin. (X.)

History.—The year 1947 was characterized in the U.S.S.R. by a notable change-over from extraterritorial expansion to the securing and consolidation of political gains and the rehabilitation of domestic economy. Soviet statesmen turned their eyes toward their own country and away from the west, using every means at their command to compel not only the soviet people, but also the neighbouring states within the soviet sphere of influence to follow their example. All the energies of those responsible for directing and carrying out state policy were concentrated on one clearly definable end: establishment of the absolute autarchy, political, economic, cultural and moral, of the U.S.S.R. and the binding of the smaller states of eastern Europe more closely to this system. Such a purpose would certainly involve an indefinite number of subsidiary activities, the chief of which in this case was the sustained attempt to embarrass and divide those countries of the west which were regarded as hostile to the main purpose.

This policy clarified slowly and came into being by instalments. Until the failure of the Moscow conference of foreign ministers in April 1947 its drift was clear only to the closest students of the U.S.S.R.; but during the late spring and early summer the new line could be traced through almost every soviet utterance and action. Thus, when in June the U.S. state department invited the U.S.S.R. to share in any plan which Europe could devise for its own salvation with assistance from the U.S., the question immediately arose whether the soviet government would abandon a policy which was clearly incompatible with whole-hearted economic collaboration with western Europe and the U.S., or whether it would be forced to burn its boats and confirm unambiguously its hostile detachment from the aspirations of the west. When in July Vyacheslav M. Molotov with his entire delegation suddenly left Paris, his return to Moscow was nothing less than a formal retreat from the west, while the foundation in October of the Communist Information bureau, or Cominform, with its headquarters in Belgrade, was the declaration of an exclusive alliance of eastern Europe, with strong but uncertain outposts in Italy and France, against the British empire and the U.S.

All this took place against a background of hard times. The soviet economy, in the process of laborious restoration after the disasters of war, had suffered a calamitous setback in the late summer of 1946 as a result of one of the worst droughts in Russian history. Vast areas of crops in White Russia, the Ukraine and the black earth provinces as far as the middle Volga were lost. This natural disaster was complicated by further agrarian troubles, particularly the partial breakdown of the collective system during the war; the recalcitrant behaviour of the peasants in large areas of the Ukraine; and the failure of the industries concerned to achieve the very moderate target for agricultural machinery and road transport during the first year of the plan. Throughout the earlier part of the year the press devoted the greater part of its front-page space to interminable exhortations to the peasants and the publishing of a monotonous stream of pledges to "the Great Stalin" from every collective in the country. Meanwhile, rationing was severe and prices in the "commercial" shops astronomical. In the afflicted areas, although wide-scale famine was avoided, many died of hunger, most were weak with undernourishment, and the state of affairs was reflected in the falling off of industrial production during the first quarter of the year. The spring sowings were gravely hampered by the shortage of machinery and horses. It was no uncommon sight to see gangs of women turning the soil with spades for lack of the simplest plow. As a result of unremitting effort and with the help of favourable weather, the 1947 harvest was a good one. Nearly every region exceeded its target, not only for production, but also for grain deliveries to the state, although, as always, delivery lagged behind production and was effected only under harsh and ruthless pressure. In October, nevertheless, it was officially announced that the 1946 harvest had been exceeded by 58%, although no aggregate figures were





RUSSIANS queued up for potatoes at an outdoor market in Stalingrad during April 1947. Potatoes were being sold at the soviet equivalent of $1.20 per pound in U.S. currency

published. The success of the harvest was reflected, long before the deliveries were completed, by a sharp fall in the price of essential food in the "commercial shops," in some cases by as much as 70% in a fortnight.

The peasant, nevertheless, was given no rest. During the course of the year two decrees were published directed at increasing the efficiency of the collectives. In June a new inspectorate of harvest yields was created, headed by B. V. Savelev, with 450 deputy inspectors stationed throughout the U.S.S.R. This inspectorate was an offshoot of the state planning commission, and its chief functions were to ensure the delivery of harvested crops to the state, to carry out all means of raising the yield per acre, and to recommend special rewards for particularly efficient collectives and individuals. This last function went hand in hand with a departure from the old system of payment by "work days" and a venture into a new piece-work system conditioned by quality of work. Until then responsibility for overseeing the grain deliveries had been vested in the machine tractor stations, but a clause in the decree setting up the state inspectorate indicated that the officials at these centres were becoming absorbed into the life of their local communities and thus too sympathetic to local interests; it emphasized that one of the main duties of the inspectorate was to shield the grain deliveries "from the influence of parochial tendencies running counter to the interests of the state." The second development was the abolition by decree in July of the *Gosstrakhfond,* or state insurance fund, which had been set up originally to enable collectives to buy first-grade seed. *Gosstrakhfond,* the decree stated, "has in fact become a fund for doling out loans for the support of idle administrations." Over and above these sharp measures designed to put the screw on the peasants, agriculture in the larger sphere was shaken up by a ministerial reorganization in Feb. 1947, when the ministries of industrial crops and of the livestock industry were absorbed into the old ministry of agriculture under its existing chief, Ivan Benediktov. Nikolai Skvortsov, formerly minister of industrial crops, became chief of an entirely new ministry of state farms. The main purpose of this reorganization seems to have been to concentrate the collective farms (*kolkhozy*) in every branch of agriculture under one minister (doubtless as part of the drive for purifying the collectives), and to put all the state farms (*sovkhozy*) under another minister, instead of leaving them under the control of a variety of ministries utilizing their products, such as the ministry of food. In 1938 the collectives accounted for more than 60% of all agricultural produce and the state farms, of which there were 4,000, with an average extent of 7,000 ac., for only 10%, mainly pedigree livestock, while personal holdings accounted for the remainder.

It seemed probable that beneath the new dispensation the state farm system, which involved treating the peasants as employees of the state, was to be expanded as a result of serious trouble in certain districts with the collective system. It was probable, furthermore, that a development of the state farm system was called for by the tremendous program for the extension of agriculture in new areas of the U.S.S.R., notably east of the Urals. The size of this program was best indicated by comparing the production targets for the Ukraine, the ancient granary of Russia, with those of the R.S.F.S.R. (Russian Soviet Federated Socialist Republic), which includes much of Siberia, under the new plan. The 1950 target for grain in the R.S.F.S.R. was 88,440,000 short tons, or two-thirds of the total planned output for the U.S.S.R., while the 1950 target for the Ukraine, which had hitherto provided almost precisely two-thirds of the total output, was only 29,700,000 short tons.

This development of Asiatic Russia was not confined to agriculture. The Ukraine, until 1941, was not only the granary of the U.S.S.R.; it was also the leading centre of heavy industry. But by 1950 the R.S.F.S.R. was scheduled to overtake the

Ukrainian production of pig iron, increasing its 1940 figure by 66% to 10,450,000 short tons, while the Ukraine production during the same period was to improve on its 1940 figure by only 5%, to 10,670,000 short tons.

Nothing at all was known about the rate of development of arsenals in the east, nor of the development of atomic energy. Molotov in his speech on Nov. 6, 1947, observed that the atom bomb had been no secret for a long time past, a remark which was taken by most western commentators at less than its face value; but it was known that the U.S.S.R. was devoting itself unsparingly to the problem of atomic energy, including, presumably, its lethal properties. The state had at its disposal a leading nuclear physicist in Professor Peter Kapitza, and was able to benefit to an unknown extent from the experience of German physicists and engineers. Lavrenti P. Beria, former head of the security police and one of the ablest organizers and most powerful men in the U.S.S.R., was reputed to be in charge of the atomic project.

Industry generally in 1947 did well. In 1946, the first year of the new plan, the industrial program as a whole was fulfilled up to only 96%. But on Nov. 6 Molotov was able to announce that during the first nine months of 1947 the second year's target had been overfulfilled by 10%. This was all the more remarkable in view of the poor performance of many industries during the first quarter of the year. It meant that the industrial targets of the first two years of the plan, taken together, were successfully attained. The most serious failure during 1946 was in the road transport and agricultural machinery industries. In a country which had been left by the Germans with scarcely a plow or a tractor in the whole of its western provinces, this failure was critical. In 1947 it was successfully made up. Molotov in his speech also stated that in spite of serious shortcomings in the iron and steel industry and in the output of the oil industry, more coal was being mined than before the war, while in the month of October the gross output of the large-scale industry reached the average monthly output of 1940.

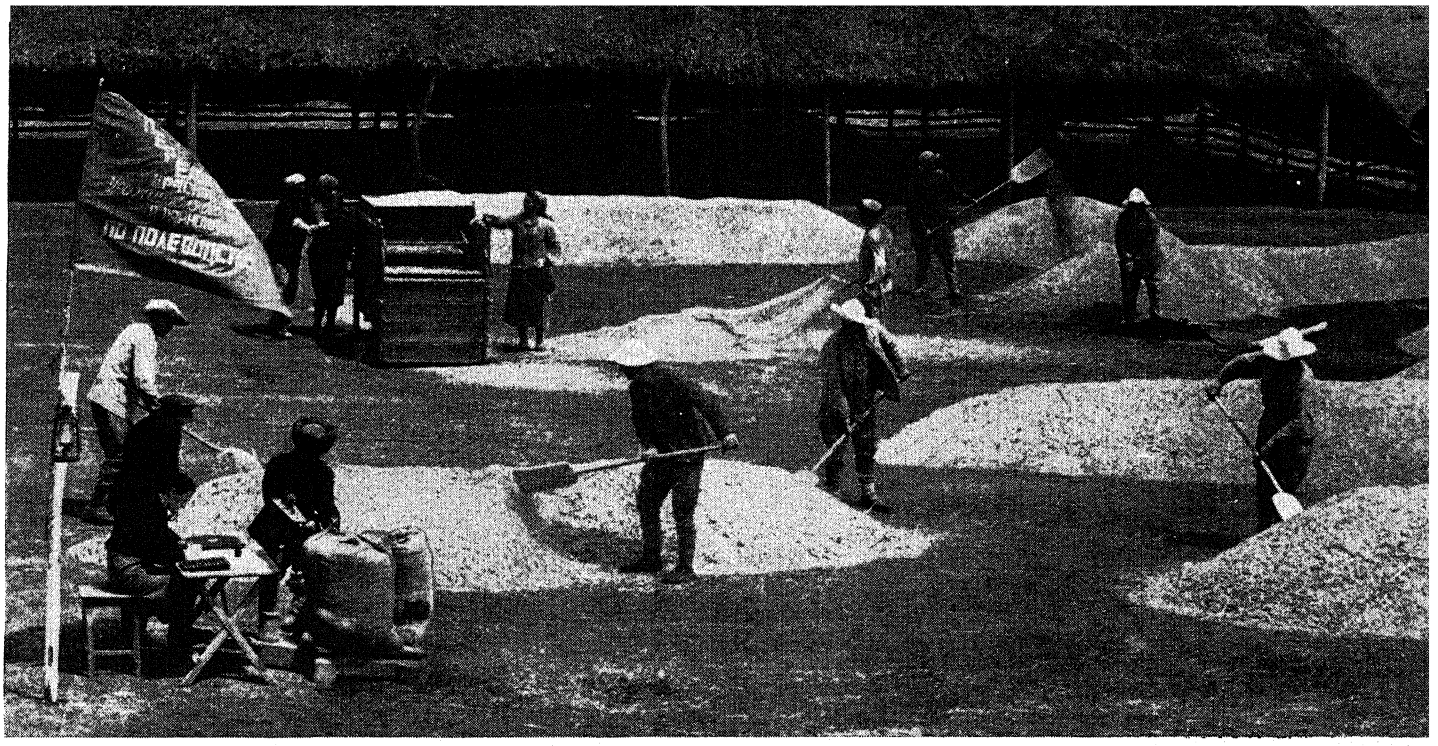


RECONSTRUCTION WORK in progress at the Krasny Oktyabr iron and steel works in Stalingrad, U.S.S.R. Scheduled for completion in 1947, the work of restoration included the laying of a new oil pipe line and railway feeder

The most marked failure was in the timber industry, which still fell well below its target, with unfortunate effects on the rehousing program. This failure was largely bound up with a lack of transport facilities. From the soviet point of view one of the main advantages of the Anglo-Soviet trade pact, negotiations for which dragged on intermittently over several months of the year, was the proposed supply by Great Britain of light rails for transporting timber. In this context, throughout 1947 the housing shortage continued to bear heavily on the people of the U.S.S.R., and in Byelorussia and the Ukraine hundreds of thousands were still living in extemporized dug-outs. About 400,000 new dwellings were built in the years 1946–47, but this was a small contribution toward replacement of the 6,000,000 buildings destroyed by the Germans—from peasant huts to modern apartment-blocks—and the 25,000,000 soviet citizens rendered homeless. This shortage of houses was likely to remain a nightmare for many years in view of the expanding population and the radical deterioration of many of the existing buildings in the cities.

On Dec. 14 the supreme soviet decreed the simultaneous abolition of rationing and the devaluation of the currency. This devaluation, on the face of it an anti-inflationary device and an insurance against the buying up of all the goods in the new open market by hoarders and speculators, in fact struck more deeply. For ten roubles in the old currency one new one was given in exchange for cash in hand. This not only hit black marketeers but also ordinary citizens, above all peasants, who preferred the stocking to the bank. When it came to the conversion of the state loan the rich and the very rich appeared to be the main sufferers. Deposits below 3,000 roubles were unaffected; deposits from 3,000 to 10,000 roubles were written down at the rate of 2 new roubles for 3 old ones, while deposits from 10,000 roubles upwards were halved. Nor was the picture complete without reference to the new fixed prices following the end of rationing. Here basic foodstuffs (apart from milk, eggs, tea and fruit) remained at the low "ration-price" level, or went slightly down. The poor could thus buy as much as they could afford at the old prices; but the rich, hitherto relying on the "commercial shops" for off-the-ration purchases and paying up to 20 times more, could now buy as much food as they wanted at, for them, heavily reduced prices. As for consumer goods, these were reduced by two-thirds below the old "commercial" prices, while remaining well above the old "ration" prices, putting them often out of reach of the majority while making them cheaper to the rich. It remained to be seen whether this manipulation was a deliberate attempt to confirm gross inequalities of income, or whether this was an accidental aspect only. The official rate of exchange remained at 5.3 roubles to the United States dollar. The rate of exchange for diplomats was set at 8 roubles to the dollar, instead of the old rate of 12.

Meanwhile, in the cultural and social sphere, the diplomatic isolationism of the Soviet Union was paralleled by an intensive domestic drive, in which all the arts were conscripted, to exalt the superiority of "soviet man" over all other men and to dissociate the vaunted strength and vitality of soviet culture from the so-called decadence of western culture. This campaign touched its peak during the summer. First, the Spaniard, Pablo Picasso, *doyen* of Communist artists, was execrated in Moscow as the supreme and most contemptible exponent of decadent western "formalism." A little later, the soviet minister for agitation and propaganda, Gheorghi Alexandrov, until then respon-



THRESHERS on a collective farm in Kabarda, U.S.S.R., who were awarded the Red Banner (left) for outstanding labour achievement in their district during 1947

sible for the whole campaign for ideological purity, and the scourge of errant writers, was himself publicly rebuked by Andrei Zhdanov for certain passages in his *History of Western Philosophy* which suggested that Marxism arose by a process of natural evolution from the old philosophies of the west, whereas, according to the 1947 soviet doctrine, Marxism was something utterly new, owing nothing to the past, and marking an absolute break with it.

While writers and artists were being bidden to glorify the spirit of soviet man and never to look beyond him, the soviet people were summoned by every publicist in the country to believe in themselves and to cast no tender glances westwards. At the same time a number of official acts were calculated on the one hand to close the last chinks in the iron curtain and on the other to help the Russian people feel a new security and optimism. Thus, in March the supreme soviet passed a law forbidding marriage between a soviet citizen and any foreigner. In June a new decree about state secrets was issued, which, after defining every category of state secret and the punishments for divulging them, contained a blanket clause to prevent any soviet citizen from discussing his work, of whatever kind, with any foreigner. The issue of this decree was accompanied by a strong attack on those scientists who, by wanting to publish their discoveries, set their own vanity above the security of their fatherland.

On the other hand, there was a great deal of activity in revising the penal code. The chief and, in Russian eyes, supremely important aspect of this, was the formal abolition of the death penalty in May and its substitution by 25 years confinement in "reformatory labour-camps." At the same time, the citizens of the U.S.S.R. were invited to contemplate the majesty and grandeur of their judicial system, regarded as a strong shield against ill-doers of every kind—in other words, the people were expected to realize that the law was for them and not, as might sometimes seem, against them. This campaign, taken together with hints of a new and more liberal constitution, all of it coming on top of the division of the central administration of the ministry of the interior during the previous year, seemed to have been calculated to reassure the people and convince them that although their country might be an armed camp in a hostile world, life within it, for the ordinary citizen, was on the way to becoming milder.

Education.—(1946) Total scholars in elementary and secondary schools 29,339,000; universities and colleges 772, students 653,000.

Finance.—Budget estimates (1947, in millions of roubles): revenue 394,200, expenditure 374,000 (industry 79,900; agriculture 4,300; transport and communications 3,500; commerce and stocks 3,800; education 52,400; health and physical culture 18,900; social insurance 9,300; family allocations 1,500; social security 20,500; armed forces 67,000; loan services 6,100; administrative expenses 12,800). Budgets of the federal republics: estimated revenue and expenditure for 1947 was balanced at the following (in millions of roubles): Russian S.F.S.R. 45,852; Ukrainian S.S.R. 1,789; Byelorussian S.S.R. 3,192; Uzbek S.S.R. 3,161; Kazakh S.S.R. 2,868; Georgian S.S.R. 2,160; Azerbaijan S.S.R. 1,761; Kirghiz S.S.R. 845; Tadzhik S.S.R. 956; Armenian S.S.R. 1,041; Turkmen S.S.R. 819; Moldavian S.S.R. 949; Lithuanian S.S.R. 1,065; Latvian S.S.R. 1,261; Estonian S.S.R. 649; Karelo-Finnish S.S.R. 540.

Communication and Transport.—Communications: roads (1945) 849,520 mi.; railways (1945) length of lines 66,000 mi.; new lines under construction (1946) 1,991 mi.; planned (1947) 1,552 mi.; lines newly electrified (1946) 372 mi.; planned (1947) 298 mi.; navigable rivers 68,000 mi.

Agricultural Production.—(Plantings, in thousands of acres, with acreage from different regions):

		Acreage 1946	Acreage 1947
Autumn wheat	U.S.S.R.	13,984	19,908
	Ukraine	...	10,860
Spring wheat	Siberia	17,395	20,740
	Volga	5,189	6,422
	Central north	2,716	3,953
	Ukraine	1,448	1,853

Other agricultural plantings for the whole of the U.S.S.R. (in thousands of acres):

	Acreage 1946	Acreage 1947
Vegetables	2,471	3,212
Maize	4,892	5,584
Sarrazin	2,668	3,706
Millet	nil	2,471
Rice	3,333	370
Cotton	3,211	3,624
Sugar beets	2,317	2,614
Flax	2,307	3,212
Potatoes	18,955	19,553
Tobacco	202	242

Livestock pop. (est. 1947): cattle 52,000,000; sheep 24,000,000; pigs 13,400,000; horses 11,900,000; draft oxen 3,500,000.

Industrial Production.—Current production figures were not published. Unofficial estimates for 1946 were (in thousands of short tons): steel 14,870; pig iron 16,530; laminations 14,326. In 1940 official figures were: steel 21,048; coal 181,830; under the postwar five-year plan the figures for 1950 were expected to reach: 26,448 for steel; 275,500 for coal. An unofficial estimate of soviet gold production for 1946 was 3,000 fine oz.

(*See* also ATOMIC ENERGY; BULGARIA; COMMUNISM; FINLAND; POLAND; RUMANIA; UNITED NATIONS.)

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Unitarian Church. For the Unitarian churches the year 1947 was one of increased activities. The Service committee, at the request of the World Health Organization Interim commission, sent to Austria a medical teaching mission similar to that sent during 1946 to Czechoslovakia; and an occupational therapy team to Czechoslovakia at the request of the Czech ministry of health. It renovated a large hospital in Piekary, Upper Silesia, Poland; operated a dental clinic in Vienna for former concentration camp inmates and supplied a team of child-care specialists for displaced persons centres in the British and United States zones of Germany. A southwest area project was established to meet needs of migrant workers in that part of the U.S. Officers and staff members of the Service committee were decorated by the French and Hungarian governments.

Under the division of education of the American Unitarian association, 26 Unitarian young people worked on rehabilitation projects in various parts of central Europe. More than 1,000 adults attended leadership training institutes held in various parts of the U.S., and ten specialized training institutes were held for young people. The most significant step in the educational field was the employment of Dr. E. Merrill Bush as full-time director of adult education and social relations.

During the year The Beacon Press expanded its field to include philosophy, biography and art and a number of its volumes by internationally known authors had wide sales, such as *Albert Schweitzer: An Anthology, The Wit and Wisdom of Whitehead,* or the companion volumes of Renaissance woodcuts illustrating the Old Testament and the life of Jesus. Curriculum material for liberal church schools and pamphlets expounding Unitarian views were issued in increasing quantity. It may be noted that there was a marked advance in press notices and articles concerning Unitarian affairs. Magazines and newspapers with a total circulation of more than 240,000,000 carried such items.

At the annual meeting of the American Unitarian association in Boston in May and at the biennial general conference in Washington in October, unusually vigorous discussions took place concerning the denominational journal, *The Christian Register.* It was a healthy display of the zeal of Unitarians for the maintenance of a medium for the free exchange of opinion. (J. H. L.)

United Church of Canada. The United Church of Canada, which in 1925 united the Presbyterian Church in Canada, the Methodist Church (Canada) and the Congregational Churches of Canada, reported for 1946 a membership of 767,998 with 1,820,050 persons under pastoral oversight, a Sunday school enrolment of 481,870 and 6,670 preaching places. The church owned property worth approximately $95,211,619 and raised a total of $17,817,949 for all purposes.

The missionary and maintenance givings of the church in 1946 totalled $1,988,098, an increase of $115,735 over 1945. It was estimated that the church would need a budget of $2,750,000 by 1950.

Among the important features in the life of the United Church during 1947 were the sending of a deputation to India and the far east to study the missionary situation and report; a plan to bring selected students from Europe to Canada to be educated in one or more theological colleges; the setting up of a summer school for the training of lay ministers; a planned effort to raise the level of ministerial salaries; progress in negotiations to bring both the British and the African Methodist Episcopal Churches (Negro) into the United Church of Canada; and the appointment of six representatives to attend the first meeting of the World Council of Churches.

Two new appointments were made as follows: Rev. W. Harold Young, secretary of the board of colleges and secondary schools; Rev. W. G. Berry, assistant secretary of the board of evangelism and social service. (G. A. Si.)

United Kingdom: *see* GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF.

United Nations (U.N.). The year 1947 was the second year of the actual operation of the United Nations. During 1946 the work of the U.N. was to a large extent organizational in character. It was necessary during this first year to determine detailed organization, procedures and methods needed for performing the functions of the U.N. and achieving the purposes set down in the charter. The year 1947, by contrast, was devoted more largely to the consideration of substantive problems.

Membership.—Two new members were admitted during the year, Pakistan and Yemen, bringing the total membership of the organization to 57. The membership at the close of the year 1947 was as follows: Afghanistan, Argentina, Australia, Belgium, Bolivia, Brazil, the Byelorussian Soviet Socialist Republic, Canada, Chile, China, Colombia, Costa Rica, Cuba, Czechoslovakia, Denmark, the Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, France, Greece, Guatemala, Haiti, Honduras, Iceland, India, Iran, Iraq, Lebanon, Liberia, Luxembourg, Mexico, the Netherlands, New Zealand, Nicaragua, Norway, Pakistan, Panamá, Paraguay, Peru, the Republic of the Philippines, Poland, Saudi Arabia, Siam, Sweden, Syria, Turkey, the Ukrainian Soviet Socialist Republic, the Union of South Africa, the Union of Soviet Socialist Republics, the United Kingdom, the United States of America, Uruguay, Venezuela, Yemen and Yugoslavia.

Eight new applications for membership—from Austria, Bulgaria, Finland, Hungary, Italy, Pakistan, Rumania and Yemen—were received during the year. Of these six were turned down by the Security council. Three received the necessary majority of seven, but were opposed by one or more of the permanent members. Three failed to receive the necessary majority support. The five applications for membership refused by the Security council in 1946, that is, the applications from Albania, Eire (Ireland), the Mongolian People's Republic, Portugal and Trans-Jordan, were reconsidered by the Security council at the request of the general assembly and the earlier action reaffirmed. The failure of the Security council to take favourable action on 11 out of 17 applications received during 1946–47 led the general assembly to consider the whole matter at some length in its second session. There was criticism of the permanent members of the Security council, particularly the Soviet Union, for voting against applications for reasons not stated in the charter and for even voting against applications while admitting the qualification of the applicant under the terms of the charter. The general assembly adopted a resolution expressing the judgment that six of the applicant states which had thus been refused admission, *i.e.,* Austria, Eire, Finland, Italy, Portugal, and Trans-Jordan, were "peace-loving" within the meaning of the

charter. It adopted a second resolution asking the International Court of Justice for an advisory opinion on the question whether a member of the Security council was justified in voting against a membership application on grounds not stated in article 4 of the charter. The general assembly also asked the permanent members of the Security council to consult with a view to reaching agreement on applications for membership.

The General Assembly.—The first special session of the general assembly was held during 1947. It met in New York from April 28 to May 15 to consider the Palestine question brought before it at the request of the British government. The second regular session met in New York from Sept. 16 to Nov. 29. Forty-three items were on the provisional agenda and 19 on the supplementary list. Additional items were introduced during the session. Forty-five plenary sessions were held, 455 committee and subcommittee meetings were held and 93 resolutions were adopted.

Dr. Oswaldo Aranha (*q.v.*) of Brazil, who had been elected president of the general assembly at its special session, was elected to the office for the second regular session. The chairmen of the six main committees were as follows: (1) Political and Security, Joseph Bech, Luxembourg; (2) Economic and Financial, Hernán Santa Cruz, Chile; (3) Social, Humanitarian and Cultural, Dr. Oscar Lange, Poland; (4) Trusteeship, Sir Carl A. Berendsen, New Zealand; (5) Administrative and Budgetary, Justice Fazl Ali, India; and (6) Legal, Faris Bey el-Khouri, Syria. The heads of the delegations of the following states were elected vice-presidents: China, Cuba, France, Mexico, the Soviet Union, the United Kingdom and the United States. The president, the six committee chairmen, and the seven vice-presidents constituted the General committee.

The matters which were considered by the general assembly during its second session included the following: the Palestine question, the Balkan situation involving relations between Greece and its northern neighbours, the Korean situation resulting from the failure of the United States and the Soviet Union to agree on a plan for the establishment of a Korean government, the United States proposal for a "little assembly," the alleged abuse of the veto by the permanent members of the Security council, the treatment of Indians by the government of the Union of South Africa, the Franco government in Spain, the soviet charge of warmongering, the action of the Security council on applications for membership, the failure of the government of the Union of South Africa to submit a trusteeship agreement for the mandated territories of South Africa, reports from members administering nonself-governing territories, agreements with specialized agencies defining their relationship to the U.N., problems of refugees and displaced persons, the development and codification of international law, the transfer to the U.N. of League of Nations functions regarding traffic in women and children, the U.N. budget for 1948, plans for the permanent headquarters of the U.N. and the headquarters agreement with the United States. On practically all of these matters, resolutions of varying degrees of force and adequacy were adopted. As one of its last acts, the second session decided that the third regular session should be held in Europe at a place to be selected by a special committee.

To carry out its functions under the charter, more particularly in connection with matters before it at the second session, the general assembly created a number of subsidiary organs. These included: (1) the Commission for Palestine to supervise the carrying out of the plan for the partition of that country into Jewish and Arab states; (2) the Special Balkan committee to watch over the carrying out of the general assembly's recommendations for the settlement of the Balkan question; (3) the Temporary Commission on Korea, to supervise the holding of elections in Korea and assist in the establishment of a Korean government; (4) the Interim committee, established to perform certain functions of the general assembly during the interval between the sessions of that organ; and (5) an advisory committee to assist the Security council in carrying out plans for the construction of permanent headquarters.

The Security Council.—The composition of the Security council during 1947 was as follows: permanent members—China, France, the Soviet Union, the United Kingdom and the United States; members elected by the general assembly—Australia, Brazil and Poland (terms expiring Dec. 31, 1947) and Belgium, Colombia and Syria (terms expiring Dec. 31, 1948). During the second session the general assembly elected Argentina, Canada and the Ukraine for two-year terms beginning Jan. 1, 1948. The Ukraine was elected on the 13th ballot after a prolonged deadlock, caused by opposition to the Ukraine as a successor to Poland and to considerable feeling that the Asiatic-Pacific area was entitled to an elected representative, had been broken by the withdrawal of India as a candidate.

Among the matters which came before the Security council during 1947 were the following: the implementation of the general assembly resolution of Dec. 14, 1946, on principles governing the regulation and reduction of armaments; the first report of the Atomic Energy commission; the Statute of Trieste, and the appointment of the first governor; the proposals of the United States for placing the former Japanese mandated islands under trusteeship; the Corfu incident between the United Kingdom and Albania; the Egyptian complaint against the continued presence of British troops and failure to settle the Sudan question; the outbreak of hostilities in Indonesia; the report of the Commission of Investigation Concerning Greek Frontier Incidents; the report of the Military Staff committee; and the consideration of new and the reconsideration of old applications for membership in the U.N.

The requirement of the unanimity of the permanent members for decisions on substantive questions prevented Security council action on many of these matters. Thus the Security council was unable to reach a decision on the merits of the Corfu incident, the Egyptian complaint and the report of the Greek commission. On only 2 of the 13 applications for membership considered by the council during 1947 was it possible to arrive at a decision in favour of recommendation. The same disagreements which prevented unanimous recommendations by the Military Staff committee and the Atomic Energy commission on the questions referred to them persisted in the Security council and prevented substantive decisions from being taken on the reports of these bodies. The whole question of the alleged "abuse of the veto" was considered by the general assembly at some length and referred to the Interim committee for study. The inability of the Security council to take action resulted in greater use of the general assembly and the establishment of the Interim committee with a view to making it possible to bring a matter before the general assembly, or its subsidiary organ, at any time.

Article 43 of the charter provides for agreements defining the military forces and facilities to be placed at the disposal of the Security council for enforcement action. The Military Staff committee had been asked to study and report on principles governing the organization of such forces. This report was submitted on April 30. It contained 41 articles, on 25 of which there was full agreement. The 16 remaining articles, however, dealt with such fundamental questions as the size of contributions to be made, the nature of facilities to be made available, the location of forces at the disposal of the Security council and the amount of such forces. As the consequence of the failure to agree on these matters, no progress was made during 1947 in implementing the provisions of article 43.



"WEARIED AND GETTING NOWHERE," was how Bishop of the *St. Louis Star-Times* viewed the effect of soviet blocking in U.N. affairs during 1947

Economic and Social Council.—During 1947 the Economic and Social council was composed of the following members: those with terms expiring Dec. 31, 1947—Cuba, Czechoslovakia, India, Norway, the Soviet Union and the United Kingdom; those with terms expiring Dec. 31, 1948—Belgium, Canada, Chile, China, France and Peru; those with terms expiring Dec. 31, 1949—Byelorussian S.S.R., Lebanon, New Zealand, Turkey, the United States and Venezuela. During the second session of the general assembly the following were elected members with three-year terms beginning Jan. 1, 1948: Australia, Brazil, Denmark, Poland, the Soviet Union and the United Kingdom. The council held two sessions in 1947, both at Lake Success, its fourth session from Feb. 28 to March 29, and its fifth session from July 19 to Aug. 17. The president of the council during 1947 was Sir A. Ramaswami Mudaliar of India. Because of his inability to be present at the fifth session the first vice-president, Dr. Jan Papanek of Czechoslovakia, presided.

At its fourth session, the council established two regional commissions, the Economic Commission for Europe and the Economic Commission for Asia and the Far East, to assist it in the economic reconstruction and development of these areas. Added to the 9 commissions established in 1946, this made a total of 11 commissions. All of these commissions held their first meetings in 1947 except for the Narcotics commission, which met in Dec. 1946. The council relies heavily on these commissions for detailed studies and recommendations and technical advice, as well as for the performance of limited administrative functions. At the fifth session, consideration was given to the establishment of two additional regional commissions, one for Latin America and one for the near east. An *ad hoc* committee was created to consider factors bearing on the establishment of the first.

The matters which came before the Economic and Social council for consideration and decision during 1947 included the following: reports of the council's commissions, including the Economic Commission for Europe and the Economic Commission for Asia and the Far East, reports on the work of the International Children's Emergency fund, negotiations with specialized agencies of agreements defining their relationship to the U.N., preparations for a Conference on Trade and Employment which convened at Havana, Cuba, on Nov. 21, preparations for a Conference on Freedom of Information to be held at Geneva in the spring of 1948, preparation of a draft convention defining the crime of genocide, a report from the International Labour organization on the right of workers to organize, steps to bring certain synthetic drugs of a habit-forming nature within the system of international narcotics control, and the granting of consultive status to additional nongovernmental organizations. The decision was taken to hold two sessions of the council in 1948, the first at Lake Success in February, and the second at Geneva, Switzerland, in July.

Trusteeship Council.—As the result of the failure of any trusteeship agreements to enter into force until Dec. 13, 1946, it was not possible for the Trusteeship council to be organized and to hold its first session until after this date. The initial composition of the Trusteeship council was as follows: (1) members administering trust territories—Australia, Belgium, France, New Zealand and the United Kingdom; (2) other permanent members of the Security council—China, the Soviet Union and the United States; (3) members elected by the general assembly for three-year terms beginning Jan. 1, 1947—Iraq and Mexico. The Soviet Union was not represented because of its refusal to accept the Trusteeship council as properly constituted, in view of the manner in which trusteeship agreements had been made and their provisions.

Following the entrance into force on July 18 of the trusteeship agreement for the administration of the former Japanese mandated islands by the United States, it became necessary for the general assembly to elect two additional members of the council to restore the balance between members administering trust territories and those not administering such territories. This was done during the second session of the general assembly when Costa Rica and the Republic of the Philippines were elected for three-year terms ending Jan. 1, 1951, but with the special provision that they take office immediately upon election.

The council held two sessions during 1947, both at Lake Success: the first from March 26 to April 28, and the second from Nov. 20 to Dec. 16. Francis B. Sayre and Sir Carl Berendsen were elected president and vice-president respectively at the first session, to hold office until their successors were elected in the June 1948 session.

The first session of the council was devoted almost entirely to procedural matters. The council adopted its rules of procedure, which are of special importance as they determine the manner in which the functions of the council are to be performed. The council also drafted a provisional questionnaire which was to serve as the basis for reports made by the administering authorities. It received a number of petitions and decided to send a visiting mission to Western Samoa. In its second session, the council gave consideration to additional petitions that had been received, arrangements for periodic visiting missions to trust territories, a revision of the original questionnaire, the report of its visiting mission to Western Samoa, and relations with the Economic and Social council and the Security council.

International Court of Justice.—The International Court of Justice had one case submitted to it during 1947—the dispute between Albania and the United Kingdom over the Corfu channel incidents. This case was submitted by the parties following recommendation by the Security council. (For further details, *see* INTERNATIONAL COURT OF JUSTICE.)

Consideration of Disputes and Situations Affecting Friendly Relations.—During 1947 the organs of the U.N. were called upon to deal with a number of disputes and situations affecting friendly relations and in some instances involving the

threat or actuality of hostilities. On Jan. 10, the British government brought before the Security council its dispute with Albania arising from damage to British ships and loss of life as the result of mine explosions and firing from shore batteries in the Corfu channel. The council was unable to take any decision on the merits of the case because of the refusal of the Soviet Union to accept the conclusion that Albania was responsible, but the council finally decided to ask the parties to refer the matter to the International Court of Justice. The case was submitted and was to come up for decision early in 1948.

The claim of the Greek government that Albania, Bulgaria and Yugoslavia were giving support to guerrilla activities along its northern frontier was the subject of investigation by a commission of the Security council which made its report on May 27. The majority of the commission found that the Greek charges were substantiated and recommended measures to deal with the situation. The Soviet Union opposed the findings of the commission and its conclusions, and prevented any decision of the Security council from being reached. Finally, on Sept. 15, the matter was removed from the list of matters with which the Security council was seized, and on the initiative of the United States was brought before the general assembly. On Oct. 21, the general assembly adopted a resolution calling upon the states directly concerned to settle the dispute peacefully, making recommendations looking to the establishment of normal relations, and establishing a special Balkan commission to assist in carrying out these recommendations. The members of the soviet bloc opposed the adoption of the resolution and announced that they did not intend to co-operate.

The Palestine question was brought before the general assembly at the request of the United Kingdom following failure to reach agreement with the Jewish and Arab groups. The general assembly in its first special session voted to establish a special committee to investigate the situation and made recommendations for the settlement of the problem. During the summer of 1947 this committee made a thorough investigation of the situation, and submitted a report which the general assembly considered during its second session. The majority recommendations of the committee, providing for partition, with provision for economic unity, and the establishment of Jerusalem as a trust territory under the Trusteeship council, were incorporated in the resolution adopted by the general assembly. The general assembly established a five-member commission to supervise the carrying out of the plan. Enforcement action was recognized to be the function of the Security council.

Following an extended deadlock in diplomatic negotiations, the Egyptian government on July 11 brought before the Security council its dispute with the United Kingdom over the continued presence of British troops in Egyptian territory and the future status of the Sudan. None of the proposed resolutions received the support necessary to adoption. After all proposals had been considered and defeated, the council turned to other business, leaving the question on the list of matters with which it was seized.

The Indonesian question was brought before the Security council by the Indian and Australian governments on July 30, following an outbreak of armed conflict between the Dutch and Indonesian forces. On Aug. 1, the council adopted a resolution calling upon the parties to cease hostilities and settle their differences by peaceful means. Though the two parties agreed, hostilities did not cease in fact, and on Aug. 26 the Security council voted to call for strict observation of the Aug. 1 resolution, asked the career consuls in Batavia to report on the situation, and tendered its good offices. After receiving a report from the consular commission indicating an unsatisfactory condition, the Security council on Oct. 3 requested its Committee of Good Offices to proceed immediately with its work. Later on Oct. 14 it adopted a resolution requesting the parties to consult with each other with a view to giving effect to the resolution of Aug. 1 and directed the Committee of Good Offices to assist.

The question of the treatment of Indians in South Africa was brought before the general assembly by India. The general assembly in Dec. 1946 adopted a resolution expressing the opinion that treatment should be in accordance with international obligations and requesting the two governments to report on measures adopted. The matter was taken up again during the second session and after extended discussion a resolution requesting round table discussions between the two governments on the basis of respect for international obligations failed to receive the necessary two-thirds majority support. A somewhat similar result occurred with respect to the Spanish situation. In its second session the general assembly adopted a resolution which failed to reaffirm the action it had taken in 1946 in calling upon members to withdraw their ambassadors and ministers and simply expressed confidence that the Security council would exercise its responsibilities.

Failure of the United States and the Soviet Union to agree on steps to be taken to implement the decisions of the Council of Ministers at Moscow in Dec. 1945, with respect to Korea led the United States to bring this matter before the general assembly at its second session. In the face of strong soviet opposition the general assembly adopted a resolution recommending the holding of elections in Korea for establishing a democratic Korean government and creating a temporary commission to aid in carrying out the program. The Soviet Union announced that it would not co-operate.

Security and Regulation of Armaments.—In carrying out the terms of the general assembly resolution of Dec. 13, 1946, on principles governing the reduction of armaments, the Security council considered the first report of the Atomic Energy commission and after extensive discussion, in the course of which the disagreements which had emerged in the council were repeated, decided on May 10 to refer the matter back to the council for further study and for the preparation of the necessary treaties and conventions. New soviet proposals submitted to the council on June 11 did not substantially narrow the area of disagreement and the second report of the commission adopted on Sept. 11 by a vote of ten to one, with one abstention, left the same impasse and substantially the same points of disagreement as had formerly existed. (*See* ATOMIC ENERGY.)

To prepare and report on proposals for the limitation of armaments not falling within the category of atomic weapons and other weapons of mass destruction, the Security council, by decision of Feb. 13, created the Commission on Conventional Armaments. On July 8, the Security council approved a plan of work for this commission. No further progress was made.

A similar lack of success attended the efforts to implement the enforcement provisions of articles 42 and 43 of the charter. The report of the Military Staff committee showed disagreement among the permanent members on important issues, and no progress was made in the Security council in resolving these differences. Consequently, responsibility for enforcement action by military means continued to rest on the permanent members of the Security council under the transitional arrangements contained in article 106 of the charter.

The general assembly during its first session also created an *ad hoc* commission on the progressive development of international law and its codification. (*See* INTERNATIONAL LAW.)

Economic and Social Co-operation.—The work of the U.N. in this field followed the general lines that had been laid down in 1946. For the most part it consisted of fact-finding, analysis and the preparation of recommendations and the bases

of possible agreement between governments.

The needs of economic reconstruction and development were considered in great detail and from many angles. The Economic Commission for Europe held two sessions, as the result of which machinery was set up to take over the functions of the Emergency Economic Committee for Europe, the European Central Inland Transport organization and the European Coal organization. It was decided that at its next session in Jan. 1948, it would consider measures of concerted action for the reconstruction of Europe. The task of the commission was limited, however, by the initiation of Secretary George C. Marshall's proposals for economic reconstruction outside the framework of the U.N. (*See* EUROPEAN RECOVERY PROGRAM.) The work of the Economic Commission for Asia and the Far East was advanced by the decision of the Economic and Social council that specified dependent territories should have associate membership in the council. At Geneva the Preparatory committee of the U.N. Conference on Trade and Employment completed the draft charter of a proposed international trade organization and arrangements were made for the holding of a U.N. Conference on Trade and Employment at Havana which began its meetings on Nov. 21. Negotiations between 16 countries at Geneva with a view to the reduction of tariffs were successfully completed. Arrangements were made for regular reports on world economic conditions and trends.

In the area of social policy, the U.N. reaffirmed its position that while every reasonable effort should be made to secure the return of displaced persons to countries of origin, the permanent settlement of persons not so returned is an international responsibility. Necessary support, financial and other, was given to the Interim committee of the International Refugee organization. The secretary-general continued his efforts to facilitate the relief activities of national governments and private agencies, made necessary by the termination of U.N.R.R.A. (*See* UNITED NATIONS RELIEF AND REHABILITATION ADMINISTRATION.) The work of the International Children's Emergency fund was vigorously carried on. Functions of the League of Nations in relation to traffic in women and children were taken over by the U.N. The international control of narcotic drugs was perfected, with special attention to synthetic drugs of a habit-forming nature.

To promote respect for basic human rights and improve cultural relations, plans were laid for a world conference on freedom of information to be convened at Geneva, March 3, 1948. The Commission on Human Rights, meeting at Geneva, completed the first draft of an international bill of rights. The general assembly in its second session adopted resolutions calling upon members to encourage the dissemination of information expressing the desire of peoples for peace and to consider measures to combat the diffusion of false or distorted reports. The general assembly also requested that members improve education on the U.N.

Specialized Agencies.—Much of the work for the achievement of the purposes of the U.N. in the economic and social fields continued to be accomplished through the specialized agencies. Specialized agencies in existence or in process of formation in 1947 were the following:

International Labour Organization (I.L.O.).—*See* separate article.

Food and Agriculture Organization (F.A.O.).—*See* FOOD SUPPLY OF THE WORLD.

International Monetary Fund (Fund).—*See* separate article.

International Bank for Reconstruction and Development (Bank).—*See* separate article.

International Civil Aviation Organization (I.C.A.O.).—*See* AVIATION, CIVIL.

International Refugee Organization (I.R.O.).—*See* REFUGEES.

Universal Postal Union (U.P.U.).

International Telecommunications Union (I.T.U.).

International Trade Organization (I.T.O.).—*See* TARIFFS.

United Nations Educational, Scientific and Cultural Organization (U.N.E.S.C.O).

The work of U.N.E.S.C.O. during 1947 stemmed from the program adopted at the Paris conference in 1946. It consisted of gathering and co-ordinating information on the needs for educational reconstruction, assistance to governments in developing programs of fundamental education, the promotion of international understanding by such methods as scholarships and the exchange of teachers, co-operation with U.N. organs in preparing for the Conference on Freedom of Information, scientific exploration of the Hylean Amazon and related activities. The second general conference met at Mexico City, Nov. 26 to Dec. 4. Austria, Colombia, Cuba, El Salvador, Hungary, Italy, Liberia, Luxembourg and Switzerland were admitted to membership, bringing the total number of members to 39. The work of the year 1947 was reviewed and a program giving education first priority was adopted for 1948. It was decided to hold the 1948 conference in Beirut, Syria.

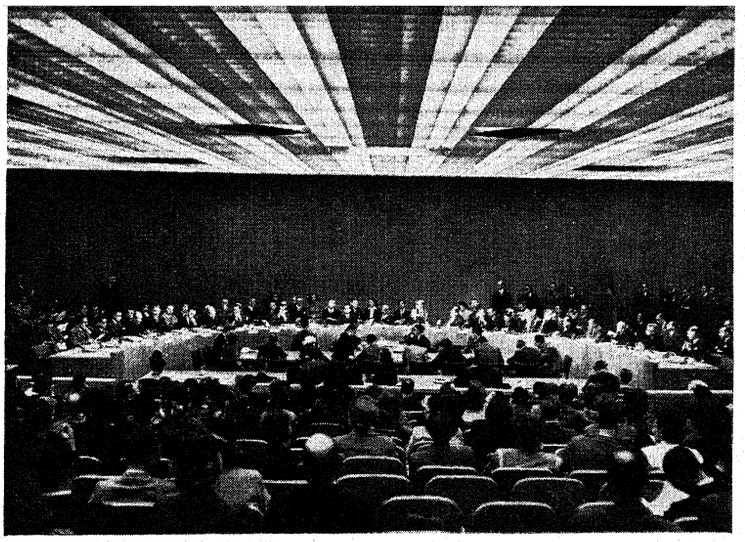
(*See* also LIBRARIES.)

World Health Organization (W.H.O.).—The constitution of the World Health organization was originally signed by 64 states. Ratification by 26 U.N. members was necessary to bring the constitution into force. At the end of 1947, 24 states had ratified, of which 17 were members of the U.N. Pending the establishment of W.H.O., the Interim commission performed numerous health activities which would later be assumed by the permanent organization. The commission took over the functions of the League of Nations Health organization. It took over the Singapore Epidemiological station and assumed certain of the functions of U.N.R.R.A. in the health field. It also took over the duties of the Office international d'hygiène publique at Paris. Operating through committees of experts and special missions, the commission assisted in combatting the cholera outbreak in Egypt and in developing long-range programs for malaria and tuberculosis. It provided technical aid for countries in need, including Austria, China, Greece and Poland, and put into operation a fellowship program permitting doctors and other health experts to study in world centres of medical knowledge.

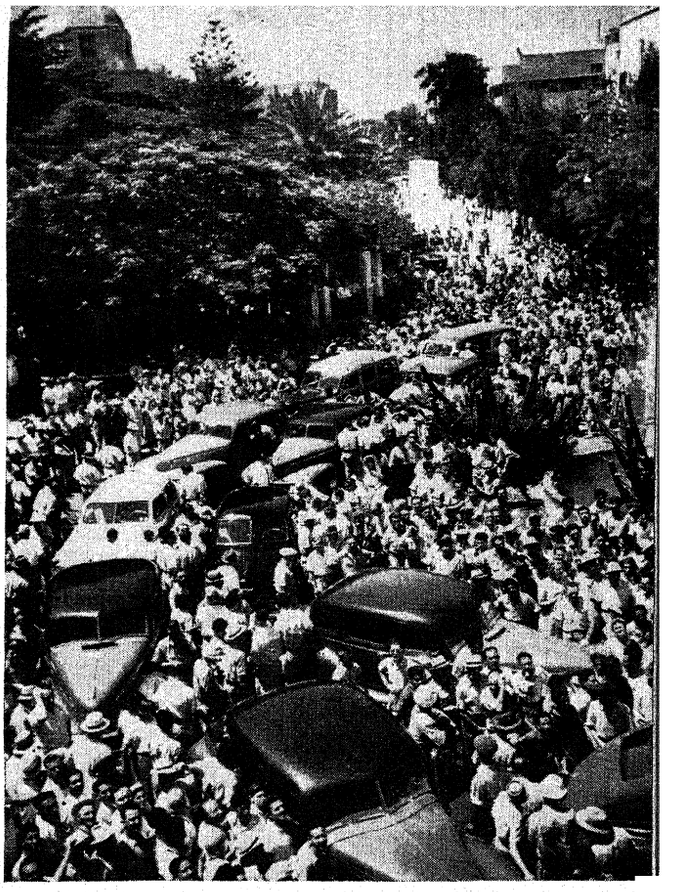
The general assembly in its second session approved agreements defining the relationship of the U.N. to the fund, the bank, U.P.U., I.T.U. and W.H.O. These agreements, because of the specialized character of certain of the agencies concerned, contained features not found in the earlier agreements with F.A.O., I.L.O., U.N.E.S.C.O. and I.C.A.O. In particular, the agreements with the fund and the bank went less far than the other agreements in providing the U.N. with effective means of co-ordinating the activities of the specialized agencies with those of the U.N.

The Co-ordination commission, consisting of the secretary-general of the U.N. and of corresponding officers of the specialized agencies brought into relationship with it, held its first meeting on Feb. 4. To implement agreements that had been reached, a working committee was set up.

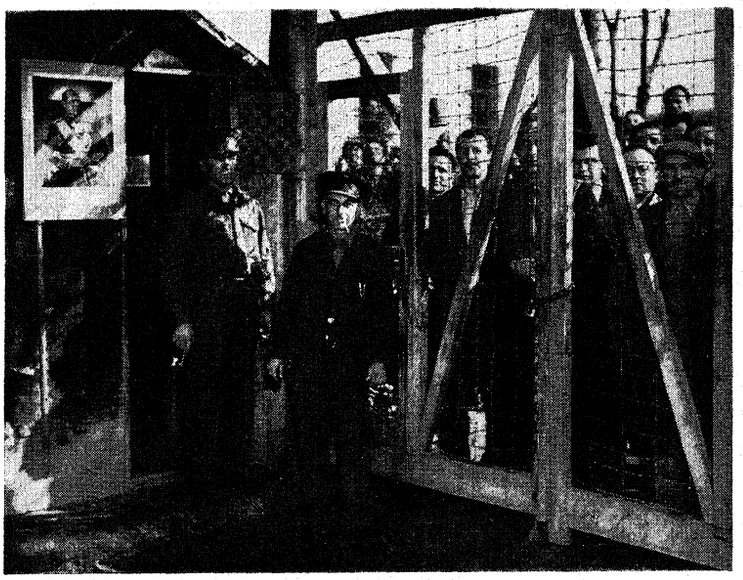
Nonself-Governing Territories and Trusteeship Matters.—Under article 73e of the charter members are obligated to transmit regularly to the secretary-general statistical and other information of a technical character on the economic, social, and educational conditions in nonself-governing territories in which they are represented. By its resolution of Dec. 14, 1946, the general assembly directed the secretary-general to summarize, classify, and analyze this information and established an



Above: SESSION of the 18-nation U.N. Economic and Social council, meeting at Lake Success, N.Y., in Feb. 1947, to discuss human rights, world resources conservation, international trade and other international matters



Above: MOTOR CAVALCADE bearing U.N. members of the special commission on Palestine arriving in Tel Aviv on June 25, 1947, during their tour of inspection in the Holy Land



Left: PRISON GUARDS (left) and inmates at the detention camp for political prisoners outside Salonika, Greece, which was visited by an 11-member U.N. inquiry commission into Balkan affairs, early in 1947

Below: FIELD TEAM of the U.N. Balkan Inquiry commission travelling through a mountain area of Greece in March 1947, to meet with guerrillas of the "Democratic Free army" active in the border regions



ad hoc committee to examine the summary thus prepared and make recommendations to the general assembly at its second session. Eight members of the U.N. listed 74 territories in respect to which they intended to transmit information. Information with respect to 62 territories was received and summarized by the secretary-general, in time for consideration by the *ad hoc* committee. The committee recommended to the general assembly that a permanent special committee be created to assist the general assembly in the consideration of this information, with a standard form to be used in its preparation, that the secretary-general in preparing his own summary be allowed to use supplementary sources of information, and that the transmission of political information be encouraged. The general assembly adopted resolutions along these lines. Thus considerable progress was made in the development of a system of international accountability for all nonself-governing territories.

The year 1947 saw the establishment of the trusteeship system in effective operation and substantial progress in the development of procedures for carrying out its purposes. In addition to the eight agreements approved in 1946, the general assembly in its second session approved a trust agreement for the island of Nauru to be administered by Australia on behalf of Australia, New Zealand and the United Kingdom. The trusteeship system was first extended to a strategic area by the approval of the Security council and the subsequent ratification by the United States of an agreement for the administration by the United States of the former Japanese mandated islands. Under the terms of the agreement, the United States accepted the provisions of articles 87 and 88 of the charter subject only to the right to determine the extent of their application in areas closed for security reasons.

In its first session the Trusteeship council determined its procedure for hearing reports, receiving petitions and conducting inquiries. It also drafted a provisional questionnaire to be used as the basis of reports by administering authorities. It received a number of petitions, including one from groups in Western Samoa asking for greater autonomy, which led it to exercise its right to investigate on the spot by sending a visiting mission to the islands. The mission made a report containing concrete recommendations for the improvement of the administration of the islands. These recommendations were adopted by the Trusteeship council in its second session and accepted by New Zealand, the administering authority. The Trusteeship council in its second session also established a working committee to prepare a detailed statute for the city of Jerusalem and gave consideration to a petition for the unification of Eweland, which was divided between Togoland under British administration and Togo under French administration. Plans were advanced for periodic visits to trustee territories. (For further consideration of the trusteeship system, *see* TRUSTEE TERRITORIES.)

General Administration.—The details of the internal organization of the secretariat were substantially altered during 1947, but the original departmental organization was preserved. Only one change was made in the top personnel. John B. Hutson resigned as assistant secretary-general in charge of the Department of Administrative and Financial Services and was replaced by Byron Price. Progress was made in the building up of a permanent staff. Salary adjustments were made in response to rising living costs. A joint staff pension scheme was inaugurated on Jan. 27.

On Dec. 14, 1946, the general assembly had decided on the location of the permanent headquarters in New York city. Early in Jan. 1947 a headquarters planning staff was established which prepared a general plan for the permanent headquarters, including designs of buildings. This plan was approved by the general assembly in its second session. At the same time the secretary-general was authorized to negotiate a $65,000,000 interest-free loan with the United States government for the construction of the permanent headquarters.

The secretary-general was authorized by the general assembly resolution of Dec. 14, 1946, to conclude with the appropriate authorities of the United States an agreement concerning arrangements required for the satisfactory performance of the organization's work as the result of the establishment of the headquarters in New York. On June 26 the text of an agreement between the United Nations and the United States was signed by Secretary-General Trygve Lie and Secretary of State Marshall, and was subsequently approved by the general assembly. Further accessions to the Convention on the Privileges and Immunities were received, but the secretary-general in his annual report felt it necessary to call the attention of members to the urgency of more speedy action.

Finances.—The financial year corresponds to the calendar year. The 1948 budget adopted by the general assembly provided for the expenditure of $34,825,125. The members of the soviet bloc abstained from voting because the budget made provision for the Interim committee and the Greek and Korean commissions which they had opposed as contrary to the charter. The assembly also appropriated $876,568 as a supplement to the original 1947 budget of $27,740,000. The U.N. budgets for the years 1947 and 1948 compared with the budget of $19,390,000 in 1946. The working capital fund for 1948 was maintained at $20,000,000.

The scale of members' contributions to the 1948 budget as adopted by the general assembly at its second session differed only slightly from the 1947 scale. The allocations ranged from 0.04% for Costa Rica, Yemen and several other members to 39.89% for the United States. The U.S. representative on the Administrative and Budgetary committee of the general assembly stated that his country accepted the figure for 1948 only because of existing economic conditions.

(*See* also TARIFFS.)

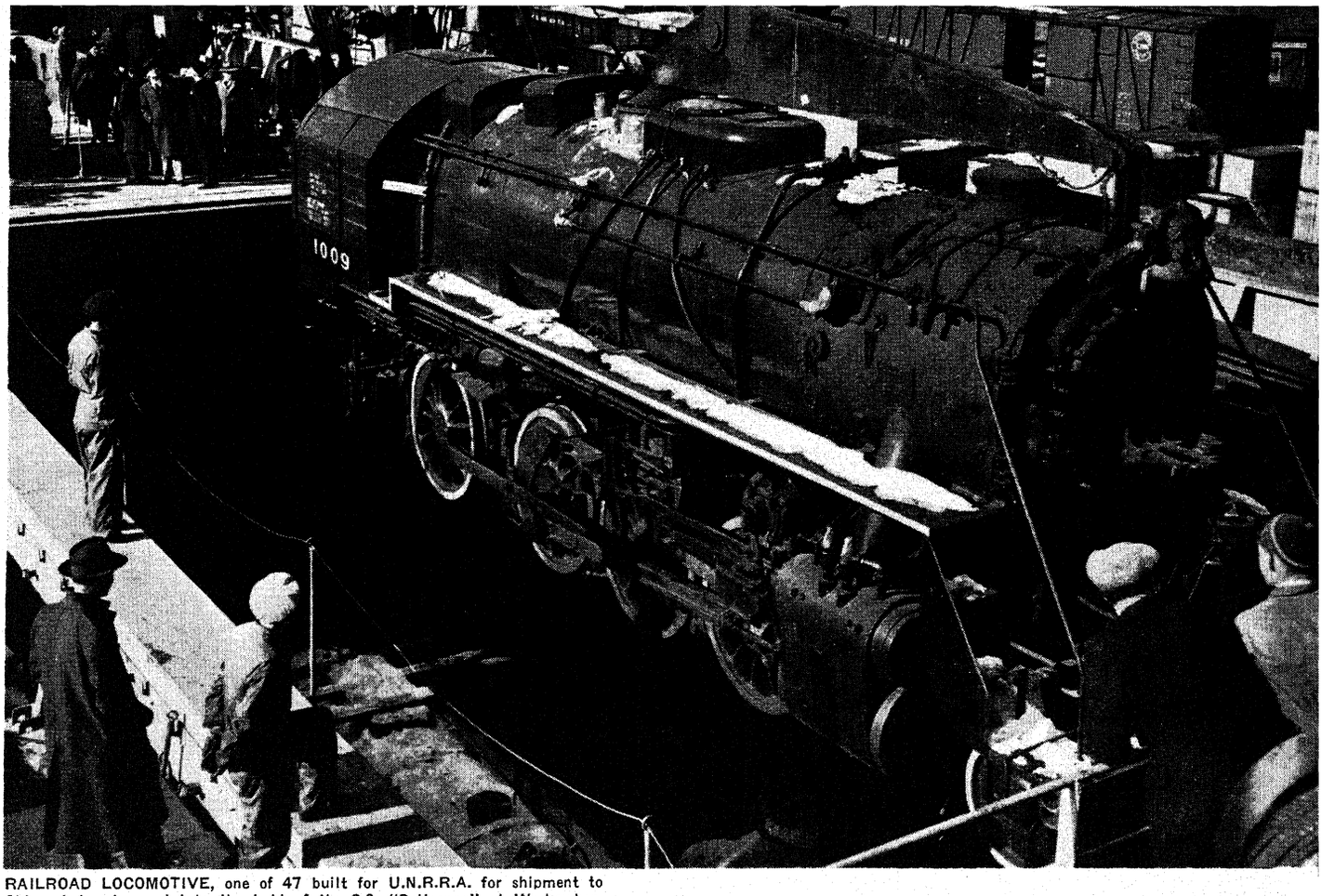
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United Nations Relief and Rehabilitation Administration.

The United Nations Relief and Rehabilitation administration (U.N.R.R.A.), an international agency, composed of 48 United Nations, completed its programs of postwar aid during 1947. Created in 1943 to help victims of World War II in liberated areas, its operations concentrated primarily on assisting those nations with the greatest need and without adequate foreign exchange resources to finance their own relief imports. The assistance consisted of relief supplies—food, clothing, fuel, medicines; relief services—trained personnel to advise how best to use the supplies; and rehabilitation supplies and services—seeds, fertilizers, insecticides, basic farm tools, repair parts for the rehabilitation of industry, transportation and other public utilities and raw materials. In addition, U.N.R.R.A. also furnished aid for the care and repatriation of millions of the war's displaced persons.

As operator of the largest peacetime shipping business in history, U.N.R.R.A. sent out more than 25,000,000 long tons of supplies. The value of the goods shipped was almost $3,000,000,000, or about three times the relief goods distributed after World War I.

The principal supplies shipped (as of Sept. 30, 1947), are shown in Table I on page 753.



RAILROAD LOCOMOTIVE, one of 47 built for U.N.R.R.A. for shipment to China, being lowered into the hold of the S.S. "Beljeanne" at Weehawken, N.J., on Feb. 11, 1947

Table I.—*Principal U.N.R.R.A. Supplies Shipped as of Sept. 30, 1947, and Countries Assisted*

Category	Value	Long Tons
Food	$1,242,846,000	8,952,804
Clothing, textiles and footwear	436,590,000	607,050
Medical and sanitation	108,392,000	105,308
Agricultural rehabilitation	315,341,000	2,277,721
Industrial rehabilitation	629,816,000	11,266,350
Unclassified	8,785,000	33,472
Other supplies, mostly from military surpluses	116,097,000	610,110

Countries Assisted	Value	Long Tons
Albania	$ 25,803,000	134,892
Austria	135,172,000	1,101,118
Byelorussian S.S.R.	60,440,000	133,244
China	490,827,000	2,372,581
Czechoslovakia	260,339,000	1,532,273
Dodecanese Islands*	4,028,000	33,680
Ethiopia	625,000	1,699
Finland*	2,422,000	7,646
Greece	346,726,000	2,877,791
Hungary*	4,413,000	19,056
Italy	417,410,000	10,264,721
Korea*	916,000	6,322
Philippines*	9,887,000	36,095
Poland	471,300,000	2,211,539
Republic of San Marino*	30,000	214
Ukrainian S.S.R.	188,302,000	434,093
Yugoslavia	407,152,000	2,539,137

*Programs of limited emergency aid.

Member nations not invaded during World War II were asked to contribute for operating expenses a total of 2% of their national income for the fiscal year ending June 30, 1943. All member nations, including those that were invaded, made contributions toward the administrative expenses. The three largest contributors were United States ($2,700,000,000), United Kingdom ($624,650,000) and Canada ($138,738,000).

Compelled by the conditions in the liberated countries, U.N.R.R.A. was forced to concentrate on immediate relief needs, rather than on a full-rounded rehabilitation program that would put the countries back on their feet. Since hunger had to be dealt with first, the bulk of U.N.R.R.A. shipments was food, undoubtedly the deciding factor in the prevention of widespread starvation during the first two postwar years.

During 1947 U.N.R.R.A. transferred its major health activities to the World Health organization; some of its welfare activities and functions to the International Children's Emergency fund; some of its technical and advisory services in connection with agricultural rehabilitation to the Food and Agriculture organization; and all its responsibility for the displaced persons to the Preparatory commission of the International Refugee organization; and to implement these transfers sums aggregating approximately $10,000,000 were conveyed to the appropriate agencies.

Missions to aid relief programs in Europe were closed on June 30, 1947. The office in China remained open through December, and a trusteeship plan, to be administered under a board including both foreign and Chinese nationals, was set up to carry forward the U.N.R.R.A.-initiated, long-range rehabilitation projects in that country. (*See* also FOOD SUPPLY OF THE WORLD; REFUGEES.) (L. W. R.)

United Nations War Crimes Commission: *see* WAR CRIMES.

United States. According to figures released by the bureau of the census on Nov. 28, 1947, the population of continental United States on Oct. 1 was 144,708,000, of whom 143,373,000 were civilians and 1,335,000 were still in the armed forces. The increase in population from April 1940 was more than 13,000,000, or 7% of the population in 1940. The urban population increased 12.7%, and the rural nonfarm population 14.3%, while the farm population fell off about 9.6% from 30,219,000 in 1941 to 27,305,000 in 1947. On a regional basis the increase of 24.7% in the west contrasted sharply with that of 2.7% in the south; and the rate of increase of the nonwhite population exceeded that of the whites in the ratio of 11.6% to 7.5%. There was little change in the two trends of population noticeable in recent decades: namely, the slow rate

of increase as compared with that of the early and middle years of the country, and the growing tendency toward a higher age level of the population. The total area of continental United States is 3,022,387 sq.mi.

History.—On the domestic front the chief concerns of the people of the U.S. in 1947 were the constantly mounting cost of food, clothing and other necessities of life, which resulted from the spiral of inflation caused by reciprocal boosts in wages and prices as well as to the excess of demand over supplies; and the persistent shortage of housing, which President Harry S. Truman declared in November to be "the foremost of the many problems facing the nation." On the international front, despite all the meetings of the foreign ministers (the tenth being held in London, Nov.–Dec. 1947) and of the delegates to the United Nations, little or no progress was made toward harmony between the western democracies and the U.S.S.R. To be sure, treaties were signed with the former German satellite states; but the major settlements with Germany and Austria had not made any substantial progress when the year came to an end. On every question affecting the future peace and security of the world—the control of atomic energy, the check to the spread of communism in Europe, the plans for United States aid to the destitute peoples of the old world, the scheme for giving the smaller nations a larger influence in the councils of the United Nations—the soviet representatives, on instructions from Moscow, interposed their veto and reiterated the charges that the U.S., aiming at an imperialistic domination of the world, was fomenting the war spirit. It was evident that no reconciliation of the opposing ideologies of the two great protagonists, the U.S. and the Union of Soviet Socialist Republics, seemed possible. Whether they could live together in the same world without coming to blows was a question which hung over the heads of the people like the sword of Damocles.

Congress.—The 80th congress convened on Jan. 3, 1947, with 51 Republicans and 45 Democrats in the senate and 245 Republicans and 187 Democrats in the house. It was the first time in 16 years that the Republicans had control of both houses, and the first time after Woodrow Wilson's second ad-

Major Legislation Passed by U.S. Congress in 1947

Act	House Vote	Senate Vote	Date of Enactment (or Veto)
1st Tax Reduction bill (Provided "across the board" reduction in personal income taxes)	220–99 Yeas: Reps. 183, Dems. 37 Nays: Reps. 1, Dems. 97, A.L. 1	48–28 Yeas: Reps. 42, Dems. 6 Nays: Reps. 2, Dems. 26	Vetoed June 16 Veto upheld by house, June 17 Voting to override, 268; to sustain 137 Yeas: Reps. 233, Dems. 35 Nays: Reps. 2, Dems. 134, A.L. 1
2nd Tax Reduction bill (Substantially same as first, with effective date changed to Jan. 1, 1948)	302–112 Yeas: Reps. 233, Dems. 69 Nays: Reps. 2, Dems. 109, A.L. 1	60–32 Yeas: Reps. 48, Dems. 12 Nays: Reps. 2, Dems. 30	Vetoed July 18 Veto overridden by house 299–108 Yeas: Reps. 236, Dems. 63 Nays: Reps. 2, Dems. 105, A.L. 1 Veto upheld by senate 57–36 Yeas: Reps. 47, Dems. 10 Nays: Reps. 3, Dems. 33
Labor-Management Relations act (Taft-Hartley) (Aimed to check certain labour practices and reduce the danger of national paralysis strikes)	320–79 Yeas: Reps. 217, Dems. 103 Nays: Reps. 12, Dems. 66, A.L. 1	54–17 Yeas: Reps. 37, Dems. 17 Nays: Reps. 2, Dems. 15	Vetoed June 20 Overridden by house 331–83 Yeas: Reps. 225, Dems. 106 Nays: Reps. 11, Dems. 71, A.L. 1 Overridden by senate, June 23, 68–25 Yeas: Reps. 48, Dems. 20 Nays: Reps. 3, Dems. 22
Portal-to-Portal Pay act (Outlawed suits for back portal-to-portal pay)	173–27	Passed by voice vote	Signed May 14
Rent control extension (Extended rent controls from June 30, 1947, to Feb. 29, 1948, with many modifications)	163–73	Passed by voice vote	Signed June 30
Greek-Turkish Aid bill (Authorized $400,000,000 to assist Greece and Turkey)	287–107 Yeas: Reps. 127, Dems. 160 Nays: Reps. 93, Dems. 13, A.L. 1	67–23 Yeas: Reps. 35, Dems. 32 Nays: Reps. 16, Dems. 7	Signed May 22
General Foreign Relief act (Authorized $350,000,000 in aid to various foreign countries)	288–86 Yeas: Reps. 150, Dems. 137, A.L. 1 Nays: Reps. 68, Dems. 18	Passed by voice vote	Signed May 31
Army-Navy Unification (Provided for civilian secretary of defense, with supervision of the three service branches, each headed by a secretary without cabinet rank)	Passed by voice vote	Passed by voice vote	Signed July 26
Terminal leave bonds (Allowed World War II veterans to cash their five-year non-negotiable terminal leave bonds, beginning Sept. 1, 1947)	386–0	85–0	Signed July 26
Presidential Succession act (Placed speaker of the house first, and president pro tempore of the senate second in line of succession to the presidency, followed by secretary of state and other members of cabinet)	365–11 Yeas: Reps. 222, Dems. 142, A.L. 1 Nays: Rep. 1, Dems. 10	50–35 All negative votes were Democrats	Signed July 18
Two-term limit for presidency* (If ratified by legislatures of three-fourths of the states within seven years, becomes part of constitution)	285–121 Yeas: Reps. 238, Dems. 47 Nays: Dems. 120, A.L. 1	59–23 Yeas: Reps. 46, Dems. 13 Nays: Dems. 23	
Peace treaty with Italy (Provided for withdrawal of all U.S. forces of occupation 90 days after treaty became effective; treaties with three former Axis satellites—Hungary, Rumania, Bulgaria—ratified by voice votes)		79–10 Yeas: Reps. 42, Dems. 37 Nays: Reps. 7, Dems. 3	Instruments of ratification signed June 14
Stop-gap foreign relief (Provided authorization for a $597,000,000 aid program, pending approval of the long-range European Recovery program)	313–82 Yeas: Reps. 161, Dems. 152 Nays: Reps. 70, Dems. 11, A.L. 1	Passed by voice vote	Signed Dec. 17
Stop-gap inflation bill (Called for extensions of export and transportation controls; granted authority for the president to limit or prohibit, until Jan. 31, 1948, use of grain in distilleries, authorized voluntary agreements on allocation of scarce commodities and on regulation of commodity speculation)	281–73 Yeas: Reps. 178, Dems. 102, A.L. 1 Nays: Reps. 29, Dems. 44	77–10 Yeas: Reps. 45, Dems. 32 Nays: Reps. 3, Dems. 7	Sent to president Dec. 19, the last day of the Special Session
Inter-American Treaty of Reciprocal Assistance		72–1 Nay: Rep. 1	Ratified Dec. 8

*As of Feb. 1948, the following 18 states had ratified the proposed amendment: California, Colorado, Connecticut, Delaware, Illinois, Iowa, Kansas, Maine, Michigan, Missouri, Nebraska, New Hampshire, New Jersey, Ohio, Oregon, Pennsylvania, Vermont and Wisconsin.



GRAVE RECEPTION of Pres. Truman's speech of March 12, 1947, outlining the U.S. plan to aid Greece and Turkey in combating communism. Left to right, top: Sen. C. W. Brooks, Sen. A. Wiley and C. B. Henderson, an RFC director; bottom: Sen. Tom Connally and Sen. W. H. White

ministration that the president and the majorities in congress were of opposite parties. The Republican victory in the 1946 elections brought changes in the presiding officers of congress and the chairmanship of the standing committees (which had been reduced from 33 to 15 in the senate and from 48 to 19 in the house). Joseph W. Martin, Jr., of Massachusetts replaced Sam Rayburn of Texas as speaker of the house, and Arthur H. Vandenberg of Michigan became president pro tem. of the senate and succeeded Tom Connally of Texas as chairman of the foreign relations committee. Robert A. Taft, regarded as the most influential man in the senate and a prominent candidate for the presidential nomination in 1948, became the chairman of the key committee on policy.

The Republicans came into power pledged to two major measures: tax reduction and effective labour legislation to replace the Wagner act of 1935. They had insisted in their campaign on reductions in income taxes ranging from 10% to 30%, and the first bill introduced into the house made such provisions. It was passed in June by a vote of 220 to 99, the senate concurring by 48 to 28. Both President Truman and Secretary of the Treasury John W. Snyder insisted that the anticipated surplus in the treasury should be used for the reduction of the debt, and warned that, in view of the financial aid which must be furnished to the distressed countries of Europe, it would be unwise to reduce taxes. On June 16, therefore, the president vetoed the bill, despite the fact that the veto of a tax bill was a most unusual thing. The house failed by 2 votes (268 to 137) to muster the two-thirds majority to override the veto, and the first project of the Republicans was killed.

They were more successful, however, in the second. There had been a growing feeling, strengthened by the unprecedented wave of strikes in 1946 and the defiance of the government by John L. Lewis, that the Wagner act was overweighted in favour of labour, and on this feeling the Republicans capitalized in writing the Taft-Hartley bill of 1947. President Truman warned against the passage of any "vindictive law" against labour, with a clear indication that he would veto such a law. But the Re-

publican leaders paid little attention to his counsel. The Taft-Hartley bill, passed by votes of 320 to 79 in the house and 54 to 17 in the senate, contained drastic curbs on the privileges of labour. It forbade the closed shop and the secondary boycott, gave the employer the same right as the union to appeal to the National Labor Relations board, prescribed a cooling-off period before a strike could begin, authorized injunction proceedings in certain cases and generally held labour responsible for complying with the rules and regulations which business had to observe in regard to its financial operations. President Truman vetoed the bill, but his veto was overridden in both houses of congress.

Other measures of the session, which ended on July 26, were the appropriation of $34,500,000,000 to run the government for the ensuing year; the ratification of the peace treaties with Italy, Hungary, Rumania and Bulgaria; a constitutional amendment limiting the presidency to two terms; a law fixing the presidential succession (the speaker of the house and then the president pro tem of the senate); a small appropriation ($12,000,000) for the continuance of the "Voice of America"; a $400,000,000 appropriation for combating communistic influence in Greece and Turkey; and an act merging the armed forces into a single department of national defense, with separate secretaries (noncabinet members) for army, navy and air. The most important matters left unsettled were the Marshall plan for European recovery, universal military training, health and housing legislation, flood control, and the (Stratton) bill for the admission of displaced persons.

On Oct. 23 President Truman called congress together for Nov. 17, in the first extra session after 1939: (1) to provide immediate relief for France, Italy and Austria, whose resources would not tide them over the winter, and (2) to curb the rising price index. As its final act before adjournment on Dec. 19, congress voted $540,000,000 "stop-gap" aid for the three European countries plus China, and on the same day sent to the president an anti-inflation bill which he was expected to sign, although it fell short of granting him the powers he had asked.

The Budget.—On Jan. 10, 1947, the president sent to congress his budget message for the year 1948, estimating expenditures at $37,500,000,000, of which national defense and veterans' benefits comprised approximately one-half. In mid-August the budget went into the black for the first time after 1930, showing a surplus of $184,000,000. The national debt had been reduced from $279,000,000,000 in 1946 to $259,000,000,000. The estimated income for the ensuing year was $37,700,000,000. The administration, backed by the Democratic minority in congress, favoured the devotion of such surplus as might accrue, after furnishing aid to the European countries, to a further reduction of the debt, while the Republicans argued that the president's "rock-bottom" estimate of expenses could be reduced by $4,000,000,000 to $5,000,000,000 and that a lowering of taxes would release funds for investment and provide a consequent stimulus to increased production. As mentioned above, the president vetoed the tax reduction bill; but the Republican leaders, prophesying a surplus of several billions for the next fiscal year, had ready in December a (Knutson) bill, calling for tax reductions of more than $5,000,000,000, for introduction into the second session of the 80th congress beginning Jan. 6, 1948. (*See* also TAXATION.)

In May of 1947 the nation was producing at an annual rate of $210,000,000,000, and the current rate of annual income was $177,000,000,000, as against $168,000,000,000 in 1946. On the whole the financial situation of the country seemed to justify the optimism of the president's midsummer economic report. Profits were at the highest level in history. The average per capita income was $1,060 compared with $479 in 1939, and five times as much money was being paid in taxes as in the earlier year. Weekly earnings in the manufacturing industries were 70% higher than in 1941, while living costs had increased by approximately 50%. There were approximately 58,000,000 employed workers. But there were two alarming factors in the situation. First, prices were mounting at a rate which defied any curbs that either the government or voluntary efforts could impose; and second, exports were mounting to more than $1,000,000,000 a month as against imports of scarcely more than half that figure—an imbalance which could be remedied only by the restoration of normal exporting power in foreign countries and the willingness of the U.S., in spite of the advocates of prohibitive tariffs, to take the products of those countries on equitable terms.

Agriculture.—In spite of heavy spring rains and midsummer droughts which cut down the corn harvest to the smallest after 1936, the total crop production of the country in 1947 was the fourth largest on record, being surpassed only in the years 1942, 1944, and 1946. The final estimate (Dec. 1947) was 2,400,952,000 bu. of corn (26% less than the 1946 yield) and 1,364,917,000 bu. of wheat. The farm population of 27,305,000 represented slightly less than one-fifth of the total population, and the farmers' profits were at an all-time peak. Farm income for the year 1947 was estimated (Dec. 20) at $18,000,000,000, or 20% above the figure for 1946 and 400% above that of 1940. Bank deposits in 20 leading farm states were 5% higher than a year earlier. But fewer than one-third of the 6,000,000 farms produced more than two-thirds of the crops, by virtue of their superior equipment in machinery, electric power and scientific fertilization. The total farm assets were reckoned at about $90,000,000,000, or more than double the figure of a decade earlier. Yet only about one-half the farm homes had electric light, one in four had running water, one in six had bathrooms, and fewer still had central heating. Fruits, vegetables and dairy products maintained the high levels of the previous year, and while livestock declined from the peak figures of the war years, the supply of meat was sufficient to enable the civilian population to increase their per capita consumption to about 150 lb. a year, as compared with 125 lb. in the prewar period. In the same period only 2.6% of the national food supply went into exports; but during the war the needs of the armed forces and the demands of lend-lease and U.N.R.R.A. (the United Nations Relief and Rehabilitation administration) took up to 17% and 8.8% respectively of the country's farm products. With the termination of these agencies, food exports reverted to normal levels.

However, the fluctuations in prices and markets occasioned in 1946 by the vacillating policy of lifting, restoring and finally removing price controls were succeeded in 1947 by a continuous rise in farm prices. Based on 100 for the year 1939, the index of all farm prices reached 275. The protests of housewives against the exorbitant cost of meat, eggs and butter did not avail to halt the upward swing. Farmers were solidly opposed to any government action to reduce prices or to the cancellation of farm subsidies. In view of the need of food supplies to tide the hungry people of Europe over the winter, the administration in the late autumn recommended a voluntary conservation program. People should cut meat from their diet on Tuesdays and eggs and poultry on Thursdays. Hotels and restaurants were asked not to serve bread unless it was called for by the customers. But sumptuary regulation, especially in time of peace, is difficult to enforce. There was a widespread suspicion that products were being withheld from the market in the hope of still further rises in price.

One farm was said to have more than 600,000 bu. of wheat stored in warehouses; and a poll of late Nov. 1947 reported



"UMTEES" at mess in the experimental camp for 18-year-olds maintained by the U.S. army at Fort Knox, Ky., as a testing ground for a possible universal military training (UMT) program

45% of the farmers consulted as expecting prices to rise still further in 1948. On Dec. 18 the senate adopted unanimously a resolution authorizing Secretary of Agriculture Clinton P. Anderson to make public the names of all speculators in grain and other commodities.

Industry.—On Aug. 21 President Truman issued a report on the industrial situation, based on the figures submitted by his council of economic advisers. It was a highly optimistic report. The U.S. had more than half the industrial capacity, the gold, and the shipping of the world. Production was humming, jobs were plentiful and incomes were high. Corporation profits after the deduction of taxes were $17,000,000,000 for the first half of the year, as compared with $12,000,000,000 in the same period of 1946. Exports in midsummer were running at the rate of about $15,000,000,000 a year, which was more than five times the prewar figure. They comprised 6.5% of the gross production of the country, and the chief exported commodities in order of value were machinery, grain, textiles, automobiles and iron and steel. Imports, however, the chief of which were coffee, sugar, rubber, wool and paper, failed by half to keep pace with exports, and the serious question was raised as to how foreign countries would be able to meet their unfavourable balances of trade. Obviously, they could not borrow themselves out of debt or expect the U.S. to support them like poor relatives. The only remedy lay in the recovery of their own volume of production and the readiness of the U.S. to take their goods without prohibitive tariff restrictions.

A plan to help Europe help itself out of its economic plight was proposed by Secretary of State George C. Marshall in a speech at Harvard on June 5, 1947. The "Marshall plan," later named the European Recovery program (E.R.P.), envisaged the expenditure of a large sum of money, perhaps from $16,000,000,000 to $20,000,000,000 over a period of four years, to encourage the rebuilding by their own people of the shattered industries and finances of the European states. It was a kind of pump-priming for foreign recovery. Delegates of 16 nations meeting at Paris made a careful study of Europe's needs. In the U.S., committees headed by Secretary of the Interior Julius A. Krug, Secretary of Commerce W. Averell Harriman, and the government economist Edwin G. Nourse, prepared reports on the capacity of the country to undertake the program proposed and on its effects on U.S. industrial and financial prosperity. On Dec. 18 William L. Clayton, former under secretary of state for economic affairs, declared that by devoting only from 2% to 2½% of the gross national production to the implementation of the Marshall plan over the next four years, the United States could restore the economy of western Europe and forestall the danger of communist domination there, without prejudice to its own high standard of living.

Labour.—The most important event of the year 1947 in the realm of labour was the passage over the president's veto of the Taft-Hartley Labor-Management Relations bill (see *Congress*). Although by the end of the year enough time had not yet passed after the act became effective (Aug. 23) to test the claims of either its champions or its opponents, there seemed to be few indications that management intended to use the law to deprive labour of its fundamental rights of unionization, collective bargaining, and the strike (except in certain industries "affected with the public welfare"); nor had organized labour staged such a revolt as might have been expected against an act which its leaders characterized as "infamous." Indeed, as contrasted with the turbulent year preceding, when 113,000,000 man-days were lost through strikes, 1947 was remarkably free from labour strife. For the first 3 months of the year the man-days lost were less than 10% of the 58,000,000 man-days lost in the same period of 1946. However, in April there came threats of strikes in the coal, telephone, steel and automotive industries. The substantial wage increases of 1946, averaging 18.5 cents an hour, did not satisfy the workers, who were moved to demand another round of wage raises both by the rising cost of living and the mounting profits of the corporations. Yet there were no such sinister incidents as John L. Lewis' defiance of the government the year before. On the whole, Lewis had gained more for his United Mine Workers than any other labour leader had done for his union, their wages having risen from an average of $30.86 in 1941 to more than double that figure in 1947.

On March 25 at Centralia, Ill., 111 men were killed in the worst mine accident that had occurred in 20 years. Mr. Lewis, asserting gross negligence on the part of the government, whose management of the mines was about to terminate, demanded that all but two of the soft coal mines of the country be closed until their safety could be certified, and proclaimed a "mourning" strike of a week in memory of the Centralia victims.

The most controversial part of the Taft-Hartley act proved to be section 9(h), which required officers of the unions to file affidavits disclaiming any connection with communism. The question was whether the regulation applied to the heads of the unions. The C.I.O. was bitterly opposed to the requirement;

but William Green of the A.F. of L., who was hardly more favourable to the act as a whole, was inclined to accept section 9(h). Whereupon Lewis withdrew his 600,000 United Mine Workers from the A.F. of L., which they had rejoined a few months before, and sent Green the curt message "We disaffiliate."

Housing.—Adequate housing both for the returning veterans and for the general public remained a major problem throughout the year. There was a vast backlog demand for housing, created during the depression and later during World War II, when building was virtually stopped. The Wagner-Ellinger-Taft bill of 1945, a plan for the construction of 12,000,000 to 15,000,000 new housing units over a period of 10 years, had passed the senate in 1946, but had died in the house committee. In March 1947, with 20,000,000 persons living in crowded and substandard quarters, congress again took up the question. The construction of at least 1,000,000 housing units a year was needed. Approximately 40% of the G.I.s were living "doubled up" with relatives or friends, and 25% of the married veterans were vainly seeking homes. From 400,000 to 500,000 new families were being added to the population annually. Programs for public construction of big housing projects for families of low income were opposed by realty interests as a threat to private enterprise. The construction of small houses within the price limits of the average family was frustrated by the great increase in labour wages and in building materials. Lumber had advanced 100% from 1941 prices; hardware was up 114%; many items (like window shades) were 300% more expensive. From Jan. to April 1947 only about 60,000 new houses were built. Furthermore, after the removal of war controls from building materials, not only did the prices of the materials skyrocket, but the supply tended to be absorbed by the demand for the construction of new factories, stores, banks and other commercial buildings. Old houses, many of them lacking heating, plumbing and running water, were scarce at twice their prewar prices; and less than one-fifth of the new houses built could be afforded by families with an income of $2,000 a year. Before the war, President Franklin D. Roosevelt had deplored the fact that one-third of the people of the United States were "ill-housed." More than two years after the end of the war little had been done to remedy that situation. (*See* also BUILDING AND CONSTRUCTION INDUSTRY; HOUSING.)

The Armed Forces.—A plan, which had been under discussion ever since the Spanish-American war, was consummated in 1947: namely the unification of the armed forces of the country. It had been generally favoured by the army, but opposed by the navy on the ground that the larger arm of the service would tend to absorb or overshadow the navy's functions. In July, however, congress passed and the president signed the unification bill. It provided for a (civilian) secretary of national defense with a seat in the cabinet, and separate noncabinet secretaries for the army, the navy and the air force. James Forrestal, then secretary of the navy, was appointed secretary of national defense, while the three minor posts were given to Kenneth C. Royal (army), J. L. Sullivan (navy), and W. S. Symington (air force). The act also created new agencies: a national security council, a resources board, a munitions board, a research board, and a joint board of chiefs of staff.

The draft, established by the Selective Service act of 1940, ended on March 31, 1947, and was not extended by the president. But the voluntary enlistments relied upon failed to supply the 30,000 men per month wanted by the army and the 12,500 sought by the navy, to keep the former's strength at 1,070,000 and the latter's at 570,000 (including 98,000 marines) for the year 1948. Universal military training for young men from 18 to 20 years of age, with 6 months in camp and 6 months in school or college, was favoured by the army as a better recruiting agency than the draft.

The strong desire of the soldiers of the U.S. to get back home after the cessation of hostilities and of their families to have them back resulted in some deterioration in the quality of the forces which had to be left as garrisons in Europe and Asia. Younger and less experienced officers took the place of those familiar with the conditions abroad, and there were complaints of irregular conduct, such as black-market operations, on the part of the soldiers. There were altogether more than 300,000 men of the U.S. armed forces in garrison duty abroad, about 150,000 in Germany and the same number in Japan, with smaller forces elsewhere. Since the announced purpose was to maintain U.S. garrisons abroad until a satisfactory peace was made (as expressed in former Secretary of State James F. Byrnes' Stuttgart speech of Sept. 1946), and Secretary Marshall in his first press conference had declared the U.S. would "avoid unilateral disarmament," it was of great importance to maintain not only the numbers but also the quality of the armed forces. The U.S. planned to spend 34% of its 1948 budget on military items, as against 26% set aside by Great Britain and 19% by the U.S.S.R. Only China, with 80%, planned to spend a larger share of its budget on its armed forces than the U.S. The total expenses for the world's armies of 19,000,000 men were estimated at $27,000,000,000. U.S. naval tonnage of 3,820,000 exceeded the combined tonnage of the rest of the world by approximately 1,000,000 tons, and compared with Great Britain's 1,531,600 tons, the U.S.S.R.'s 445,000 tons, and France's 250,000 tons. (*See* ARMIES OF THE WORLD; NAVIES OF THE WORLD.)

A defense problem of the first importance was presented by the condition of the U.S. air force. At the peak of the wartime effort the army was operating about 80,000 planes, and during the year 1944 U.S. factories produced the enormous number of 96,000 planes. By 1947, the rapid advance in engineering had rendered obsolete many types of planes rated as first class three or four years before. For example, the navy's new jet and rocket powered "Skyrocket," which was being tested at the end of the year, was expected to travel at a speed of 1500 to 1700 mi. an hour. The huge B-29 bombers, which did such effective work against Japan, had already been superseded by the B-36's, the largest land-based bombers in the world, powered by six 28-cylinder engines, and said to be capable of a nonstop round trip flight to the most remote spot on the earth. The commanding general of the air force, Gen. Carl Spaatz, declared in 1947 that the U.S. had in use only about 5,000 military planes of highest quality, whereas it needed at least 7,000 in active operation, besides a considerable reserve force. Shortly after the war, the army air force developed an expansion program providing for an outlay of $270,000,000 a year but congress, intent on cutting government expense all along the line, granted less than the $147,000,000 which President Truman had asked for the year 1947–1948. (*See* also AVIATION, MILITARY.)

Little progress was made during 1947 on the vexing question of the control of atomic energy. On Dec. 30, 1946, the United Nations Atomic Energy commission adopted the Baruch plan (with the U.S.S.R. and Poland dissenting) and sent it to the Security council. Its main features were the creation of an international Atomic Development authority (the A.D.A.), with a monopoly of the production of fissionable materials and a vetoless power of inspection and punishment for the infraction of the A.D.A.'s regulations. When assured of the promise of adequate control, but not before, the U.S. would consent to surrender its stockpile of atomic bombs. The soviet proposal, put forth by Andrei A. Gromyko, reversed the Baruch plan. The U.S. must first destroy its bombs and then the machinery would be set up for the international control of atomic energy. The controlling authority, Gromyko insisted, should be vested

not in the A.D.A. but in the Security council, where a Russian veto would be effective. (*See* also ATOMIC ENERGY.)

Latin-American Relations.—The outstanding event of the year in Latin-American relations was the meeting of the foreign ministers of all the American republics except Nicaragua at Rio de Janeiro, Brazil, in August to conclude a pact for hemispheric defense. The Rio de Janeiro pact, known officially as the "Inter-American Treaty of Reciprocal Assistance," was to supplement and implement the Act of Chapultepec drafted at Mexico City in March 1945. On Sept. 2, 1947, all the American nations except Nicaragua and Ecuador signed the treaty (and it was provided that those states and Canada could sign later, if they should desire). It provided that all should assist in repelling an armed attack from outside upon any of them, and advocated the settlement of all disputes between them by the use of "procedures in force in the inter-American system." It bound the nations not to resort to war in violation of the provisions of the charter of the United Nations. Secretary of State Marshall and Senators Vandenberg and Connally were cordially received at Rio, and contributed much to the drafting of the pact. "We are building upon mutual trust," said the secretary; "this is a true partnership, which represents the greatest advance ever made in the business of collective peace." The senate ratified the pact in December. At the same time an economic commission for Latin-America was recommended by a subcommittee of the United Nations at Lake Success "to promote the development of industry, agriculture, transportation and communications in the undeveloped areas" of Latin-America. A heartening aspect of these procedures was the adherence of Argentina, with whom U.S. relations had been strained for some years. (*See* also INTER-AMERICAN DEFENSE CONFERENCE.)

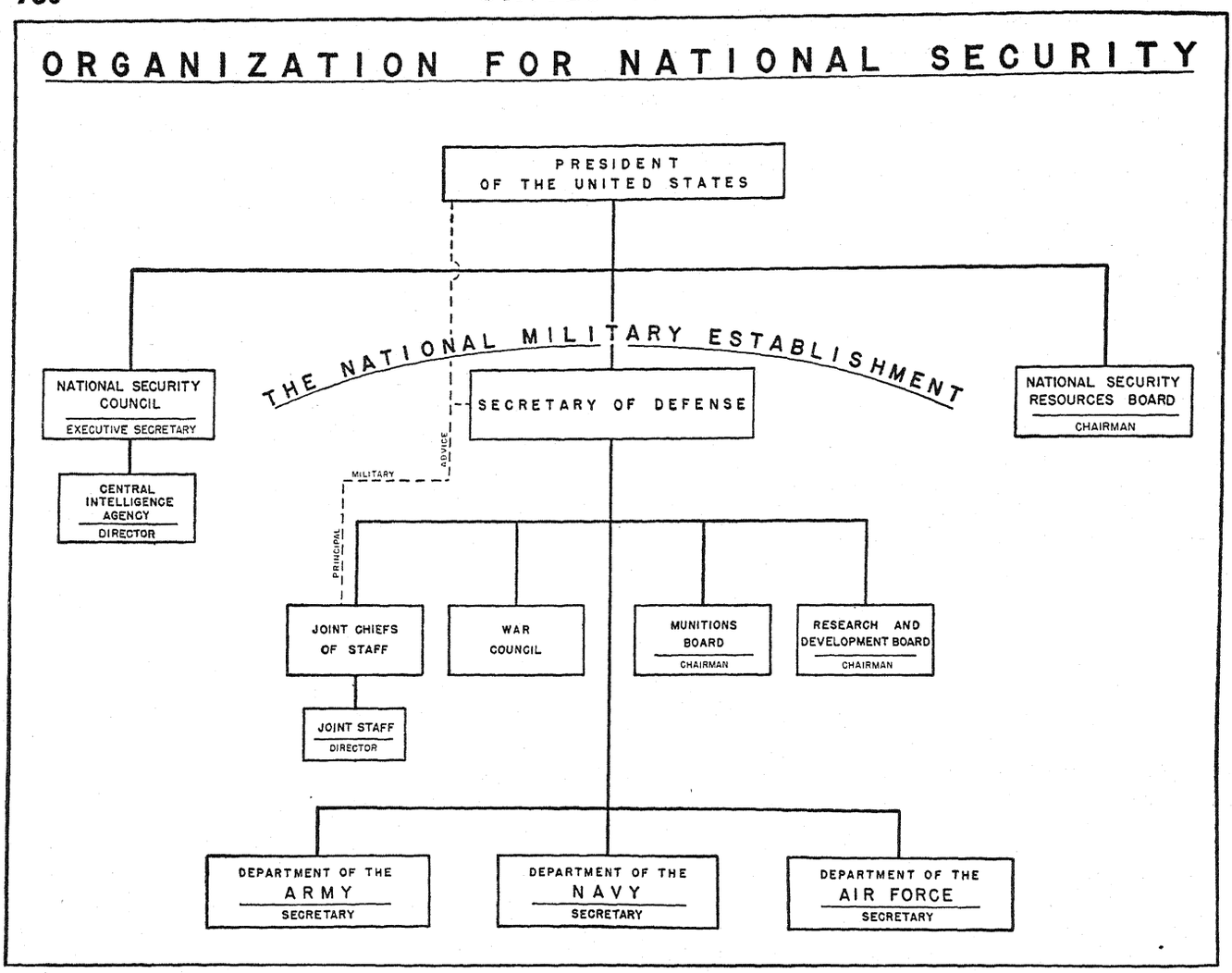
A ninth Pan-American congress was planned to be held at Bogota, Colombia, in Jan. 1948.

International Affairs.—Aside from the encouraging events noted in relations between the U.S. and other American countries, there was little progress made during the year 1947 in solving the persistent problem of the world's unrest. The fate of nearly 400,000,000 persons in Europe (exclusive of the U.S.S.R.), belonging to 29 governments and speaking 44 languages, depended on the restoration of political order and economic security. The 17 countries occupied by the nazis had been "liberated" only to fall a prey to factional strife within or the threat of domination by the expanding soviet power. The central problem was the formulation of peace treaties with Germany, Austria, Italy and the Balkan satellite states, a task which was entrusted to the foreign ministers of the great powers (the United States, Great Britain, Russia and later France) by the Potsdam agreement of Aug. 1945. Time and again the foreign ministers met, at Moscow, London, Paris and New York, but aside from the treaties with the minor states, concluded in Dec. 1946, nothing was accomplished. Secretary Byrnes made seven trips to foreign capitals, travelling 70,000 mi. and spending three-fifths of his 18 months of tenure abroad. General George C. Marshall, chief of staff of the army, returned from a special mission in China in January, to succeed Secretary Byrnes. In March he left for Moscow to attend the ninth meeting of the foreign ministers, which sat for 46 days in complete deadlock. On his return he warned the country that the patient (Germany) was sinking while the doctors deliberated. At Potsdam the heads of state (Truman, Clement R. Attlee and Joseph Stalin) had pledged a united Germany; but the country remained divided into four zones under the military government of the four great powers. The Russians in the eastern zone were accused of setting up a communistic puppet State and of draining the resources of the country in reparations; while they accused the three other occupying powers of attempting to convert western Germany into a separate hostile state. On Nov. 25, 1947, the foreign ministers met again, at London, only to have the conference terminated after a brief session filled with bitter denunciation of the Western democracies by Vyacheslav Molotov, the soviet foreign minister, and General Marshall's patient but firm rebuttal of the extravagant abuse. As the year closed the rift between the Soviet government and the Western powers seemed wider than ever. (*See* also FOREIGN MINISTERS' CONFERENCES.)



"SIFTING 'EM OUT," a Roche cartoon which appeared in the *Buffalo Courier Express* following Pres. Truman's order of March 22, 1947, banning members of or sympathizers with communist parties from employment in the executive branch of the government

Two propositions made by the U.S. government in 1947 added to the tension between Washington and Moscow. The first was the announcement by President Truman on March 12 of a plan (the so-called "Truman doctrine") to "contain" the expansion of communism in southeastern Europe by furnishing financial and military aid to Greece and Turkey. The regimes which it was proposed to support in those countries were not democracies; and the plan was not only resented in Moscow, but was opposed by many Americans as an encouragement of reactionary governments and a meddling in the turbid affairs of Greece which would prolong factional strife and sacrifice American lives. However, for better or worse, the $400,000,000 was voted by congress. The second provocative proposition was the Marshall plan or European Recovery program which recommended generous U.S. aid to the states of Western Europe for the recovery of their economic stability. The initiative, insisted Marshall, must come from the European countries themselves. They must show a convincing readiness to speed up their production, straighten out their finances, and co-operate in sound methods of trade and commerce. On July 3 representatives of 16 European nations met at Paris and, after a session of 12 weeks, submitted a 25,000 word report on their resources and their needs. On the basis of the reports of three committees who were working in the United States on estimates of the



country's capacity to furnish extensive aid to Europe and on the effect of such aid on the U.S. standard of living, President Truman sent a long message to congress a few hours before its adjournment on Dec. 19. He asked for a provision of $15,000,000,000 to $17,000,000,000 over a period of four years, with an initial grant of $6,800,000,000 for the first 15 months to July 1, 1949. The administration of the fund, he suggested, should be vested in a single director with a salary of $20,000, a deputy at $17,000, and a roving official with ambassadorial rank and a salary of $25,000, to co-ordinate the work in the various countries receiving aid. He sent in this message before the legislators dispersed for the Christmas recess, in order that they might have time to study the plan before the opening of the second session of the 80th congress on Jan. 6, 1948. He hoped that congress would act on the plan by April of the new year. But it was certain that the measure would produce heated debates in congress, both as to the size of the sum asked for and as to its administration. Russia and its satellites protested that they would make every effort to sabotage the Marshall plan, declaring that it was nothing less than a scheme of the U.S. to impose an economic dictatorship on the countries of western Europe. (*See* also EUROPEAN RECOVERY PROGRAM.)

Education.—*See* the articles EDUCATION; UNIVERSITIES AND COLLEGES.

Foreign Trade.—*See* the articles BUSINESS REVIEW; EXPORT-IMPORT BANK OF WASHINGTON; INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; INTERNATIONAL MONETARY FUND; INTERNATIONAL TRADE; LEND-LEASE; TARIFFS.

Communications.—For statistics, *see* the articles AVIATION, CIVIL; CANALS AND INLAND WATERWAYS; ELECTRIC TRANSPORTATION; MOTOR TRANSPORTATION; POST OFFICE; RADIO; RAILROADS; ROADS AND HIGHWAYS; SHIPBUILDING; SHIPPING, MERCHANT MARINE; TELEGRAPHY; TELEPHONE; TELEVISION.

Agriculture.—Statistical material pertaining to this subject may be found under AGRICULTURE; FOOD SUPPLY OF THE WORLD; also in the articles on separate crops and agricultural products.

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United States-Canadian War Committees: *see* PERMANENT JOINT BOARD ON DEFENSE.

United States Government Departments and Bureaus: *see* GOVERNMENT DEPARTMENTS AND BUREAUS. Also *see* under specific name, *i.e.,* COAST GUARD, U.S., etc.

United States Housing Authority: *see* HOUSING.

U.S. Investments Abroad.

The value of U.S. investments in foreign countries on June 30, 1947,[1] was at the unprecedented peak of $26,700,000,000, following a net outflow of $5,800,000,000 of loans and investments in the first 6 months of the year, practically all U.S. government capital. The major portion of the total value of investments, $16,000,000,000, was private capital and the remainder of $10,700,000,000 was government. These were $400,000,000 and $5,400,000,000 higher, respectively, than on Dec. 31, 1946. The major portion of the outflow from the U.S., both private and government, was in the form of long-term capital, although the outflow of private short-term capital (assets with an original maturity of one year or less) exceeded $200,000,000 during the first half of 1947. Increased U.S. investments of various types in foreign countries raised the net creditor position of the U.S. to $9,300,000,000 on June 30, 1947 (*see* also FOREIGN INVESTMENTS IN THE UNITED STATES).

The U.S. government invested $2,745,000,000 in the International Monetary fund and $317,000,000 in the International bank in the 6 months under discussion. The United Kingdom borrowed an additional $1,450,000,000 of its loan of $3,750,000,000, while Export-Import bank loans, credit sales of surplus property and surplus vessels and other long-term loans to foreigners aggregated an additional $750,000,000. In the third quarter of 1947 the U.S. government advanced an additional $1,384,000,000 of long-term credits to foreigners.

Increased foreign aid and loans from the U.S. government to foreign governments were imminent at the end of 1947 in the so-called "Marshall plan." (*See* EUROPEAN RECOVERY PROGRAM.)

The foreign shortage of U.S. dollars with which to purchase vitally needed foodstuffs and commodities for reconstruction and development became particularly acute in the fall of 1947 as most of the relief planned and credits granted to foreigners for these purposes approached exhaustion. On Oct. 13, the Export-Import bank liberalized the terms and purposes of an earlier credit to France whereby that country was able to purchase industrial raw materials, such as coal, with funds originally loaned for the purchase of items such as machinery. A month later, the same bank granted a $300,000,000 credit to Canada to enable that country to continue making purchases of essential U.S. equipment and raw materials.

The movement of private U.S. capital to foreign countries was of a mixed character. The U.S. department of commerce reported a very definite movement to foreign countries of direct investment capital in the first half of the year, while in contrast, the repatriation of capital formerly loaned to foreigners continued.

The outflow of direct investment capital exceeded $200,000,000 compared with a return flow from abroad of about $25,000,000 during 1946.

Among the operations of U.S.-controlled enterprises in foreign countries (direct investments), the intensive quest for oil-bearing land and the development of oil resources received most attention during 1947. Practically every large U.S. petroleum company was reported to be making sizable capital investments abroad, of which the most spectacular was the program announced by the Standard Oil company (New Jersey) and its subsidiaries. The expansion program of this and of other enterprises was based on estimates by some economists that by 1951 the oil industry could expect a world demand of nearly 3,750,000,000 bbl. of crude oil and refined products annually. This potential market, if attained, would represent a 35% increase over world consumption in 1945, when military demand was at its peak. Most of the new sources of petroleum, mainly in the middle east and Venezuela, were expected to direct their products principally to Europe and the far east.

The Standard Oil group planned to spend $100,000,000 to construct a refinery, pipe line, tanker terminal and town in Venezuela; $140,000,000 to erect a large refinery in England, an unstated amount to restore refining facilities in France, and with other U.S. companies perhaps several hundred million dollars for two pipe lines running from the Persian gulf to the Mediterranean about 1,000 mi. away.

Other well known petroleum companies were making or planning additional foreign investments. The Gulf Oil corporation announced that it had borrowed $100,000,000 presumably to fulfil its intention of extensive exploration work in the United States, Canada, Venezuela, Colombia, Nicaragua, Cuba, Denmark and the Bahamas, and to drill new wells in the Persian gulf area. It was also reported that a number of smaller U.S. companies had affiliated and raised about $100,000,000 for the purpose of operating in the middle east and elsewhere. The press noted that the state department would aid U.S. companies interested in obtaining oil concessions in this area.

The Sinclair Oil corporation was drilling a well on its concession of 335,000 sq.mi. in Ethiopia. The Phillips Petroleum company was expected to spend between $10,000,000 and $15,000,000 in Venezuela in 1947. The California-Texas corporation planned to build an $18,000,000 refinery in Holland. A subsidiary of the Standard-Vacuum Oil Company, Inc., joined with Australian and British companies in a search for both oil and gas on the Australian continent. Bolivia, which had excluded foreign oil companies from that country since 1936, granted a U.S. company a concession to drill 50 wells in one field.

Other U.S. industries were also actively engaged in developing new facilities and in expanding existing investments in foreign countries, particularly in the production of iron ore, steel, copper, newsprint, wood pulp, gold, automobiles, agricultural machinery, lead, and hotel construction.

Gradual depletion of high-grade iron ore reserves in the U.S.

[1] Including investments in the International Bank for Reconstruction and Development and the International Monetary fund.

Estimated Value of United States Investments Abroad, by Type and Geographic Distribution, June 30, 1947, and December 31, 1946

(In millions of dollars)

Type of investment	Canada and Newfoundland	Latin America	Europe	Africa Asia Oceania	June 30, 1947	Dec. 31, 1946
Private:						
Long-term:						
Direct	2,610	3,230	2,065	920	8,825	8,500
Foreign dollar bonds	1,105	195	95	125	1,520	1,535
Foreign currency securities	1,400	165	1,030	155	2,750	2,900
Estates and trusts	25	10	160	15	210	210
Miscellaneous	135	185	890	75	1,285	1,235
Long-term, total	5,275	3,785	4,240	1,290	14,590	14,380
Short-term	225	610	400	210	1,445	1,225
Private, total	5,500	4,395	4,640	1,500	16,035	15,605
Government:						
Long-term	5	220	5,765	580	6,570	4,390
Short-term	—	310	170	240	720	565
Government, total	5	530	5,935	820	*10,676	*5,278
Total	5,505	4,925	10,575	2,320	*26,711	*20,883

*Includes investments by the U. S. government of $3,386,000,000 on June 30, 1947, and $323,000,000 on Dec. 31, 1946, in the International Bank for Reconstruction and Development and in the International Monetary fund. These are not included in the data for the areas noted.

Source: Estimates prepared by the United States treasury department, commerce department, and the author.

had turned the attention of several U.S. companies to foreign iron ore deposits. The Bethlehem Steel corporation allocated $37,500,000 for the development of iron ore properties and facilities in Latin America. The M. A. Hanna company was awarded a 50-year contract for the exploration of iron ore deposits in the Brazilian federal district of Amapa on the northernmost coast. This area was estimated to hold 160,000,000 tons of iron ore and would require the construction of a railroad into the district. The same company together with a Canadian enterprise was reported to have made some investments in the exploration and development of the vast undeveloped tracts of rich iron ore astride the Labrador-Canada boundary. In Egypt, the establishment of that country's first steel plant was forecast by a reported $60,000,000 commitment by a U.S. financial group.

The Anaconda Copper Mining company was reported ready to invest up to $150,000,000 more in copper mines in Chile. A group of eastern and central U.S. publishers agreed during the year to construct a newsprint mill in Canada costing $65,000,000 or more. In Mexico, an attempt was made to meet the newsprint shortage through the use of local vegetation by erecting a pulp factory with U.S. and Mexican capital. The plant was to use bamboo, banana stalks and other Mexican vegetation as raw materials.

In South Africa, the American-Anglo-Transvaal corporation, formed in 1946 by a United States-United Kingdom financial group, became actively interested in gold mining during 1947 and was expected to exercise great influence over the industry in that country. A U.S. tire manufacturing company opened a new plant in the Union of South Africa and another competitor announced it would also open a new tire plant there. In Australia, $3,250,000 was to be spent on the extension of plants manufacturing Ford automobiles and $3,000,000 for General Motors cars; International Harvester Ltd. planned to expand its agricultural machinery works with an additional investment of $8,000,000.

Private U.S. capital was not unequivocally welcome in all countries, however, and at least two countries were added to the list of those imposing restrictions on importation of foreign capital. It was reported during April 1947 that Belgium had rejected the offer of a leading U.S. glass manufacturer to invest some $3,500,000 on the grounds that there was no room for an additional competitor in the industry. In July, the government of Mexico decreed that foreigners must obtain permission from the ministry of foreign affairs to invest their capital in that country and limited their share holdings in certain types of enterprises to 49% of the stock.

Private U.S. loan capital, as distinguished from equity capital (mainly direct investment), evidenced no particular desire during 1947 to share substantially in the dollar financing required for world reconstruction. A major exception to this situation was the U.S. subscription in July to practically all of the $250,000,000 of bonds offered for sale by the International Bank for Reconstruction and Development. Since the U.S. government's subscription to the bank's shares was well in excess of this sum, it was generally believed that holders of the bonds would suffer no loss in the event that the bank's debtors defaulted on their obligations. Nevertheless, during the last half of the year, this issue and all other foreign issues (except Canadian) offered in the U.S. during the preceding 12 months were quoted at less than offering prices, and in the case of Australian issues, considerably less. The Australian government, which had very successfully marketed 3 issues in the New York market, but found that a fourth and fifth had not sold so promptly, announced that there would be no further operations in that market before 1952.

Denmark's plans to convert its 6% obligations into a new dollar bond issue bearing a lower interest rate had to be abandoned because of the deterioration of the market in the United States for foreign bonds. Instead the credit was obtained from Swiss bankers.

During the latter half of 1947 a few small borrowers paid off their U.S. loans, and little progress was made toward the settlement of defaulted dollar bonds. The republic of Haiti and the Dominican Republic announced the redemption of their bonds payable in U.S. dollars.

The Italian government proposed a plan to resume partial service on Italian dollar bonds, service on which had been suspended since 1940. The terms of the Peruvian government's plan to resume service on its debt held in the U.S. and elsewhere appeared to have received unenthusiastic response from investors.

The U.S. government announced that U.S. holders of the dollar obligations of Germany and Japan could file claims until Sept. 2, 1947, against the properties of those countries in the U.S. seized by it.

(*See* also EXPORT-IMPORT BANK OF WASHINGTON; INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; INTERNATIONAL MONETARY FUND; LEND LEASE.)

(M. AB.)

United States Mint: *see* COINAGE.

United States Office of Education: *see* EDUCATION; FEDERAL SECURITY AGENCY.

United States of Indonesia: *see* NETHERLANDS INDIES.

Universities and Colleges.

The following eight pages carry a selected list of nationally or regionally accredited universities, colleges, junior colleges, and technical schools of college grade in the U.S. and Canada, with location, year founded, chief executive, enrolment, size of faculty, endowment and number of library volumes, for the academic year 1947–48.

The symbol * denotes 1946–47 data; || denotes data previous to 1946–47. (*See* also EDUCATION.)

Institution and Location	Year Founded	Chief Executive	Full Time Students	Students under Veterans' Program	Faculty	Endowment	Library Volumes
A							
Acadia University, Wolfville, N.S., Can.	1838	F. W. Patterson	879	333	65	$ 1,105,364	87,000
Adams State Col., Alamosa, Colo.	1921	Ira Richardson	706	530	59	—	24,000
Adelphi College, Garden City, N. Y.	1896	Paul D. Eddy	2,173	1,032	125	50,000	42,138
Agnes Scott College, Decatur, Ga.	1889	James R. McCain	530	4	55	2,355,000	54,000
Akron, University of, Akron, Ohio	1870	H. E. Simmons	2,983	1,694	134	135,412	72,648
Alabama, University of, University, Ala.	1831	Ralph E. Adams	8,729	5,136	525	6,053,925	350,000
Alabama A. and M. College, Normal, Ala.	1875	Joseph F. Drake	835	365	53	—	12,236
Alabama College, Montevallo, Ala.	1896	John T. Caldwell	782	37	76	636,930	52,900
Alabama Polytechnic Inst., Auburn, Ala.	1872	Ralph B. Draughon	7,208	4,655	420	554,873	112,000
Alabama State Tch. Col., Florence, Ala.	1872	J. A. Keller	1,227	565	63	—	47,046
Alabama State Tch. Col., Jacksonville, Ala.	1883	Houston Cole	1,068	513	41	—	22,833
Alabama State Tch. Col., Livingston, Ala.	1835	W. W. Hill	406	171	32	—	24,470
Alabama State Tch. Col., Montgomery, Ala.	1874	H. Councill Trenholm	1,275	338	65	—	13,407
Alabama State Tch. Col., Troy, Ala.	1887	C. B. Smith	775	410	39	—	25,000
Alaska, University of, College, Alaska	1917	Charles E. Bunnell	293	172	37	—	20,000
Albany State College, Albany, Ga.	1903	Aaron Brown	655	87	38	—	12,700
Alberta, Univ. of, Edmonton, Alta., Can.	1906	Robert Newton	4,757	2,387	256	500,000	110,000
Albertus Magnus Col., New Haven, Conn.	1925	Sister M. Irmina	259	3	40	6,175	22,000
Albion College, Albion, Mich.	1835	W. W. Whitehouse	1,256	461	62	3,016,376	67,000
Albright College, Reading, Pa.	1856	Harry V. Masters	779	396	53	993,497	27,506
Alcorn A. and M. College, Alcorn, Miss.	1871	William H. Pipes	462	177	90	—	17,000
Alfred University, Alfred, N.Y.	1836	J. E. Walters	890	471	97	1,074,000	66,787
Allegheny College, Meadville, Pa.	1815	Chester A. Darling	1,045	430	72	2,200,000	125,000
Allen University, Columbia, S.C	1870	Samuel R. Higgins	889	212	40	—	13,203
Alliance Col., Cambridge Springs, Pa.	1912	John J. Kolasa	305	219	22	2,500,000	10,000
Alma College, Alma, Mich.	1886	Dale D. Welch	635	387	40	285,573	52,523
Alverno College, Milwaukee, Wis.	1936	Mother M. Corona	181	—	23	—	24,873
Amarillo College (Jr.), Amarillo, Tex.	1929	A. M. Meyer	640	229	42	—	11,000
American Int. Col., Springfield, Mass.	1885	William Gellermann	1,374	830	50	—	14,000
American University, Washington, D.C.	1893	Paul F. Douglass	1,703	1,101	180	829,707	115,038
Amherst College, Amherst, Mass.	1821	Charles W. Cole	1,166	570	101	13,383,666	263,636
Anderson College, Anderson, Ind.	1917	John A. Morrison	626	250	47	35,000	13,553
Andrew College (Jr.), Cuthbert, Ga.	1854	S. C. Olliff	95	1	12	300,000	5,000
Antioch College, Yellow Springs, Ohio	1852	A. D. Henderson	1,120	398	76	2,238,000	73,000
Appalachian State Tch. Col., Boone, N.C.	1903	B. B. Dougherty	1,005	402	51	—	36,300
Aquinas College, Grand Rapids, Mich.	1923	Arthur F. Bukowski	512	183	32	1,411,666	16,000
Arizona, University of, Tucson, Ariz.	1885	James B. McCormick	4,903	2,757	279	73,641	210,000
Arizona State Col., Flagstaff, Ariz.	1899	Lacey A. Eastburn	747	411	58	—	26,376
Arizona State Col., Tempe, Ariz.	1885	Grady Gammage	2,960	1,492	108	—	57,000
Arkansas, University of, Fayetteville, Ark.	1871	Lewis W. Jones	5,165	3,103	420	132,667	227,817
Arkansas A. and M. Col., Monticello, Ark.	1909	W. E. Morgan	600	300	32	—	15,000
Arkansas Polytech. Col. (Jr.), Russellville, Ark.	1909	J. W. Hull	1,245	693	52	—	17,000
Arkansas State Agri. and Mech. Col. (Jr.), Magnolia, Ark.	1910	Charlie S. Wilkins	601	256	30	—	14,500
Arkansas State College, Jonesboro, Ark.	1910	W. J. Edens	1,257	607	72	—	22,050
Arkansas State Tch. Col., Conway, Ark.	1907	Nolen M. Irby	1,273	634	72	—	31,393
Armstrong Junior College, Savannah, Ga.	1935	Foreman M. Hawes	448	180	22	20,000	6,000
Asbury College, Wilmore, Ky.	1890	Z. T. Johnson	938	262	40	926,000	32,138
Ashland College, Ashland, Ohio	1878	Raymond W. Bixler	586	316	43	401,251	22,300
Atlanta University, Atlanta, Ga.	1867	Rufus E. Clement	294	134	61	4,595,857	80,000
Atlantic Union College, S. Lancaster, Mass.	1882	G. Eric Jones	322	105	33	31,000	25,858
Augusta, Junior College of, Augusta, Ga.	1925	Eric W. Hardy	393	76	21	—	12,000
Augustana College, Sioux Falls, S.D.	1860	L. M. Stavig	868	399	52	450,000	25,582
Augustana College and Theological Seminary, Rock Island, Ill.	1860	Conrad Bergendoff	1,333	560	60	1,686,944	92,100
Aurora College, Aurora, Ill.	1893	T. P. Stephens	466	249	38	77,710	29,956
Averett College (Jr.), Danville, Va.	1859	Curtis V. Bishop	279	27	27	80,000	8,500
B							
Baker University, Baldwin City, Kan.	1858	Nelson P. Horn	640	220	42	1,437,664	68,500
Bakersfield College, Bakersfield, Calif.	1913	Grace V. Bird	1,106	482	42	—	13,000
Baldwin-Wallace College, Berea, Ohio	1845	Louis C. Wright	1,607	815	77	2,366,271	50,078
Ball State Teachers College, Muncie, Ind.	1918	John R. Emens	2,424	1,076	160	—	98,916
Barat College of the Sacred Heart, Lake Forest, Ill.	1919	Mother M. Reilly	309	1	30	—	20,000
Barber-Scotia College, Concord, N.C.	1867	L. S. Cozart	151	2	21	800,000	12,000
Bard College, Annandale-on-Hudson, N.Y.	1860	Edward C. Fuller	285	102	41	173,760	60,000
Barnard College, New York, N.Y.	1889	F. D. Fackenthal	1,165	60	136	5,221,388	65,000
Bates College, Lewiston, Me.	1864	Charles F. Phillips	792	92	58	2,295,760	80,000
Bay City Junior College, Bay City, Mich.	1922	Geo. E. Butterfield	717	352	31	—	12,000
Baylor Univ., Waco, Tex.	1845	Pat M. Neff	4,311	2,296	210	2,781,759	148,000
Beaver College, Jenkintown, Pa.	1853	Raymon D. Kistler	622	15	57	—	22,000
Belmont Abbey Col. (Jr.), Belmont, N.C.	1878	Vincent G. Taylor	275	110	33	—	55,882
Beloit College, Beloit, Wis.	1846	Carey Croneis	1,047	385	75	2,600,000	140,000
Bemidji State Tch. Col., Bemidji, Minn.	1919	C. R. Sattgast	598	338	53	—	30,000
Benedict College, Columbia, S.C.	1870	J. A. Bacoats	754	174	40	$ 337,118	19,736
Bennett College, Greensboro, N.C.	1873	David D. Jones	482	1	35	893,495	22,500
Bennett Junior College, Millbrook, N.Y.	1891	Courtney Carroll	186	—	34	200,000	11,000
Bennington College, Bennington, Vt.	1932	F. H. Burkhardt	323	1	46	105,000	28,500
Berea College, Berea, Ky.	1855	Francis S. Hutchins	1,087	268	90	11,750,000	102,758
Bethany College, Bethany, W.Va.	1840	Wilbur H. Cramblet	784	312	45	3,006,588	43,000
Bethany College, Lindsborg, Kan.	1881	Emory Lindquist	420	138	28	443,818	24,000
Bethel College, North Newton, Kan.	1887	Edmund G. Kaufman	439	50	37	615,143	26,000
Bethune-Cookman Col., Daytona Beach, Fla.	1904	Richard V. Moore	904	354	46	534,738	14,361
Birmingham-South. Col., Birmingham, Ala.	1856	George R. Stuart	1,331	—	64	800,000	52,000
Bishop College, Marshall, Tex.	1881	Joseph J. Rhoads	752	281	37	14,220	15,927
Bishop's College, U. of, Lennoxville, Que., Can.	1845	A. H. McGreer	218	50	18	1,250,000	30,000
Blackburn College (Jr.), Carlinville, Ill.	1857	Robert W. McEwen	343	59	27	1,533,148	14,800
Black Hills Teachers College, Spearfish, S.D.	1883	Russell E. Jonas	384	207	34	—	23,000
Bluefield State College, Bluefield, W. Va.	1895	H. L. Dickason	609	173	33	—	17,000
Blue Mountain Col., Blue Mountain, Miss.	1873	Lawrence T. Lowrey	265	—	28	508,000	18,215
Boise Junior College, Boise, Idaho	1932	Eugene B. Chaffee	740	373	53	—	11,000
Boston, Teachers College of the City of, Boston, Mass.	1852	W. H. J. Kennedy	274	3	25	—	30,000
Boston College, Chestnut Hill, Mass.	1863	Wm. L. Keleher	4,900	3,205	314	852,000	209,049
Boston University, Boston, Mass.	1839	Daniel L. Marsh	9,977	6,007	1,050	6,325,893	275,000
Bowdoin College, Brunswick, Me.	1794	Kenneth C. M. Sills	1,089	649	68	8,726,500	211,500
Bowling Green St. Univ., Bowling Green, O.	1910	Frank J. Prout	4,422	1,898	230	—	85,000
Bradford Junior College, Bradford, Mass.	1803	Dorothy M. Bell	276	—	24	115,675	17,835
Bradley University, Peoria, Ill.	1897	David B. Owen	3,070	2,115	187	2,449,668	67,000
Branch Agri. Col. of Utah, Cedar City, Utah	1897	H. Wayne Driggs	505	173	34	—	15,000
Briar Cliff College, Sioux City, Iowa	1930	Sister Jean Marie	190	10	25	75,000	17,880
Briarcliff Junior Col., Briarcliff Manor, N.Y.	1933	Clara Tead	211	1	27	—	9,000
Bridgeport, Univ. of, Bridgeport, Conn.	1927	James H. Halsey	1,359	882	84	—	12,700
Bridgewater College, Bridgewater, Va.	1880	Jacob I. Baugher	507	185	34	497,526	15,000
Brigham Young University, Provo, Utah	1875	Howard S. McDonald	4,423	1,690	190	300,000	146,525
British Columbia, Univ. of, Vancouver, B.C., Can.	1915	N. A. M. MacKenzie	9,100	4,339	331	245,844	175,000
Brooklyn, Polytechnic Inst. of, Brooklyn, N.Y.	1854	H. S. Rogers	1,708	1,152	122	1,508,234	39,046
Brooklyn College, Brooklyn, N.Y.	1930	Harry D. Gideonse	7,725	2,615	761	19,927	175,997
Brownsville Junior Col., Brownsville, Tex.	1926	John F. Barron	938	635	30	—	13,152
Brown University, Providence, R.I.	1764	Henry M. Wriston	4,920	2,902	250	13,800,000	720,000
Bryn Mawr College, Bryn Mawr, Pa.	1880	Katharine E. McBride	685	20	90	7,535,670	197,500
Bucknell University, Lewisburg, Pa.	1846	Herbert L. Spencer	2,239	1,258	152	1,541,925	105,000
Buffalo, University of, Buffalo, N.Y.	1846	Samuel P. Capen	6,535	4,798	805	7,000,000	221,256
Butler University, Indianapolis, Ind.	1855	Maurice O. Ross	4,304	2,500	239	5,081,082	86,000
C							
California, University of, Berkeley, Los Angeles, Santa Barbara, San Francisco, Davis, Mount Hamilton, La Jolla, and Riverside, Calif.	1868	Robert G. Sproul	42,637	21,003	3,235	37,936,473	2,245,754
California Inst. of Tech., Pasadena, Calif.	1891	Lee A. DuBridge	1,330	831	195	20,653,699	65,414
Calvin College, Grand Rapids, Mich.	1876	Henry Schultze	1,375	480	50	195,000	32,000
Campbell College (Jr.), Buies Creek, N.C.	1887	Leslie H. Campbell	689	269	34	179,337	10,400
Canal Zone Jr. Col., Balboa Heights, C.Z.	1933	Roger C. Hackett	201	35	33	—	9,000
Canisius College, Buffalo, N.Y.	1870	Raymond W. Schouten	2,015	1,215	84	140,000	43,000
Capital University, Columbus, Ohio	1850	Harold L. Yochum	1,010	279	91	650,472	52,450
Carbon College (Jr.), Price, Utah	1938	Aaron E. Jones	260	100	35	—	5,500
Carleton College, Northfield, Minn.	1866	Laurence M. Gould	1,127	324	93	3,863,447	145,279
Carnegie Institute of Tech., Pittsburgh, Pa.	1900	Robert E. Doherty	3,646	2,935	303	23,830,000	55,000
Carroll College, Helena, Mont.	1909	Emmet J. Riley	386	166	22	500,000	19,000
Carroll College, Waukesha, Wis.	1846	N. V. Russell	813	412	54	971,524	35,500
Carson-Newman Col., Jefferson City, Tenn.	1851	James T. Warren	736	232	36	644,748	25,000
Carthage College, Carthage, Ill.	1870	Erland Nelson	711	284	36	742,921	31,000
Case Institute of Technology, Cleveland, O.	1880	T. Keith Glennan	1,585	1,211	180	5,984,627	38,500
Catawba College, Salisbury, N.C.	1851	A. R. Keppel	782	415	42	594,818	27,340
Catholic Univ. of America, Wash., D.C.	1887	Patrick J. McCormick	3,589	1,800	451	4,288,985	328,264
Cedar Crest College, Allentown, Pa.	1867	Dale Hendry Moore	387	9	41	141,653	24,000
Centenary College of La., Shreveport, La.	1825	Joe J. Mickle	1,407	702	71	868,409	28,601
Centenary Junior Col., Hackettstown, N.J.	1867	Hurst R. Anderson	339	—	23	27,542	9,324
Central College, Fayette, Mo.	1855	E. P. Puckett	803	310	47	1,021,000	50,000
Central College, Pella, Iowa	1853	G. T. Vander Lugt	491	177	44	417,000	22,950
Central Michigan College of Education, Mt. Pleasant, Michigan	1892	Charles L. Anspach	2,190	1,030	160	—	60,000
Central Missouri St. Col., Warrensburg, Mo.	1871	G. W. Diemer	1,314	497	74	—	67,838
Central State College, Edmond, Okla.	1891	R. R. Robinson	1,051	481	66	—	33,120
Central Wash. Col. of Educ., Ellensburg, Wash.	1891	Robert E. McConnell	1,118	414	78	—	50,000
Centre College of Kentucky, Danville, Ky.	1819	Walter A. Groves	642	295	46	1,911,200	52,500
Chaffey College (Jr.), Ontario, Calif.	1883	Gardiner W. Spring	985	460	55	—	40,000
Charleston, College of, Charleston, S.C.	1770	George D. Grice	454	98	29	420,500	32,270

Institution and Location	Year Founded	Chief Executive	Full Time Students	Students under Veterans' Program	Faculty	Endowment	Library Volumes
Chattanooga, Univ. of, Chattanooga, Tenn.	1886	David A. Lockmiller	1,442	840	100	$ 802,102	70,000
Chestnut Hill College, Philadelphia, Pa.	1871	Sister Maria Kostka	488	8	48	400,000	31,600
Chicago, School of the Art Inst. of, Chicago, Ill.	1879	C. Hubert Ropp	917	517	77	—	53,000
Chicago, University of, Chicago, Ill.	1891	Robert M. Hutchins	8,515	4,473	785	72,521,247	1,750,000
Chicago City Junior College, Chicago, Ill.							
Herzl Branch	1934	H. L. Klein	1,349	232	53	—	15,821
Wilson Branch	1934	James I. Swearingen	3,072	785	95	—	68,000
Wright Branch	1934	Leland L. Medsker	4,486	1,797	150	—	37,570
Chicago Teachers College, Chicago, Ill.	1869	James I. Swearingen	838	99	56	—	68,000
Christian College (Jr.), Columbia, Mo.	1851	J. C. Miller	365	—	36	100,000	14,000
Cincinnati, University of, Cincinnati, Ohio	1819	Raymond Walters	7,933	4,498	730	11,264,314	606,452
Citadel, The, Charleston, S.C.	1842	C. P. Summerall	2,124	1,078	127	—	40,850
Clark College, Atlanta, Ga.	1869	James P. Brawley	807	215	42	921,957	15,000
Clarke College, Dubuque, Iowa	1843	Sister Mary Graham	430	1	53	211,150	25,126
Clarkson Col. of Technology, Potsdam, N.Y.	1895	Jess H. Davis	1,744	1,262	85	1,420,000	13,500
Clark University, Worcester, Mass.	1887	Howard B. Jefferson	966	516	67	6,099,938	180,000
Clemson Agricultural Col., Clemson, S.C.	1889	Robert F. Poole	3,240	2,100	250	281,000	93,000
Coe College, Cedar Rapids, Iowa	1851	Byron S. Hollinshead	805	492	55	2,150,000	56,000
Coker College, Hartsville, S.C.	1908	Donald C. Agnew	372	33	32	693,000	22,646
Colby College, Waterville, Maine	1813	Julius S. Bixler	1,050	406	75	4,000,000	120,000
Colby Junior College, New London, N.H.	1837	H. Leslie Sawyer	407	1	39	500,000	18,000
Colgate University, Hamilton, N.Y.	1819	Everett N. Case	1,478	917	119	5,812,781	166,931
Colorado, University of, Boulder, Colo.	1876	Robert L. Stearns	9,345	4,758	560	960,226	661,180
Colorado College, Colorado Springs, Colo.	1874	Thurston J. Davies	1,176	553	72	2,951,616	138,000
Colorado School of Mines, Golden, Colo.	1874	Ben. H Parker	1,127	861	95	105,000	50,000
Colorado State College of Agriculture and Mechanic Arts, Fort Collins, Colo.	1876	Roy M. Green	3,709	2,304	228	565,000	117,000
Colorado State Col. of Educ., Greeley, Colo.	1890	William R. Ross	1,801	775	120	—	115,416
Colorado Woman's College (Jr.), Denver, Colo.	1888	James E. Huchingson	515	—	39	113,088	10,698
Columbia College, Columbia, S. C.	1854	J. C. Guilds	347	4	34	574,023	15,004
Columbia University, New York, N.Y.	1754	Frank D. Fackenthal	31,604	15,047	2,269	90,911,308	1,806,375
Compton Junior College, Compton, Calif.	1927	O. Scott Thompson	4,925	1,225	125	—	25,000
Concord College, Athens, W.Va.	1872	Virgil H. Stewart	931	401	43	—	20,000
Concordia College, Moorhead, Minn.	1891	J. N. Brown	1,001	337	59	570,958	33,561
Concordia Collegiate Inst., Bronxville, N.Y.	1881	Arthur J. Doege	175	40	26	—	15,000
Connecticut, Tch. Col. of, New Britain, Conn.	1849	Herbert D. Welte	1,263	703	112	—	37,000
Connecticut, University of, Storrs, Conn.	1881	A. N. Jorgensen	7,276	4,500	418	159,163	105,000
Connecticut College, New London, Conn.	1911	Rosemary Park	842	3	97	2,257,764	113,500
Converse College, Spartanburg, S.C.	1889	Edw. M. Gwathmey	430	5	47	640,239	32,000
Cooper Union, New York, N. Y.	1859	Gano Dunn	1,740	584	177	9,108,039	125,000
Copiah-Lincoln Jr. Col., Wesson, Miss.	1928	J. M. Ewing	657	216	37	—	8,000
Cornell College, Mount Vernon, Iowa	1853	Russell D. Cole	782	243	64	2,425,728	60,000
Cornell University, Ithaca, N.Y.	1865	Edmund Ezra Day	10,143	5,024	1,286	35,895,862	1,299,798
Corpus Christi Jr. Col., Corpus Christi, Tex.	1935	E. L. Harvin	937	396	42	—	6,635
Cottey Junior College, Nevada, Mo.	1884	Marjorie Mitchell	159	—	20	58,359	8,635
Creighton University, Omaha, Neb.	1878	William H. McCabe	2,852	1,920	297	2,322,500	148,903
Culver-Stockton College, Canton, Mo.	1853	W. H. McDonald	492	185	32	810,000	30,000
Cumberland Col. (Jr.), Williamsburg, Ky.	1889	J. M. Boswell	380	115	19	650,000	8,000
D							
Dakota Wesleyan University, Mitchell, S.D.	1885	Samuel M. Hilburn	400	178	42	574,410	30,000
Dalhousie Univ., Halifax, N.S., Can.	1818	Alexander E. Kerr	1,816	761	181	4,228,839	120,000
Danbury State Tch. Col., Danbury, Conn.	1904	Ruth A. Haas	288	77	46	—	25,000
Dartmouth College, Hanover, N.H.	1769	John Sloan Dickey	2,977	1,876	322	24,000,000	635,367
Davidson College, Davidson, N.C.	1836	John R. Cunningham	980	400	58	5,123,000	45,000
Davis and Elkins Col., Elkins, W. Va.	1904	R. B. Purdum	790	427	37	222,000	21,355
Dayton, University of, Dayton, Ohio	1850	George J. Renneker	2,303	1,409	138	—	44,825
Delaware, University of, Newark, Del.	1833	William S. Carlson	2,148	1,146	175	5,000,000	125,000
Delaware State College, Dover, Del.	1891	Howard D. Gregg	338	170	35	—	8,000
Delta State Tch. Col., Cleveland, Miss.	1925	William M. Kethley	590	279	51	—	17,000
Denison University, Granville, Ohio.	1831	Kenneth I. Brown	1,339	498	88	3,647,394	113,833
Denver, University of, Denver, Colo.	1864	James F. Price	8,117	5,979	511	2,141,230	200,276
De Paul University, Chicago, Illinois	1898	Comerford J. O'Malley	4,913	3,009	344	5,640,000	85,000
DePauw University, Greencastle, Ind.	1837	Clyde E. Wildman	2,125	702	130	6,377,156	103,463
Detroit, University of, Detroit, Mich.	1877	William J. Millor	7,168	4,983	414	1,700,000	131,700
Dickinson College, Carlisle, Pa.	1773	William W. Edel	919	478	72	2,067,784	77,635
Dillard University, New Orleans, La.	1930	Albert W. Dent	602	158	51	3,000,000	32,000
Dixie Junior College, St. George, Utah	1911	Glenn E. Snow	300	100	20	—	9,000
Doane College, Crete, Neb.	1872	Harry M. Gage	460	144	38	1,336,350	31,779
Drake University, Des Moines, Iowa	1881	H. G. Harmon	4,018	2,482	216	2,702,874	113,000
Drew University, Madison, N.J.	1867	Arlo Ayres Brown	685	236	61	8,610,618	198,163
Drexel Institute of Tech., Philadelphia, Pa.	1891	James Creese	3,214	1,865	242	3,036,843	92,475
Drury College, Springfield, Mo.	1873	J. F. Findlay	765	348	66	1,000,922	50,000
Dubuque, University of, Dubuque, Iowa	1852	Samuel S. George	636	224	42	1,052,000	31,000
Duchesne College, Omaha, Neb.	1881	Mother Eleanor Regan	258	3	21	$ —	18,000
Duke University, Durham, N.C.	1838	Robert Lee Flowers	4,890	2,249	598	47,685,097	766,099
Duluth Junior College, Duluth, Minn.	1927	R. D. Chadwick	504	359	34	—	9,241
Dunbarton College of Holy Cross, Wash., D.C.	1935	Sr. Mary Frederick	200	1	30	—	20,261
Duquesne University, Pittsburgh, Pa.	1878	Francis P. Smith	3,599	2,695	223	2,000,000	49,162
D'Youville College, Buffalo, N.Y.	1908	Sister Jane Frances	449	5	35	—	27,000
E							
Earlham College, Richmond, Ind.	1847	Thomas E. Jones	724	236	53	1,477,850	72,000
East Carolina Tch. Col., Greenville, N.C.	1907	J. D. Messick	1,404	547	87	—	61,256
East Central Junior Col., Decatur, Miss.	1928	L. O. Todd	551	241	25	—	6,000
East Central State College, Ada, Oklahoma	1909	A. Linscheid	1,201	596	73	—	37,413
Eastern Illinois State Col., Charleston, Ill.	1895	Robert G. Buzzard	1,382	694	106	—	66,000
Eastern Kentucky St. Tch. Col., Richmond, Ky.	1906	W. F. O'Donnell	1,355	625	84	—	75,661
Eastern Montana St. Normal Sch., Billings, Mont.	1925	A. G. Peterson	371	146	19	—	14,200
Eastern Nazarene College, Wollaston, Mass.	1919	Samuel Young	470	123	34	—	18,000
Eastern New Mexico Col., Portales, N. Mex.	1927	Floyd D. Golden	582	256	53	—	21,001
Eastern Oregon Col. of Educ., La Grande, Ore.	1929	Roben J. Maaske	689	293	40	1,000	25,689
Eastern Washington Col. of Educ., Cheney, Wash.	1890	Walter W. Isle	1,321	550	90	—	71,581
East Los Angeles Jr. Col., Los Angeles, Calif.	1945	Rosco C. Ingalls	1,252	445	58	—	2,166
East Tennessee St. Col., Johnson City, Tenn.	1911	C. C. Sherrod	1,279	505	71	—	35,000
East Texas State Tch. Col., Commerce, Tex.	1889	James G. Gee	2,062	875	104	—	96,392
Edinburg Junior College, Edinburg, Tex.	1927	R. P. Ward	625	300	35	—	11,500
Elizabeth City St. Tch. Col., Elizabeth City, N.C.	1891	Sidney D. Williams	489	45	26	—	15,000
Elmhurst College, Elmhurst, Ill.	1871	Timothy Lehmann	648	249	40	271,000	43,000
Elmira College, Elmira, N.Y.	1855	W. S. A. Pott	396	5	52	544,863	59,419
Emmanuel College, Boston, Mass.	1919	Sr. Margaret Patricia	759	3	58	—	27,800
Emmanuel Miss. Col., Berrien Spgs., Mich.	1874	Alvin W. Johnson	992	406	54	300,000	35,500
Emory and Henry College, Emory, Va.	1836	Foye G. Gibson	539	271	25	613,869	25,100
Emory at Oxford (Jr.), Oxford, Ga.	1836	Virgil Y. C. Eady	276	106	17	—	5,900
Emory Junior College, Valdosta, Ga.	1928	E. D. Whisonant	242	125	14	—	4,500
Emory University, Emory University, Ga.	1836	Goodrich C. White	4,026	2,200	256	12,500,000	275,957
Erskine College, Due West, S.C.	1839	R. C. Grier	463	187	35	389,000	30,000
Evansville College, Evansville, Ind.	1854	Lincoln B. Hale	1,575	1,018	96	400,986	24,878
Eveleth Junior College, Eveleth, Minn.	1919	E. T. Carlstedt	162	65	8	—	12,000
F							
Fairmont State College, Fairmont, W.Va.	1867	George H. Hand	1,002	495	57	—	28,385
Fayetteville State Tch. Col., Fayetteville, N.C.	1877	J. W. Seabrook	585	79	26	—	24,699
Fenn College, Cleveland, Ohio	1881	Cecil V. Thomas	1,395	1,191	116	809,060	30,000
Finch Junior College, New York, N.Y.	1900	Jessica G. Cosgrave	279	6	42	—	8,500
Findlay College, Findlay, Ohio	1882	H. Clifford Fox	409	200	25	442,997	19,500
Fisk University, Nashville, Tenn.	1866	Charles S. Johnson	966	271	57	4,142,236	92,650
Flat River, Junior Col. of, Flat River, Mo.	1922	Wesley A. Deneke	184	64	19	—	10,000
Flint Junior College, Flint, Mich.	1923	L. A. Pratt	850	500	40	—	14,000
Florida, University of, Gainesville, Fla.	1853	J. Hillis Miller	8,738	5,608	496	312,049	292,396
Florida A. and M. Col., Tallahassee, Fla.	1887	Wm. H. Gray, Jr.	1,655	589	253	—	18,464
Florida Normal and Industrial College,‖ St. Augustine, Fla.	1892	John Lee Tilley	337	33	27	—	6,000
Florida Southern College, Lakeland, Florida	1885	Ludd M. Spivey	2,000	1,067	100	1,325,000	71,000
Florida State Univ., Tallahassee, Fla.	1905	Doak S. Campbell	4,000	895	250	206,000	112,071
Fontbonne College, Saint Louis, Mo.	1923	Mother Mary Berenice O'Neill	383	1	45	—	25,500
Fordham University, New York, N.Y.	1841	Robert I. Gannon	6,481	4,157	390	844,000	228,456
Fort Hays Kansas State Col., Hays, Kansas	1902	L. D. Wooster	980	409	83	—	65,000
Fort Valley State College, Fort Valley, Ga.	1895	H. A. Bowen	549	124	52	38,529	13,867
Frances Shimer Col. (Jr.), Mount Carroll, Ill.	1853	Albin C. Bro	263	13	30	190,000	13,850
Franklin and Marshall Col., Lancaster, Pa.	1787	Theodore A. Distler	1,320	785	76	1,619,878	110,000
Franklin College, Franklin, Ind.	1834	William G. Spencer	630	267	35	1,171,170	34,806
Fresno State College, Fresno, Calif.	1911	Frank W. Thomas	2,707	1,201	164	—	69,052
Fullerton Junior College, Fullerton, Calif.	1913	W. T. Boyce	1,680	629	72	—	15,930
Furman University, Greenville, S.C.	1826	John Laney Plyler	1,367	558	69	3,236,038	70,000
G							
General Beadle St. Tch. Col., Madison, S.D	1881	V. A. Lowry	178	66	29	—	25,000
Geneva College, Beaver Falls, Pa.	1848	M. M. Pearce	891	467	53	670,000	37,000
George Peabody Col. for Tch., Nashville, Tenn.	1875	Henry H. Hill	1,850	907	75	5,490,857	489,089
George Pepperdine Col., Los Angeles, Calif.	1937	Hugh M. Tiner	1,500	758	95	895,897	26,520
Georgetown College, Georgetown, Ky.	1829	Samuel S. Hill	696	275	55	583,268	15,538
Georgetown University, Washington, D.C.	1789	Lawrence C. Gorman	5,476	3,526	561	3,500,000	394,142
George Washington Univ., Washington, D.C.	1821	Cloyd H. Marvin	6,421	4,224	760	2,700,000	160,000
George Williams College, Chicago, Ill.	1890	Harold Coe Coffman	345	222	26	239,844	24,600
Georgia, University of, Athens, Ga.	1785	Harmon W. Caldwell	6,763	3,792	462	1,099,293	212,840

Institution and Location	Year Founded	Chief Executive	Full Time Students	Students under Veterans' Program	Faculty	Endowment	Library Volumes
Georgia, Univ of, Atlanta Div., Atlanta, Ga.	1914	George M. Sparks	4,819	1,854	150	—	21,000
Georgia Military Col. (Jr.), Milledgeville, Ga.	1879	J. H. Jenkins	550	135	35	—	5,000
Georgian Court College, Lakewood, N.J.	1908	Mother Mary John	236	—	34	—	35,000
Georgia School of Tech., Atlanta, Ga.	1885	Blake R. Van Leer	5,403	3,913	425	$ 639,212	100,000
Georgia Southwestern Col. (Jr.), Americus, Ga.	1924	Peyton Jacob	375	102	19	—	14,387
Georgia State Col., Industrial College, Ga.	1891	James A. Colston	1,175	555	60	—	14,525
Georgia St. Col. for Wom., Milledgeville, Ga.	1889	Guy H. Wells	1,126	4	105	—	41,730
Georgia State Womans Col., Valdosta, Ga.	1906	Frank R. Reade	350	3	29	—	23,675
Georgia Teachers College, Collegeboro, Ga.	1908	Judson C. Ward, Jr.	633	206	46	—	33,000
Gettysburg College, Gettysburg, Pa.	1832	Henry W. A. Hanson	1,203	721	86	500,000	62,000
Glendale College (Jr.), Glendale, Calif.	1927	Elmer T. Worthy	2,188	1,009	86	—	12,500
Glenville State College, Glenville, W.Va.	1873	Harry B. Heflin	485	212	28	—	22,000
Gonzaga University, Spokane, Wash.	1887	Francis E. Corkery	1,537	1,082	140	2,221,581	102,000
Good Counsel College, White Plains, N.Y.	1923	Mother M. Aloysia	387	2	33	48,000	15,528
Gordon Military Col. (Jr.), Barnesville, Ga.	1852	J. E. Guillebeau	130	52	12	—	5,000
Goshen College, Goshen, Ind.	1894	Ernest E. Miller	572	56	38	353,282	33,000
Goucher College, Baltimore, Md.	1885	David A. Robertson	731	4	57	2,117,446	85,350
Graceland College, Lamoni, Iowa	1895	E. J. Gleazer	635	238	35	261,000	20,000
Grand Rapids Jr. Col., Grand Rapids, Mich.	1914	Arthur Andrews	1,495	751	70	—	16,500
Great Falls Col. of Educ., Great Falls, Montana	1932	Sister Mary Dorothy	542	153	27	—	20,000
Green Mountain Junior Col., Poultney, Vt.	1834	Howard C. Ackley	305	—	26	106,911	13,000
Greensboro College, Greensboro, N.C.	1838	Luther L. Gobbel	371	1	35	635,656	29,505
Grinnell College, Grinnell, Ia.	1846	Samuel N. Stevens	1,137	380	81	5,210,049	120,000
Grove City College, Grove City, Pa.	1876	Weir C. Ketler	1,356	651	58	836,000	45,000
Guilford College, Guilford College, N.C.	1837	Clyde A. Milner	586	276	34	689,439	29,000
Gulf Park College (Jr.), Gulfport, Miss.	1919	Richard G. Cox	254	—	28	—	7,706
Gustavus Adolphus Col., St. Peter, Minn.	1862	Edgar M. Carlson	1,258	510	68	601,000	27,163
H							
Hamilton College, Clinton, N.Y.	1812	Thomas Brown Rudd	596	327	56	4,399,691	213,446
Hamline University, St. Paul, Minn.	1854	Charles N. Pace	1,186	449	81	4,181,607	51,830
Hampden-Sydney Col., Hamp.-Sydney, Va.	1776	Edgar G. Gammon	442	188	24	832,000	36,150
Hampton Institute, Hampton, Va.	1868	Ralph P. Bridgman	1,698	790	131	9,972,815	75,000
Hanover College, Hanover, Ind.	1827	Albert G. Parker, Jr.	655	285	35	1,500,000	40,000
Hardin College, Wichita Falls, Tex.	1922	James B. Boren	1,838	659	104	381,000	14,869
Hardin-Simmons University, Abilene, Tex.	1891	Rupert N. Richardson	1,662	762	93	1,280,000	36,000
Harris Teachers College, St. Louis, Mo.	1857	Charles A. Naylor, Jr.	1,159	243	60	—	25,632
Harvard University, Cambridge, Mass.	1636	James B. Conant	12,603	8,628	2,250	182,824,335	4,965,731
Hastings College, Hastings, Neb.	1882	Wm. M. French	736	317	51	681,649	36,000
Haverford College, Haverford, Pa.	1833	Gilbert F. White	550	252	60	6,000,000	172,000
Hawaii, University of, Honolulu, T.H.	1907	Gregg M. Sinclair	3,420	986	240	67,542	181,546
Heidelberg College, Tiffin, Ohio	1850	F. D. Lemke	800	224	55	1,184,355	36,190
Henderson St. Tch. Col., Arkadelphia, Ark.	1929	D. D. McBrien	813	350	46	—	28,572
Hendrix College, Conway, Ark.	1884	Matt L. Ellis	586	230	40	1,300,000	50,200
Hershey Junior College, Hershey, Pa.	1938	V. H. Fenstermacher	127	67	17	30,000	15,990
Hibbing Junior College, Hibbing, Minn.	1916	S. A. Patchin	419	147	29	—	6,418
Highland Park Junior Col., Highland Pk., Mich.	1918	G. O. Withey	1,829	855	57	—	6,500
Hillsdale College, Hillsdale, Mich.	1844	Harvey L. Turner	620	265	48	745,518	31,000
Hinds Junior College, Raymond, Miss.	1917	G. M. McLendon	691	306	47	—	6,500
Hiram College, Hiram, Ohio	1850	Paul H. Fall	650	343	37	1,250,000	50,000
Hobart College, Geneva N. Y.	1822	Walter H. Durfee	905	572	58	707,046	89,188
Hofstra College, Hempstead, N.Y.	1935	John C. Adams	1,914	1,183	133	741,000	22,719
Hollins College, Hollins College, Va.	1842	Bessie C. Randolph	368	1	46	567,601	42,479
Holmes Jr. College, Goodman, Miss.	1925	Ras M. Branch	413	189	26	—	7,000
Holy Cross, Col. of the, Worcester, Mass.	1843	William J. Healy	1,709	959	104	—	142,800
Holy Names, Col. of the, Oakland, Calif.	1880	Sr. Rose Emmanuella	286	5	42	—	30,770
Holy Names College, Spokane, Wash.	1907	Sister M. F. Xavier	160	5	24	—	—
Hood College, Frederick, Md.	1893	Henry I. Stahr	521	2	49	867,333	28,200
Hope College, Holland, Mich.	1866	Irwin J. Lubbers	1,221	503	62	960,553	52,000
Houghton College, Houghton, N.Y.	1883	Stephen W. Paine	741	217	44	312,154	24,640
Howard College, Birmingham, Ala.	1842	Harwell G. Davis	1,286	833	63	753,329	34,595
Howard University, Washington, D.C.	1867	Mordecai W. Johnson	4,799	2,514	467	1,146,417	237,252
H. Sophie Newcomb Mem. Col. for Women, Tulane Univ., New Orleans, La.	1886	Logan Wilson	812	12	82	—	311,007
Hunter College of the City of New York, New York, N.Y.	1870	George N. Shuster	6,555	886	392	—	159,364
Huntingdon College, Montgomery, Ala.	1854	Hubert Searcy	850	225	55	500,000	31,000
Huron College, Huron, S.D.	1883	George F. McDougall	307	163	26	712,595	26,000
I							
Idaho, College of, Caldwell, Ida.	1891	William W. Hall, Jr.	525	250	40	500,000	22,500
Idaho, University of, Moscow, Ida.	1889	J. E. Buchanan	3,550	1,960	240	4,875,402	110,000
Idaho State College, Pocatello, Ida.	1927	Carl W. McIntosh	1,666	921	109	—	24,500
Illinois, University of, Urbana, Ill.	1867	George D. Stoddard	28,284	16,497	2,886	2,106,221	2,457,463
Illinois College, Jacksonville, Ill.	1829	Harris G. Hudson	564	292	38	$ 1,311,079	35,559
Illinois Institute of Technology, Chicago, Ill.	1892	Henry Townley Heald	3,450	2,367	175	1,800,000	125,000
Illinois State Normal Univ., Normal, Ill.	1857	R. W. Fairchild	1,954	609	208	—	87,559
Illinois Wesleyan Univ., Bloomington, Ill.	1850	M. J. Holmes	1,281	578	82	1,506,960	45,000
Immaculata College, Immaculata, Pa.	1920	V. L. Burns	360	1	45	—	23,000
Immaculata Junior Col., Wash., D.C.	1920	Sister St. Philomene	104	—	15	—	8,000
Immaculate Heart College, Los Angeles Cal.	1916	Mother Eucharia	407	15	42	—	21,000
Incarnate Word College, San Antonio, Tex.	1881	Sister M. Columkille	513	32	67	122,312	36,367
Indiana Central College, Indianapolis, Ind.	1902	Lynd Esch	422	185	32	103,383	19,700
Indiana State Tch. Col., Terre Haute, Ind.	1865	Ralph N. Tirey	2,555	1,308	158	—	150,206
Indiana University, Bloomington, Ind.	1820	Herman B. Wells	14,176	6,486	1,754	2,500,000	700,000
Iowa, State University of, Iowa City, Ia.	1847	Virgil M. Hancher	10,130	5,665	1,035	1,283,964	674,989
Iowa State College, Ames, Ia.	1858	Charles E. Friley	9,700	5,596	822	1,156,853	375,000
Iowa State Tch. Col., Cedar Falls, Ia.	1876	Malcolm Price	2,840	850	248	—	140,000
Iowa Wesleyan College, Mount Pleasant, Ia.	1842	Stanley B. Niles	606	274	56	700,000	29,278
J							
Jackson Junior College, Jackson, Mich.	1928	G. L. Greenawalt	549	224	33	—	5,207
James Millikin University, Decatur, Ill.	1901	J. Walter Malone	1,510	826	70	2,000,000	40,000
James Ormond Wilson Tch. Col., Wash., D.C.	1873	Walter E. Hager	485	70	52	—	27,013
Jamestown College, Jamestown, N.D.	1883	Howard J. Bell, Jr.	503	181	35	1,135,991	23,123
John B. Stetson University, De Land, Fla.	1883	H. C. Garwood	2,140	1,147	136	900,000	54,945
John Carroll University, Cleveland, Ohio	1886	Frederick E. Welfle	2,034	1,488	92	3,381,000	43,648
John McNeese Jr. Col., L.S.U., Lake Charles, La.	1939	L. E. Frazar	615	240	34	—	6,830
John Muir College, Pasadena, Calif.	1946	Archie M. Turrell	2,442	845	113	—	12,500
Johns Hopkins University, Baltimore, Md.	1876	Isaiah Bowman	2,683	1,545	561	35,399,629	750,000
Johnson C. Smith University, Charlotte, N.C.	1867	Hardy Liston	761	278	37	2,000,000	23,000
John Tarleton Agri. Col. (Jr.), Stephenville, Tex.	1899	E. J. Howell	1,407	497	73	137,626	28,000
Joliet Junior College, Joliet, Ill.	1901	E. W. Rowley	603	220	45	—	12,000
Jones County Junior Col., Ellisville, Miss.	1927	J. B. Young	798	441	60	—	14,000
Judson College, Marion, Ala.	1838	J. I. Riddle	210	—	25	545,000	19,419
Juniata College, Huntingdon, Pa.	1876	Calvert N. Ellis	635	259	40	780,000	55,000
K							
Kalamazoo College, Kalamazoo, Mich.	1833	Paul L. Thompson	651	294	57	1,170,733	37,524
Kansas, University of, Lawrence, Kan.	1865	Deane W. Malott	9,279	5,230	1,127	1,230,000	383,000
Kansas City, Jr. College of, Kansas City, Mo.	1915	A. M. Swanson	1,961	512	67	—	36,000
Kansas City, University of, Kansas City, Mo.	1929	Clarence R. Decker	2,261	1,543	182	—	222,329
Kansas State College, Manhattan, Kan.	1863	Milton S. Eisenhower	6,968	4,211	450	555,841	145,901
Kansas State Tch. Col., Emporia, Kan.	1863	D. L. MacFarlane	1,305	632	112	250,000	95,000
Kansas State Tch. Col., Pittsburgh, Kan.	1903	Rees H. Hughes	1,904	1,215	158	—	80,000
Keene Teachers College, Keene, N.H.	1909	Lloyd P. Young	413	121	33	—	26,499
Kemper Military School (Jr.), Boonville, Mo.	1844	A. M. Hitch	492	6	35	250,000	9,000
Kent State University, Kent, Ohio	1910	George A. Bowman	5,335	3,210	238	—	85,000
Kentucky, University of, Lexington Ky.	1865	H. L. Donovan	7,539	4,629	368	195,428	407,477
Kentucky St. Col. Frankfort, Ky.	1886	R. B. Atwood	705	235	31	—	15,660
Kenyon College, Gambier, Ohio	1824	Gordon K. Chalmers	634	307	62	2,118,270	112,000
Keuka College, Keuka Park, N.Y.	1890	Katherine G. Blyley	432	7	33	375,000	35,102
Keystone College (Jr.), La Plume, Pa.	1868	Blake Tewksbury	512	268	32	100,000	15,000
Kilgore College (Jr.), Kilgore, Tex.	1935	B. E. Masters	1,222	516	60	—	12,000
King's College, Univ. of, Halifax, N.S., Can.	1789	A. Stanley Walker	170	57	43	1,100,000	28,000
Knox College, Galesburg, Illinois	1837	Lyndon O. Brown	842	365	69	2,698,150	80,789
Knoxville College, Knoxville, Tenn.	1875	J. Reed Miller	301	87	18	600,000	13,000
L							
Lafayette College, Easton, Pa.	1826	Ralph C. Hutchison	1,873	1,250	130	4,691,513	116,771
Lake Erie College, Painesville, Ohio	1856	Helen D. Bragdon	210	—	28	831,603	35,000
Lake Forest College, Lake Forest, Ill.	1857	Ernest A. Johnson	721	318	42	1,382,938	58,250
Lamar College (Jr.), Beaumont, Tex.	1923	John E. Gray	1,433	663	65	—	7,000
Lane College, Jackson, Tenn.	1882	Dean S. Yarbrough	511	204	38	30,000	11,428
La Salle College, Philadelphia, Pa.	1863	Brother G. Paul	1,890	1,438	75	—	30,000
LaSalle-Peru-Oglesby Jr. Col., LaSalle, Ill.	1924	Francis H. Dolan	329	150	29	—	10,000
Lasell Junior College, Auburndale, Mass.	1851	Raymond C. Wass	537	5	60	95,000	10,000
La Sierra College, Arlington, Calif.	1922	G. T. Anderson	766	299	51	—	18,450
Laval University, Quebec, Can.	1852	Ferdinand Vandry	6,015	325	900	2,500,000	919,818
Lawrence College, Appleton, Wis.	1847	Nathan M. Pusey	1,062	394	75	1,500,000	75,716
Lebanon Valley College, Annville, Pa.	1866	Clyde A. Lynch	817	444	50	1,172,642	33,706
Lehigh University, Bethlehem, Pa.	1865	Martin D. Whitaker	3,297	2,342	312	8,000,000	275,000
LeMoyne College, Memphis, Tenn.	1870	Hollis F. Price	371	129	23	4,000	18,000
Lenoir Rhyne College, Hickory, N.C.	1891	P. E. Monroe	821	438	43	800,000	28,000
Lewis and Clark College, Portland, Ore.	1867	Morgan S. Odell	1,000	554	72	350,000	25,000
Limestone College, Gaffney, S.C.	1845	Robert C. Granberry	424	44	31	500,000	26,000
Lincoln College (Jr.), Lincoln, Ill.	1865	M. D. McLean	124	69	13	325,906	13,000
Lincoln Memorial Univ., Harrogate, Tenn.	1897	Robert L. Kincaid	551	207	30	836,848	30,000
Lincoln University, Jefferson City, Mo.	1866	Sherman D. Scruggs	958	399	68	—	35,000

Institution and Location	Year Founded	Chief Executive	Full Time Students	Students under Veterans' Program	Faculty	Endowment	Library Volumes
Lincoln University, Lincoln University, Pa.	1854	Horace M. Bond	538	245	41	$1,028,776	42,000
Lindenwood College, St. Charles, Mo.	1827	Franc L. McCluer	477	—	50	2,982,856	30,000
Linfield College, McMinnville, Oregon.	1858	Harry L. Dillin	829	360	50	916,093	30,000
Little Rock Junior College, Little Rock, Ark.	1927	John A. Larson	785	378	37	1,500,000	19,000
Livingstone College, Salisbury, N.C.	1879	William J. Trent	385	84	27	46,500	22,076
Long Beach City Col. (Jr.), Long Beach, Calif.	1927	George E. Dotson	3,747	1,147	138	—	41,778
Lon Morris Col. (Jr.), Jacksonville, Tex.	1873	C. E. Peeples	290	78	17	250,000	7,864
Loras College, Dubuque, Ia.	1839	M. J. Martin	1,473	791	73	1,500,000	104,000
Loretto Heights College, Loretto, Colorado	1918	Sister Frances Marie	389	6	49	—	20,015
Los Angeles City Col. (Jr.), Los Angeles, Calif.	1929	Einar W. Jacobsen	10,382	4,000	555	—	60,000
Louisiana College, Pineville, La.	1906	Edgar Godbold	820	272	43	630,000	17,395
Louisiana Polytechnic Institute, Ruston, La.	1894	Claybrook Cottingham	2,575	1,264	165	—	38,360
Louisiana State University and A. and M. College, Baton Rouge, La.	1860	Harold Walter Stoke	11,122	5,408	690	329,313	416,108
Louisville, University of, Louisville, Ky.	1837	John W. Taylor	4,560	2,685	414	1,250,000	171,169
Loyola College, Baltimore, Md.	1852	F. X. Talbot	965	644	55	70,000	37,600
Loyola University, Chicago, Ill.	1870	James T. Hussey	4,300	3,160	633	1,424,864	262,273
Loyola University, New Orleans, La.	1912	Thomas J. Shields	1,937	1,151	200	5,000,000	115,000
Loyola Univ. of Los Angeles, Los Angeles, Calif.	1911	Edward J. Whelan	1,923	1,693	64	2,124,330	50,900
Luther College, Decorah, Ia.	1861	O. J. H. Preus	835	378	51	575,400	90,000
Lycoming College, Williamsport, Pa.	1848	John W. Long	824	480	50	487,611	12,556
Lynchburg College, Lynchburg, Va.	1903	Riley B. Montgomery	635	325	41	321,838	23,000
Lyons Township Junior Col., La Grange, Ill.	1929	George S. Olsen	501	206	12	—	8,000
M							
Macalester College, St. Paul, Minn.	1885	Charles J. Turck	1,572	642	119	2,350,000	46,500
McGill University, Montreal, Que. Can.	1821	F. Cyril James	7,808	3,878	1,159	42,856,426	461,297
McMaster University, Hamilton, Ont., Can.	1887	G. P. Gilmour	1,162	376	81	1,775,000	62,000
MacMurray Col. for Wom., Jacksonville, Ill.	1846	C. P. McClelland	733	6	64	3,786,560	46,655
McPherson College, McPherson, Kan.	1887	W. W. Peters	408	124	31	411,000	15,000
Madison College, Harrisonburg, Va.	1908	Samuel P. Duke	1,217	81	91	50,000	41,212
Maine, University of, Orono, Me.	1865	Arthur A. Hauck	4,757	3,187	280	1,257,807	215,551
Manchester College, N. Manchester, Ind.	1889	V. F. Schwalm	831	222	48	624,819	32,660
Manhattan College, New York, N.Y.	1853	Brother B. Thomas	2,678	1,788	150	—	90,550
Manhattanville Col. of Sac. Hrt., N.Y., N.Y.	1841	Mother E. M. O'Byrne	510	22	73	400,902	75,461
Manitoba, University of, Winnipeg, Man., Can.	1877	Albert W. Trueman	6,449	1,847	317	1,391,052	131,034
Mankato State Teachers College, Mankato, Minn.	1867	C. L. Crawford	965	404	59	—	29,789
Marietta College, Marietta, Ohio	1835	W. Bay Irvine	1,167	752	67	1,742,724	129,864
Marin Junior College, Kentfield, Calif.	1926	Ward H. Austin	1,007	439	40	—	14,903
Marion Institute (Jr.), Marion, Ala.	1842	James T. Murfee, II	360	80	25	—	4,534
Marquette University, Milwaukee, Wis.	1864	Peter A. Brooks	7,514	5,141	572	2,300,000	160,000
Marshall College, Huntington, W.Va.	1837	Stewart H. Smith	3,008	1,563	157	—	59,481
Mars Hill College (Jr.), Mars Hill, N.C.	1856	Hoyt Blackwell	985	241	52	152,700	18,775
Mary Allen College, Crockett, Tex.	1944	G. L. Prince	185	53	15	—	3,500
Mary Baldwin College, Staunton, Va.	1842	Frank Bell Lewis	342	1	36	525,000	34,000
Marygrove College, Detroit, Mich.	1910	Sister M. Honora	801	3	91	—	50,404
Mary Hardin-Baylor College, Belton, Tex.	1845	Gordon G. Singleton	438	17	45	1,253,159	30,546
Maryland, University of, College Park and Baltimore, Md.	1807	H. C. Byrd	10,213	5,700	1,103	2,831,712	201,142
Maryland State Tch. Col., Salisbury, Md.	1925	J. D. Blackwell	307	57	20	—	45,000
Maryland State Tch. Col., Towson, Md.	1865	Earle T. Hawkins	610	114	44	—	38,428
Marylhurst College, Marylhurst, Ore.	1930	Sister M. Rose Augusta	272	9	33	55,000	22,000
Mary Manse College, Toledo, Ohio	1922	Mother Catherine	175	5	46	—	22,113
Marymount College, Salina, Kan.	1922	Mother Chrysostom	258	3	34	—	21,925
Marymount College, Tarrytown, N.Y.	1907	Mother M. Thérèse	542	—	59	1,000,000	19,927
Maryville College, Maryville, Tenn.	1819	Ralph W. Lloyd	898	240	49	1,932,548	51,000
Maryville Col. of the Sac. Hrt., St. Louis, Mo.	1872	Mother Odeide Mouton	285	—	33	—	25,300
Mary Washington College of the University of Virginia, Fredericksburg, Va.	1908	Morgan L. Combs	1,472	45	82	63,000	60,000
Marywood College, Scranton, Pa.	1915	Sister M. Sylvia	580	13	58	75,000	39,821
Mason City Junior Col., Mason City, Ia.	1918	C. H. Beem	243	146	14	—	7,000
Mass., Univ. of, Amherst, Mass.	1863	Ralph A. Van Meter	4,110	2,926	199	300,000	140,000
Mass. Institute of Tech., Cambridge, Mass.	1861	Karl T. Compton	5,639	2,900	1,174	47,000,000	400,000
Mass. State Tch. Col., Bridgewater, Mass.	1840	John J. Kelly	537	84	42	15,000	23,627
Mass. State Tch. Col., Fitchburg, Mass.	1894	William J. Sanders	438	194	45	—	37,000
Mass. State Tch. Col., Framingham, Mass.	1839	Martin F. O'Connor	469	8	35	—	20,000
Mass. State Tch. Col., N. Adams, Mass.	1894	Grover C. Bowman	167	61	18	—	12,808
Mass. State Tch. Col., Worcester, Mass.	1871	Eugene A. Sullivan	263	66	18	—	18,000
Medical Evangelists, College of, Loma Linda and Los Angeles, Calif.	1909	W. E. MacPherson	602	136	476	—	38,000
Memphis State College, Memphis, Tenn.	1912	J. M. Smith	1,908	917	83	—	36,000
Mercer University, Macon, Ga.	1833	Spright Dowell	1,312	702	70	2,666,874	50,000
Mercyhurst College, Erie, Pa.	1926	Mthr. M. F. Borgia Egan	281	—	34	1,680,000	18,500
Meredith College, Raleigh, N.C.	1891	Carlyle Campbell	550	2	47	584,773	31,000
Meridian Municipal Jr. Col., Meridian, Miss.	1937	H. M. Ivy	734	93	40	—	10,117
Miami, University of, Coral Gables, Fla.	1925	Bowman F. Ashe	7,614	4,575	370	$1,500,000	114,632
Miami University, Oxford, Ohio	1809	Ernest H. Hahne	5,093	2,142	334	14,900	201,000
Michigan, University of, Ann Arbor, Mich.	1817	Alexander G. Ruthven	20,637	11,742	1,100	17,662,835	1,299,720
Michigan Col. of Min. and Tech., Houghton, Mich.	1885	Grover C. Dillman	2,223	1,647	172	—	50,000
Michigan State College, E. Lansing, Mich.	1855	John A. Hannah	14,045	8,678	1,060	2,137,270	222,500
Michigan St. Normal Col., Ypsilanti, Mich.	1849	John M. Munson	2,358	1,003	213	70,000	122,910
Middlebury College, Middlebury, Vt.	1800	Samuel S. Stratton	1,212	521	72	4,800,000	175,000
Middle Georgia College (Jr.), Cochran, Ga.	1928	Lloyd A. Moll	456	186	18	—	10,000
Middle Tenn. St. Col., Murfreesboro, Tenn.	1911	Q. M. Smith	963	495	50	—	28,272
Midland College, Fremont, Neb.	1887	W. P. Hieronymus	448	166	35	217,751	26,500
Millsaps College, Jackson, Miss.	1892	Marion L. Smith	802	342	42	1,103,072	30,000
Mills College, Oakland, Calif.	1852	Lynn White, Jr.	737	12	105	2,700,000	100,000
Milwaukee-Downer Col., Milwaukee, Wis.	1851	Lucia R. Briggs	421	25	49	2,429,561	49,262
Miner Teachers College, Washington, D.C.	1851	Eugene A. Clark	575	37	51	—	39,028
Minnesota, Univ. of, Minneapolis, Minn.	1851	James L. Morrill	28,312	16,736	2,733	31,071,477	1,415,000
Misericordia College, Dallas, Pa.	1923	Sister Mary Gonzaga	406	10	46	1,100,000	22,800
Mississippi, University of, University, Miss.	1848	J. D. Williams	3,003	1,656	207	752,558	131,628
Mississippi College, Clinton, Miss.	1826	D. M. Nelson	1,015	527	55	700,000	33,000
Mississippi Southern Col., Hattiesburg, Miss.	1912	R. C. Cook	1,565	797	75	175,661	31,052
Mississippi State Col., State College, Miss.	1878	Fred T. Mitchell	3,451	2,487	208	239,789	105,743
Mississippi St. Col. for Wom., Columbus, Miss.	1884	B. L. Parkinson	1,134	2	75	—	70,000
Missouri, University of, Columbia, Mo.	1839	F. A. Middlebush	14,171	9,149	842	2,638,463	547,000
Missouri Valley College, Marshall, Mo.	1888	J. Ray Cable	550	290	33	600,000	31,000
Modesto Junior College, Modesto, Calif.	1921	Henry T. Tyler	1,267	451	70	—	24,027
Monmouth College, Monmouth, Ill.	1853	James Harper Grier	913	321	64	2,013,000	53,000
Montana School of Mines, Butte, Mont.	1893	Francis A. Thomson	347	256	26	850,000	19,600
Montana State College, Bozeman, Mont.	1893	Roland R. Renne	3,165	1,727	257	1,910,573	110,000
Montana State Normal Col., Dillon, Montana	1893	Rush Jordan	188	83	21	13,000	26,200
Montana State University, Missoula, Mont.	1893	James A. McCain	3,240	1,935	156	881,422	268,340
Monticello College (Jr.), Godfrey, Ill.	1838	John R. Young	346	—	37	68,000	19,759
Montreal, University of, Montreal, Que., Can.	1876	Olivier Maurault	5,376	302	1,000	181,660	100,000
Moorhead State Tch. Col., Moorhead, Minn.	1887	O. W. Snarr	640	216	57	—	25,603
Moravian Col. and Theol. Sem., Bethlehem, Pa.	1807	Raymond S. Haupert	378	273	28	581,772	45,000
Morehead State Tch. Col., Morehead, Ky.	1923	William J. Baird	435	239	56	—	34,860
Morehouse College, Atlanta, Ga.	1867	Benjamin E. Mays	858	477	41	1,900,000	80,000
Morgan Park Junior College, Chicago, Ill.	1933	Albert G. Dodd	399	191	18	5,500	6,123
Morgan State College, Baltimore, Md.	1867	D. O. W. Holmes	1,269	489	78	—	45,000
Morningside College, Sioux City, Ia.	1889	E. A. Roadman	1,143	624	65	425,773	54,600
Morris Brown College, Atlanta, Ga.	1881	W. A. Fountain, Jr.	806	275	36	480,428	7,872
Morton Junior College, Cicero, Ill.	1924	Wm. P. MacLean	943	278	65	—	16,312
Mt. Allison Univ., Sackville, N.B., Can.	1840	W. T. R. Flemington	946	275	60	1,339,184	55,000
Mt. Aloysius Junior College, Cresson, Pa.	1939	Sister M. Magdalene	100	1	17	—	6,200
Mt. Holyoke College, S. Hadley, Mass.	1837	Roswell G. Ham	1,134	4	198	6,205,039	200,000
Mt. Mary College, Milwaukee, Wis.	1915	Edward A. Fitzpatrick	700	14	47	52,316	35,600
Mt. Mercy College, Pittsburgh, Pa.	1929	Mother M. F. McConnell	375	68	43	—	28,000
Mt. St. Agnes Col. (Jr.), Mt. Wash., Md.	1867	Sister M. Placide	204	—	23	—	14,000
Mt. St. Joseph Jr. Col., Maple Mount, Ky.	1925	Sis. M. Christina Eckmans	147	20	18	—	11,115
Mt. St. Joseph-on-the-Ohio, Col. of, Mt. St. Joseph, Ohio.	1854	Mother Mary Zoe	415	9	43	1,725,000	24,000
Mt. St. Mary College, Hooksett, N. H.	1934	Sister M. Mauritia	183	2	23	—	16,938
Mt. St. Mary's College, Emmitsburg, Md.	1808	John L. Sheridan	595	403	35	302,100	45,000
Mt. St. Mary's College, Los Angeles, Calif.	1925	Sister Marie de Lourdes	397	12	44	—	20,000
Mt. St. Scholastica College, Atchison, Kan.	1930	Mother Lucy Dooley	401	9	43	—	27,000
Mt. St. Vincent, College of, New York, N.Y.	1847	Sister Catharine Marie	610	1	55	241,932	30,261
Mt. San Antonio College, Pomona, Calif.	1946	George H. Bell	806	281	36	—	6,112
Mt. Union College, Alliance, Ohio	1846	Charles B. Ketcham	902	530	47	1,357,207	75,000
Muhlenberg College, Allentown, Pa.	1848	Levering Tyson	1,355	937	92	1,047,253	77,000
Multnomah College (Jr.), Portland, Ore.	1897	Edward L. Clark	1,400	900	65	25,000	6,500
Mundelein College, Chicago, Ill.	1930	Sister M. Josephine	977	—	70	—	26,734
Murray State Tch. College, Murray, Ky.	1923	Ralph H. Woods	1,509	803	93	—	38,615
Muskegon Junior Col., Muskegon, Mich.	1926	A. G. Umbreit	510	226	24	—	180,000
Muskingum College, New Concord, Ohio	1837	R. N. Montgomery	936	329	63	931,866	37,737
N							
National College of Educ., Evanston, Ill.	1886	Edna Dean Baker	364	16	52	140,910	32,000
Nazareth College, Louisville, Ky.	1920	Sister Mary Anastasia Coady	434	8	53	18,300	23,500
Nazareth College, Nazareth, Mich.	1897	Sister Mary Kevin	223	2	30	—	28,000
Nazareth Col. of Rochester, Rochester, N.Y.	1924	Mother Rose Miriam Smyth	423	6	50	—	22,000
Nebraska, University of, Lincoln, Neb.	1869	Reuben G. Gustavson	10,163	6,000	695	1,151,219	500,000
Nebraska State Tch. Col., Chadron, Neb.	1911	Wiley G. Brooks	326	132	41	—	30,000
Nebraska State Tch. Col., Kearney, Neb.	1905	Herbert L. Cushing	773	328	47	—	31,974
Nebraska State Tch. Col., Wayne, Neb.	1910	Victor P. Morey	650	208	50	—	37,386

Institution and Location	Year Founded	Chief Executive	Full Time Students	Students under Veterans' Program	Faculty	Endowment	Library Volumes
Nebraska Wesleyan University, Lincoln, Neb.	1887	John L. Knight, Jr.	807	299	48	$919,415	36,920
Nevada, University of, Reno, Nev.	1874	John O. Moseley	1,716	853	101	690,534	76,800
Newark Col. of Engineering, Newark, N.J.	1881	Allan R. Cullimore	1,444	1,060	129	96,316	19,642
Newberry College, Newberry, S.C.	1856	James C. Kinard	608	305	32	300,000	26,000
New Brunswick, University of, Fredericton, N.B., Can.	1800	—	1,360	910	80	300,000	50,000
New Hampshire, University of, Durham, N.H.	1866	Frank W. Randall	3,669	2,207	255	1,460,974	146,026
New Haven State Tch. Col., New Haven, Conn.	1893	Samuel M. Brownell	599	149	55	—	24,600
New Jersey Col. for Women (Rutgers Univ.), New Brunswick, N. J.	1918	Margaret T. Corwin	1,259	13	108	—	105,000
New Jersey State Tch. Col., Glassboro, N.J.	1923	Edgar F. Bunce	470	199	37	—	25,000
New Jersey State Tch. Col., Jersey City, N.J.	1929	Forrest A. Irwin	685	200	55	—	40,000
New Jersey State Tch. Col., Montclair, N.J.	1908	Harry A. Sprague	1,303	513	94	48,500	54,239
New Jersey State Tch. Col., Newark, N.J.	1912	John B. Dougall	557	130	40	—	39,800
New Jersey State Tch. Col., Paterson, N.J.	1855	Clair S. Wightman	639	282	38	—	21,574
New Jersey State Tch. Col., Trenton, N.J.	1855	Roscoe L. West	875	203	82	—	53,907
New Mexico, University of, Albuquerque, N.M.	1889	J. Philip Wernette	4,167	2,377	259	34,245	136,000
New Mexico A.and M.Col., State College, N.M.	1889	John R. Nichols	1,666	1,008	150	562,117	58,000
New Mexico Highlands Univ., Las Vegas, N.M.	1893	Edward Eyring	783	498	60	—	34,476
New Mexico Military Inst. (Jr.), Roswell, N.M.	1893	Hugh M. Milton, II	599	7	50	898,288	25,520
New Mexico School of Mines, Socorro, N.M.	1889	E. J. Workman	230	180	20	—	10,000
New Mexico St. Tch. Col., Silver City, N.M.	1893	H. W. James	403	206	44	—	27,000
New Rochelle, Col. of, New Rochelle, N.Y.	1904	Mother Thomas Aquinas	860	3	66	108,020	58,447
New York, Col. of the City of, N.Y., N.Y.	1847	Harry N. Wright	11,836	5,439	875	534,633	331,377
New York State Col. for Tch., Albany, N.Y.	1844	Milton G. Nelson	1,331	266	120	—	35,000
New York State Tch. Col., Brockport, N.Y.	1866	Donald M. Tower	808	264	60	—	25,000
New York State Tch. Col., Buffalo, N.Y.	1872	Harry W. Rockwell	1,659	386	125	—	33,000
New York State Tch. Col., Cortland, N.Y.	1863	Donnal V. Smith	1,100	323	68	—	26,630
New York State Tch. Col., Fredonia, N.Y.	1866	Leslie R. Gregory	603	148	70	—	19,920
New York State Tch. Col., Geneseo, N.Y.	1867	Herbert G. Espy	513	63	38	—	34,296
New York State Tch. Col., New Paltz, N.Y.	1886	Wm. J. Haggerty	354	76	62	—	16,200
New York State Tch. Col., Oneonta, N.Y.	1889	Charles W. Hunt	412	49	53	—	35,259
New York State Tch. Col., Oswego, N.Y.	1861	Harvey M. Rice	1,159	458	70	—	44,000
New York State Tch. Col., Plattsburg, N.Y.	1889	Charles C. Ward	600	56	60	—	25,000
New York State Tch. Col., Potsdam, N.Y.	1869	Frederick W. Crumb	553	60	66	—	21,407
New York University, New York, N.Y.	1831	Harry W. Chase	22,408	12,621	3,081	10,963,036	748,119
Niagara University, Niagara Univ., N.Y.	1856	Francis L. Meade	1,425	876	122	—	50,000
North Carolina, Agri. and Tech. Col. of, Greensboro, N.C.	1891	F. D. Bluford	2,748	1,636	130	—	32,000
North Carolina, Univ. of, Chapel Hill, N.C.	1789	Frank Porter Graham	7,528	4,995	509	3,805,000	475,000
North Carolina, Woman's College of the University of, Greensboro, N.C.	1892	W. C. Jackson	2,063	44	183	—	123,361
North Carolina Col. for Negroes, Durham, N.C.	1910	—	1,000	286	52	—	31,831
North Carolina State College of Agri. and Eng., Raleigh, N.C.	1889	J. W. Harrelson	5,290	4,011	452	—	81,238
North Central College, Naperville, Ill.	1861	C. H. Geiger	890	356	50	1,200,000	33,279
North Dakota, Univ. of, Grand Forks, N.D.	1883	John C. West	2,627	1,574	175	1,696,400	153,000
North Dakota Agricultural Col., Fargo, N.D.	1889	J. H. Longwell	2,622	1,427	178	1,628,603	67,000
North Dakota State Normal and Industrial College, Ellendale, N.D.	1889	J. C. McMillan	168	61	23	—	19,000
North Dakota State Tch. Col., Dickinson, N.D.	1918	Charles E. Scott	262	115	29	—	17,589
North Dakota State Tch. Col., Mayville, N.D.	1889	C. P. Lura	220	77	24	—	20,457
North Dakota State Tch. Col., Minot, N.D.	1913	C. C. Swain	722	240	57	-	30,000
North Dakota State Tch. Col., Valley City, N.D.	1889	R. L. Lokken	394	128	45	-	38,000
Northeastern State College, Tahlequah, Okla.	1846	John Vaughan	1,037	470	57	—	42,128
Northeastern University, Boston, Mass.	1898	Carl S. Ell	3,719	2,714	150	821,132	44,082
Northeast Junior Col., L.S.U., Monroe, La.	1931	W. Rodney Cline	745	289	37	—	10,250
Northeast Missouri St. Tch. Col., Kirksville, Mo.	1867	Walter H. Ryle	1,110	477	51	—	90,000
Northern Illinois State Tch. Col., De Kalb, Ill.	1895	Karl L. Adams	1,635	687	114	—	64,925
Northern Idaho Col. of Educ., Lewiston, Ida.	1893	Glenn W. Todd	386	176	36	—	21,000
Northern Michigan Col. of Educ., Marquette, Mich.	1899	H. A. Tape	1,005	535	60	—	39,130
Northern Montana Col. (Jr.), Havre, Mont.	1929	G. H. Vande Bogart	350	113	24	—	20,113
Northern State Tch. Col., Aberdeen, S.D.	1901	N. E. Steele	771	363	50	—	25,000
North Georgia Col. (Jr.), Dahlonega, Ga.	1873	J. C. Rogers	702	172	42	—	24,600
North Park College (Jr.), Chicago, Ill.	1891	Algoth Ohlson	1,329	409	42	330,985	18,234
North Texas Agri. Col. (Jr.), Arlington, Tex.	1917	E. H. Hereford	2,029	920	98	—	24,836
North Texas State Tch. Col., Denton, Tex.	1890	W. J. McConnell	4,670	1,742	250	—	188,000
Northwestern State College, Alva, Okla.	1897	Sabin C. Percefull	545	237	40	—	24,762
Northwestern State Col., Natchitoches, La.	1884	Joseph E. Gibson	1,633	577	100	—	56,359
Northwestern Univ., Evanston and Chgo., Ill.	1851	Franklyn B. Snyder	10,490	5,836	2,043	62,500,000	850,000
Northwest Missouri St. Tch. Col., Maryville, Mo.	1905	J. W. Jones	903	356	65	—	34,620
Northwest Nazarene College, Nampa, Ida.	1913	Lewis T. Corlett	538	182	26	—	15,070
Norwich University, Northfield, Vt.	1819	Homer L. Dodge	617	314	45	1,123,397	41,000
Notre Dame, University of, Notre Dame, Ind.	1842	John J. Cavanaugh	4,757	3,300	315	$4,057,306	232,896
Notre Dame College, South Euclid, Ohio	1922	Mother Mary Agnes	304	1	33	—	23,660
Notre Dame College of Staten Island, Staten Island, N.Y.	1933	Mother Saint Egbert	300	—	26	—	12,000
Notre Dame Jr. Col., St. Louis, Mo.	1925	Sister Chrysologa	38	—	8	—	10,000
Notre Dame of Maryland, Col. of, Baltimore, Md.	1873	Sister Mary Frances	416	1	56	102,000	27,000
O							
Oakwood College, Huntsville, Ala.	1896	F. L. Peterson	534	124	21	—	8,000
Oberlin College, Oberlin, Ohio	1833	William E. Stevenson	2,131	741	164	23,523,538	464,459
Occidental College, Los Angeles, Calif.	1887	Arthur G. Coons	1,205	578	89	1,349,620	81,000
Ohio State University, Columbus, Ohio	1870	Howard L. Bevis	23,882	14,292	1,430	2,302,881	745,410
Ohio University, Athens, Ohio	1804	John Calhoun Baker	6,157	3,432	345	98,205	165,758
Ohio Wesleyan University, Delaware, Ohio	1842	C. E. Ficken	2,094	741	129	4,620,899	180,102
Oklahoma, University of, Norman, Okla.	1890	George Lynn Cross	12,356	7,287	463	4,040,982	385,000
Oklahoma A. and M. College, Stillwater, Okla.	1891	Henry G. Bennett	11,052	6,714	740	4,228,077	203,293
Oklahoma Col. for Women, Chickasha, Okla.	1908	Dan Procter	675	3	58	—	35,600
Omaha, University of, Omaha, Neb.	1908	Rowland Haynes	1,991	1,003	71	141,404	80,000
Oregon, Univ. of, Eugene and Portland, Ore.	1872	Harry K. Newburn	6,642	3,530	374	1,378,840	449,331
Oregon College of Educ., Monmouth, Ore.	1861	Henry M. Gunn	468	219	38	—	30,828
Oregon State College, Corvallis, Ore.	1868	A. L. Strand	7,489	4,194	521	208,642	220,500
Ottawa, University of, Ottawa, Ont., Can.	1848	J. C. Laframboise	1,853	64	183	119,663	140,000
Ottawa University, Ottawa, Kan.	1865	A. B. Martin	582	223	30	500,000	20,000
Otterbein College, Westerville, Ohio.	1847	J. Gordon Howard	924	401	64	1,260,871	36,000
Ottumwa Heights Col. (Jr.), Ottumwa, Ia.	1925	Sister Marie Ancille	105	1	21	—	12,000
Ouachita College, Arkadelphia, Ark.	1886	James R. Grant	786	270	42	600,000	28,000
Our Lady of the Elms, Col. of, Chicopee, Mass.	1928	Thomas M. O'Leary	268	—	25	—	20,437
Our Lady of the Lake Col., San Antonio, Tex.	1912	John L. McMahon	351	25	53	392,361	49,050
P							
Pacific, College of the, Stockton, Calif.	1851	Robert E. Burns	740	379	32	628,987	42,000
Pacific Lutheran Col., Parkland, Wash.	1894	S. C. Eastvold	785	400	47	65,180	35,000
Pacific Union College, Angwin, Calif.	1909	P. W. Christian	754	257	79	—	36,000
Pacific University, Forest Grove, Ore.	1849	Walter C. Giersbach	932	572	46	400,000	32,977
Packer Collegiate Inst. (Jr.), Brooklyn, N.Y.	1845	Paul D. Shafer	118	—	24	1,433,040	12,303
Paine College, Augusta, Ga.	1882	Edmund C. Peters	349	79	21	37,095	21,000
Palm Beach Jr. Col., W. Palm Beach, Fla.	1933	John I. Leonard	252	83	19	—	5,256
Palomar College, Vista, Calif.	1946	D. C. McNaughton	225	65	21	—	2,500
Paris Junior College, Paris, Tex.	1924	J. R. McLemore	583	205	33	—	8,550
Park College, Parkville, Mo.	1875	J. L. Zwingle	526	145	39	1,900,000	42,000
Parsons College, Fairfield, Ia.	1875	Tom E. Shearer	478	246	37	474,070	25,800
Pasadena City Col., Pasadena, Calif.	1924	John W. Harbeson	5,600	2,200	240	—	37,917
Pearl River Junior Col., Poplarville, Miss.	1922	R. D. McLendon	414	236	27	—	6,000
Pennsylvania, Univ. of, Philadelphia, Pa.	1740	George W. McClelland	9,705	6,520	1,862	31,000,000	1,123,206
Pennsylvania Col. for Wom., Pittsburgh, Pa.	1869	Paul R. Anderson	500	9	57	1,110,000	32,000
Pennsylvania State Col., State College, Pa.	1855	James Milholland	10,200	6,829	1,040	517,000	281,237
Pa. State Tch. Col., Bloomsburg, Pa.	1839	Harvey A. Andruss	831	433	45	—	33,255
Pa. State Tch. Col., California, Pa.	1852	Robert M. Steele	916	543	47	—	22,400
Pa. State Tch. Col., Cheyney, Pa.	1837	Leslie Pinckney Hill	345	80	27	—	15,930
Pa. State Tch. Col., Clarion, Pa.	1867	Paul G. Chandler	746	360	40	—	23,000
Pa. State Tch. Col., E. Stroudsburg, Pa.	1893	Joseph F. Noonan	889	436	55	—	26,348
Pa. State Tch. Col., Edinboro, Pa.	1861	L. H. Van Houten	741	330	42	—	30,000
Pa. State Tch. Col., Indiana, Pa.	1871	Ralph E. Heiges	1,450	474	92	—	35,850
Pa. State Tch. Col., Kutztown, Pa.	1866	Q. A. W. Rohrbach	843	332	50	—	32,401
Pa. State Tch. Col., Lock Haven, Pa.	1877	Richard T. Parsons	737	387	49	—	25,000
Pa. State Tch. Col., Mansfield, Pa.	1862	James G. Morgan	831	289	64	—	30,000
Pa. State Tch. Col., Millersville, Pa.	1854	D. L. Biemesderfer	883	416	59	—	30,032
Pa. State Tch. Col., Shippensburg, Pa.	1871	Levi Gilbert	795	416	50	—	31,500
Pa. State Tch. Col., Slippery Rock, Pa.	1889	Dale W. Hauk	802	363	66	—	28,250
Pa. State Tch. Col., West Chester, Pa.	1871	Charles S. Swope	1,739	613	90	—	42,311
Peru State Teachers Col., Peru, Neb.	1867	W. L. Nicholas	392	171	50	—	52,000
Pfeiffer Junior College, Misenheimer, N.C.	1903	C. M. Waggoner	346	86	21	500,000	6,800
Phillips University, Enid, Okla.	1907	Eugene S. Briggs	1,018	328	56	869,128	45,689
Phoenix Junior College, Phoenix, Ariz.	1920	E. W. Montgomery	1,278	445	55	—	17,898
Pikeville Jr. College, Pikeville, Ky.	1889	A. A. Page	288	102	30	312,489	13,200
Pine Manor Junior Col., Wellesley, Mass.	1911	Marie Warren Potter	268	—	33	—	7,000
Pittsburgh, University of, Pittsburgh, Pa.	1787	Rufus H. Fitzgerald	12,494	8,000	1,200	3,735,814	482,000
Plymouth Teachers College, Plymouth, N.H.	1870	Howard R. Jones	260	107	32	—	16,500
Pomona College, Claremont, Calif.	1887	E. Wilson Lyon	1,116	410	97	4,603,576	116,000
Port Huron Junior Col., Port Huron, Mich.	1923	John H. McKenzie	403	198	19	—	6,635
Portland, University of, Portland, Ore.	1901	Theodore J. Mehling	1,932	1,376	95	—	50,000
Potomac State School of West Virginia University (Jr.), Keyser, W.Va.	1901	E. E. Church	612	365	34	—	9,000

Institution and Location	Year Founded	Chief Executive	Full Time Students	Students under Veterans' Program	Faculty	Endowment	Library Volumes
Prairie View University, Prairie View, Tex..	1876	E. B. Evans	1,813	586	127	$ —	27,869
Princeton University, Princeton, N.J..	1746	Harold W. Dodds	4,054	3,039	545	45,600,000	1,150,000
Principia College, Elsah, Ill.	1898	Frederic E. Morgan	454	145	38	895,811	37,056
Providence College, Providence, R.I.	1919	Robert J. Slavin	1,578	1,049	87	—	28,423
Puerto Rico, Polytech. Inst., San Germán, P.R.	1912	Edward G. Seel	471	120	33	460,000	13,300
Puerto Rico, Univ. of, Río Piedras, P. R.	1903	Jaime Benítez	4,209	1,481	370	2,029,266	105,000
Puget Sound, College of, Tacoma, Wash.	1888	R. Franklin Thompson	1,928	1,054	87	1,495,395	52,000
Purdue University, West Lafayette, Ind..	1869	Frederick L. Hovde	14,060	8,348	1,318	340,000	250,000
Q							
Queens College, Charlotte, N.C..	1857	Hunter B. Blakely	455	34	40	525,324	23,500
Queens College, Flushing, N.Y.	1937	Paul Klapper	2,798	516	209	—	70,000
Queen's University, Kingston, Ontario, Can.	1841	R. C. Wallace	3,193	1,746	248	4,545,675	218,612
R							
Radcliffe College, Cambridge, Mass.	1879	Wilbur K. Jordan	1,323	50	450	7,664,666	99,000
Radford College, Woman's Division of Virginia Polytechnic Institute, Radford, Va.	1910	David W. Peters	746	8	53	—	28,700
Randolph-Macon College, Ashland, Va.	1830	J. Earl Moreland	537	302	27	1,050,088	40,629
Randolph-Macon Woman's Col., Lynchburg, Va.	1893	Theodore H. Jack	698	2	74	1,264,000	67,000
Redlands, University of, Redlands, Calif.	1907	George H. Armacost	1,142	494	75	2,494,108	73,726
Reed College, Portland, Ore..	1911	Peter H. Odegard	719	350	61	1,591,806	84,396
Regis College, Weston, Mass..	1927	Sr. Mary St. Ignatius	655	3	63	175,400	50,000
Rensselaer Polytechnic Inst., Troy, N.Y.	1824	Livingston W. Houston	3,887	2,877	296	11,150,000	42,494
Rhode Island Col. of Educ., Providence, R.I.	1854	Lucius A. Whipple	438	58	62	—	30,334
Rhode Island State College, Kingston, R.I.	1892	Carl R. Woodward	2,495	1,360	184	—	88,078
Rice Institute, Houston, Tex.	1912	William V. Houston	1,570	703	131	30,000,000	200,000
Richmond, University of, Richmond, Va.	1832	George M. Modlin	2,017	1,126	86	3,100,000	115,000
Ricker Junior College, Houlton, Me.	1848	Roy A. Bither	370	120	20	40,000	3,000
Ricks College (Jr.), Rexburg, Ida.	1888	John L. Clarke	342	91	20	—	10,899
Ripon College, Ripon, Wis.	1851	Clark G. Kuebler	661	282	56	1,028,000	44,498
Riverside College (Jr.), Riverside, Calif.	1916	A. G. Paul	937	363	42	—	20,184
Roanoke College, Salem, Va.	1842	Charles J. Smith	601	319	38	679,271	24,000
Rochester, University of, Rochester, N.Y..	1850	Alan Valentine	3,931	1,975	360	57,753,638	464,485
Rockford College, Rockford, Ill.	1847	Mary Ashby Cheek	535	57	55	1,010,531	38,000
Rockhurst College, Kansas City, Mo.	1910	Thomas M. Knapp	784	490	53	—	19,000
Rocky Mountain College, Billings, Mont.	1883	William D. Copeland	215	141	21	475,000	30,000
Rollins College, Winter Park, Fla.	1885	Hamilton Holt	598	200	64	933,844	80,000
Roosevelt College, Chicago, Ill.	1945	Edward J. Sparling	3,850	1,890	234	—	36,000
Rosary College, River Forest, Ill.	1901	Sister Mary Peter	725	7	68	100,000	56,582
Rosemont College, Rosemont, Pa.	1921	Mother Mary Boniface	307	2	43	—	37,500
Rose Polytechnic Institute, Terre Haute, Ind.	1874	Donald B. Prentice	575	465	40	2,300,000	24,000
Russell Sage College, Troy, N.Y..	1916	Helen McKinstry	723	130	80	1,237,544	48,000
Rutgers University, New Brunswick, N.J.	1766	Robert C. Clothier	9,514	5,554	740	6,266,126	485,000
S							
Sacramento Col. (Jr.), Sacramento, Calif.	1916	Nicholas Ricciardi	2,699	1,193	115	—	28,000
St. Ambrose College, Davenport, Ia.	1882	Ambrose J. Burke	1,207	769	67	600,000	30,000
St. Anselm's College, Manchester, N.H.	1889	Bertrand C. Dolan	573	388	39	—	14,000
St. Augustine's College, Raleigh, N.C..	1867	Harold L. Trigg	382	90	21	200,000	17,700
St. Benedict, College of, St. Joseph, Minn.	1913	Mother R. Pratschner	270	—	38	10,800	32,000
St. Benedict's College, Atchison, Kan.	1858	Cuthbert McDonald	485	225	43	—	100,000
St. Bernard College (Jr.), St. Bernard, Ala.	1892	Boniface Seng	240	130	15	125,000	24,500
St. Bernardine of Sienna Col., Loudonville, N.Y.	1937	Mark Kennedy	2,140	1,615	99	—	18,500
St. Bonaventure Col., St. Bonaventure, N.Y.	1859	Thomas Plassmann	1,649	1,054	93	—	86,900
St. Catherine, College of, St. Paul, Minn.	1911	Sister Antonius Kennelly	807	17	85	645,403	68,389
St. Charles College (Jr.), Catonsville, Md.	1831	George A. Gleason	200	38	12	—	43,000
St. Cloud St. Tch. Col., St. Cloud, Minn.	1869	John W. Headley	1,348	537	87	—	56,901
St. Edward's Seminary, Kenmore, Wash..	1931	John P. McCormick	103	13	17	—	15,500
St. Elizabeth, Col. of, Convent Station, N.J..	1899	Sister Marie J. Byrne	691	7	43	—	31,558
St. Francis, College of, Joliet, Ill..	1874	Sister M. Aniceta	329	3	47	16,000	33,977
St. Francis College, Loretto, Pa.	1847	Adrian J. M. Veigle	708	507	35	75,000	30,000
St. Francis Xavier Col. for Wom., Chicago, Ill.	1912	Sister Mary Huberta	368	7	40	—	53,000
St. Francis Xavier Univ., Antigonish, N.S., Can.	1853	P. J. Nicholson	923	316	43	527,000	37,000
St. John College, Cleveland, Ohio	1928	Robert B. Navin	200	—	25	—	25,000
St. John's University, Brooklyn, N.Y.	1870	John A. Flynn	4,051	2,717	205	500,000	72,770
St. Joseph College, W. Hartford, Conn.	1932	Sister M. Rosa	440	13	40	—	20,000
St. Joseph Junior Col., St. Joseph, Mo.	1915	Nelle Blum	628	236	21	—	7,700
St. Joseph's College, Collegeville, Ind.	1889	Henry A. Lucks	596	287	49	173,647	40,000
St. Joseph's College, Emmitsburg, Md.	1809	Francis J. Dodd	213	—	32	—	16,012
St. Joseph's College, Philadelphia, Pa.	1851	John J. Long	1,565	1,099	74	—	25,000
St. Joseph's Col. for Women, Brooklyn, N.Y.	1916	William T. Dillon	560	1	49	29,713	25,526
St. Lawrence University, Canton, N.Y..	1856	Eugene G. Bewkes	1,274	591	81	1,559,832	86,000
St. Louis University, St. Louis, Mo.	1818	Patrick J. Holloran	8,830	4,724	1,018	3,421,878	439,741
St. Martin's College, Lacey, Wash..	1895	Raphael Heider	326	216	35	$ —	15,000
St. Mary College, Xavier, Kan	1923	Arthur M. Murphy	303	2	44	—	33,897
St. Mary of the Springs, Col. of, Columbus, Ohio	1925	Sister M. Angelita	256	3	47	—	32,000
St. Mary-of-the-Wasatch, Col. of, Salt Lake City, Utah	1926	Sister Mary Benedictus	103	—	17	—	12,400
St. Mary-of-the-Woods Col., St. Mary-of-the-Woods, Ind.	1840	Mother Mary Bernard	416	3	51	474,000	71,720
St. Mary's Col., Notre Dame, Holy Cross, Ind.	1844	Sister M. Madeleva	502	5	58	116,700	36,197
St. Mary's Col., St. Mary's College, Calif.	1863	Brother Austin	950	450	50	—	38,374
St. Mary's College, Winona, Minn.	1912	Brother Joel	492	251	35	—	25,000
St. Mary's Junior College, O'Fallon, Mo.	1927	Mother M. Borgia	18	—	7	—	12,875
St. Mary's Junior College, Raleigh, N.C..	1842	Richard G. Stone	172	—	29	202,033	10,990
St. Michael's College, Winooski, Vt.	1904	Daniel P. Lyons	740	452	44	86,168	30,000
St. Norbert College, West De Pere, Wis.	1898	B. H. Pennings	838	508	43	—	30,000
St. Olaf College, Northfield, Minn.	1874	Clemens M. Granskou	1,647	568	113	1,055,954	73,797
St. Patrick's Seminary, Menlo Park, Calif.	1898	Thomas C. Mulligan	81	4	13	—	33,000
St. Paul Seminary, St. Paul, Minn.	1894	R. G. Bandas	211	8	18	—	35,000
St. Petersburg Jr. Col., St. Petersburg, Fla..	1927	Roland A. Wakefield	437	204	24	—	10,500
St. Peter's College, Jersey City, N.J.	1878	Vincent Hart	768	403	36	550,000	22,000
St. Rose, College of, Albany, N.Y.	1920	Edmund F. Gibbons	556	8	52	—	17,086
St. Scholastica, College of, Duluth, Minn.	1912	Mother M. Athanasius	480	8	43	—	28,000
St. Teresa, Col. of, Kansas City, Mo.	1867	Mother M. Marietta Jennings	239	3	28	—	18,000
St. Teresa, College of, Winona, Minn.	1910	Sr. M. Rachael	550	11	55	—	36,000
St. Thomas, College of, St. Paul, Minn.	1885	Vincent J. Flynn	2,078	1,416	126	303,375	37,804
St. Vincent College, Latrobe, Pa.	1846	Alfred Koch	843	533	54	—	67,000
Salem College, Winston-Salem, N.C.	1772	Howard E. Rondthaler	370	26	45	727,514	32,584
Sam Houston State Tch. Col., Huntsville, Tex.	1879	Harmon Lowman	2,076	996	96	—	58,772
Samuel Huston College, Austin, Tex.	1900	Karl E. Downs	574	162	37	12,000	14,103
San Angelo College (Jr.), San Angelo, Tex.	1928	W. H. Elkins	592	210	38	—	8,000
San Bernardino Valley Junior College, San Bernardino, Calif.	1926	John L. Lounsbury	1,449	566	70	—	22,000
San Diego State College, San Diego, Calif..	1897	Walter R. Hepner	4,188	2,083	200	—	108,000
San Francisco, Univ. of, San Fran., Calif.	1855	William J. Dunne	1,970	1,424	120	—	60,000
San Francisco Col. for Wom., San Fran., Cal.	1930	Mother Leonor Mejía	365	30	44	—	100,000
San Francisco State Col., San Francisco, Calif.	1899	J. Paul Leonard	2,920	1,123	162	—	53,830
San Jose St. Col., San Jose, Calif.	1857	T. W. MacQuarrie	6,858	3,030	320	—	95,000
San Mateo Junior Col., San Mateo, Calif.	1922	Charles S. Morris	1,600	600	90	—	13,500
San Rafael, Dominican Col. of, San Rafael, Calif.	1918	Sister Mary Patrick	292	3	40	—	37,939
Santa Ana Junior Col., Santa Ana, Calif.	1915	H. O. Russell	840	309	38	—	15,000
Santa Clara, Univ. of, Santa Clara, Calif.	1851	William C. Gianera	1,045	591	82	750,000	65,000
Santa Monica City Col., Santa Monica, Calif.	1929	Elmer C. Sandmeyer	1,623	831	54	—	13,600
Santa Rosa Junior Col., Santa Rosa, Calif..	1918	Floyd P. Bailey	1,142	512	46	—	13,000
Sarah Lawrence College, Bronxville, N.Y.	1926	Harold Taylor	347	39	67	337,148	50,000
Saskatchewan, Univ. of, Saskatoon, Sask., Can.	1907	James S. Thomson	4,536	2,347	150	261,594	94,000
Scarritt College, Nashville, Tenn.	1924	Hugh C. Stuntz	165	8	19	508,000	7,500
Schreiner Institute (Jr.), Kerrville, Tex..	1923	J. J. Delaney	405	111	26	175,000	9,000
Scranton, University of, Scranton, Pa.	1888	J. Eugene Gallery	1,895	1,476	93	2,500,000	23,000
Scripps College, Claremont, Calif.	1926	Frederick Hard	238	—	31	1,146,408	33,199
Seattle College, Seattle, Wash.	1892	Harold O. Small	2,469	687	80	—	32,000
Seattle Pacific College, Seattle, Wash.	1891	C. Hoyt Watson	622	239	36	425,000	21,100
Seton Hall College, South Orange, N.J.	1856	James F. Kelley	4,009	3,300	150	—	50,000
Seton Hill College, Greensburg, Pa.	1918	M. Victoria Brown	475	52	61	500,000	35,000
Shaw University, Raleigh, N.C.	1865	Robert P. Daniel	819	183	48	350,000	15,000
Shepherd College, Shepherdstown, W.Va..	1872	Oliver S. Ikenberry	404	175	22	—	18,500
Shorter College, Rome, Ga.	1873	Paul M. Cousins	219	—	33	500,000	24,000
Siena Heights College, Adrian, Mich.	1939	Mother Mary Gerald	350	5	28	—	26,000
Simmons College, Boston, Mass.	1899	Bancroft Beatley	1,470	140	165	3,510,050	95,000
Simpson College, Indianola, Ia.	1860	Edwin E. Voigt	700	279	47	1,474,231	33,889
Sioux Falls College, Sioux Falls, S.D.	1883	Ernest E. Smith	343	155	31	95,228	18,000
Skidmore College, Saratoga Springs, N.Y..	1911	Henry T. Moore	1,133	193	86	871,535	60,710
Smith College, Northampton, Mass.	1871	Herbert Davis	2,328	24	272	6,907,243	335,429
Snead Junior College, Boaz, Ala.	1935	Festus M. Cook	402	217	24	210,000	6,633
Snow College (Jr.), Ephraim, Utah	1888	James A. Nuttall	332	114	25	—	10,000
South, University of the, Sewanee, Tenn.	1857	Alexander Guerry	519	279	44	2,158,605	58,000
South Carolina, Univ. of, Columbia, S.C.	1801	Norman M. Smith	4,614	2,743	257	—	100,000
South Carolina State Agri. and Mech. Col., Orangeburg, S.C.	1896	M. F. Whittaker	1,400	555	125	—	27,683
South Dakota, Univ. of, Vermillion, S.D.	1882	I. D. Weeks	1,779	1,092	130	—	123,000
South Dakota School of Mines and Technology, Rapid City, S.D.	1885	Earl D. Dake	620	470	44	250,000	21,000
South Dakota State College of Agri. and Mech. Arts, Brookings, S.D.	1881	Fred H. Leinbach	2,280	1,242	151	718,000	80,000

Institution and Location	Year Founded	Chief Executive	Full Time Students	Students under Veterans' Program	Faculty	Endowment	Library Volumes
Southeastern La. Col., Hammond, La.	1925	Gladney J. Tinsley	1,157	513	88	$ —	32,881
Southeastern State College, Durant, Okla	1909	T. T. Montgomery	1,166	519	80	—	38,000
Southeast Missouri St. Col., Cape Girardeau, Mo.	1873	W. W. Parker	1,450	661	61	—	90,000
Southern Calif., Univ. of, Los Angeles, Calif.	1879	Fred D. Fagg, Jr.	16,401	11,384	1,500	1,600,000	414,874
Southern Christian Inst. (Jr.), Edwards, Miss.	1875	John Long	572	54	21	—	9,397
Southern Idaho Col. of Educ., Albion, Ida.	1893	R. H. Snyder	236	92	33	—	20,000
Southern Illinois, University of, Carbondale, Ill.	1874	Chester F. Lay	2,852	1,367	211	—	75,160
Southern Methodist Univ., Dallas, Tex.	1911	Umphrey Lee	7,031	4,358	362	4,461,310	230,149
Southern Missionary Col., Collegedale, Tenn.	1893	Kenneth A. Wright	402	159	35	—	12,024
Southern Oregon Col. of Educ., Ashland, Ore.	1926	Elmo N. Stevenson	601	300	29	—	20,848
Southern St. Tch. Col., Springfield, S.D.	1881	J. Howard Kramer	152	62	22	—	16,649
Southern University and Agri. and Mech. College, Scotlandville, La.	1880	Felton G. Clark	1,739	490	109	—	35,300
South Georgia College (Jr.), College, Ga.	1927	William S. Smith	532	232	25	—	7,500
Southwestern at Memphis, Memphis, Tenn.	1848	Charles E. Diehl	751	281	61	2,400,000	56,000
Southwestern College, Winfield, Kan.	1885	Mearl P. Culver	626	273	47	590,000	26,000
Southwestern Inst. of Tech., Weatherford, Okla.	1901	R. H. Burton	949	496	53	—	34,368
Southwestern Louisiana Inst., Lafayette, La.	1898	Joel L. Fletcher	3,332	1,556	199	—	68,000
Southwestern University, Georgetown, Tex.	1840	J. N. R. Score	870	338	60	790,000	45,000
Southwest Missouri St. Col., Springfield, Mo.	1906	Roy Ellis	1,908	740	88	—	73,531
Southwest Texas State Tch. Col., San Marcos, Tex.	1899	John G. Flowers	1,701	717	93	—	63,445
Spelman College, Atlanta, Ga.	1881	Florence M. Read	376	3	31	3,260,300	84,000
Springfield College, Springfield, Mass.	1885	Paul M. Limbert	1,199	997	82	1,068,896	40,000
Springfield Junior Col., Springfield, Ill.	1929	Mother M. De Pazzi	506	244	33	—	12,000
Spring Hill College, Spring Hill, Ala.	1830	Wm. Patrick Donnelly	759	402	35	242,359	52,689
Stanford University, Stanford, Calif.	1885	Donald B. Tresidder	7,875	4,283	725	36,910,000	1,045,734
Stephen F. Austin State Tch. Col., Nacogdoches, Tex.	1923	Paul L. Boynton	1,244	527	81	—	52,000
Stephens College (Jr.), Columbia, Mo.	1833	Homer P. Rainey	2,248	1	260	234,302	49,255
Stevens Institute of Tech., Hoboken, N.J.	1870	Harvey N. Davis	1,481	1,117	120	—	32,000
Stillman Institute (Jr.), Tuscaloosa, Ala.*	1876	A. L. Jackson	193	11	21	100,000	10,734
Stockton Jr. College, Stockton, Calif.	1935	Arthur T. Bawden	1,606	635	97	—	53,000
Stout Institute, Menomonie, Wis.	1903	Verne C. Fryklund	912	468	55	—	31,300
Stowe Teachers and Jr. Col., St. Louis, Mo.	1890	Ruth M. Harris	753	58	36	—	15,898
Sue Bennett College (Jr.), London, Ky.	1897	Oscie Sanders	117	42	14	—	10,663
Sullins College (Jr.), Bristol, Va.	1870	W. E. Martin	430	—	42	500,000	11,000
Sul Ross State Tch. Col., Alpine, Tex.	1920	R. M. Hawkins	760	402	40	—	25,000
Sunflower Junior College, Moorhead, Miss.	1911	W. B. Horton	401	105	30	—	5,000
Susquehanna University, Selinsgrove, Pa.	1858	G. Morris Smith	527	235	38	476,510	26,615
Swarthmore College, Swarthmore, Pa.	1864	John W. Nason	1,054	386	102	9,340,979	147,039
Sweet Briar College, Sweet Briar, Va.	1901	Martha B. Lucas	451	1	56	950,000	68,599
Syracuse University, Syracuse, N.Y.	1870	William P. Tolley	18,456	8,383	1,303	5,388,502	396,419
T							
Talladega College, Talladega, Ala.	1867	A. D. Beittel	365	75	*38	1,134,876	42,750
Tarkio College, Tarkio, Mo.	1883	M. Earle Collins	234	104	18	666,000	18,660
Taylor University, Upland, Ind.	1846	Clyde W. Meredith	461	139	30	105,782	22,588
Temple University, Philadelphia, Pa.	1884	Robert L. Johnson	8,484	4,785	850	1,287,488	275,990
Tennessee, University of, Knoxville, Tenn.	1794	Cloide E. Brehm	6,550	4,182	512	638,310	261,453
Tennessee A. and I. St. Col., Nashville, Tenn.	1912	W. S. Davis	2,149	779	142	—	30,000
Tennessee Jr. Col., Univ. of, Martin, Tenn.	1927	Paul Meek	670	345	47	—	15,413
Tennessee Polytechnic Inst., Cookeville, Tenn.	1915	Everett Derryberry	1,746	1,070	78	—	28,000
Tennessee Wesleyan Col. (Jr.), Athens, Tenn.	1866	James L. Robb	498	218	34	108,450	11,937
Texarkana College (Jr.), Texarkana, Tex.	1927	H. W. Stilwell	377	115	16	—	6,500
Texas, A. and M. Col. of, College Station, Tex.	1871	Gibb Gilchrist	8,318	5,600	473	379,186	128,561
Texas, University of, Austin, Tex.	1881	Theophilus S. Painter	17,449	10,576	760	74,531,000	832,786
Texas Christian University, Fort Worth, Tex.	1873	M. E. Sadler	3,454	1,810	198	6,000,000	120,651
Texas College, Tyler, Tex.	1894	D. R. Glass	730	214	36	12,000	12,057
Texas Col. of Arts and Ind., Kingsville, Tex.	1925	E. N. Jones	2,093	953	95	—	31,077
Texas Col. of Mines and Met., El Paso, Tex.	1913	D. M. Wiggins	1,903	900	90	630,000	40,763
Texas Lutheran College (Jr.), Seguin, Tex.	1891	William F. Kraushaar	284	67	16	17,500	21,000
Texas State Col. for Wom., Denton, Tex.	1901	L. H. Hubbard	2,241	24	175	—	96,998
Texas Technological Col., Lubbock, Tex.	1923	Wm. M. Whyburn	6,113	3,012	326	—	101,253
Thiel College, Greenville, Pa.	1866	Wm. F. Zimmerman	563	269	31	168,000	20,000
Thornton Junior College, Harvey, Ill.	1927	C. R. Maddox	360	140	22	—	8,649
Tillotson College, Austin, Tex.	1877	Fred L. Brownlee	554	140	35	2,113	22,500
Toledo, University of, Toledo, Ohio	1872	Raymond L. Carter	4,355	2,959	204	75,000	131,219
Toronto, University of, Toronto, Ont., Can.	1827	Sidney E. Smith	17,010	8,350	950	—	625,000
Tougaloo College, Tougaloo, Miss.	1869	Harold C. Warren	352	107	24	—	14,800
Transylvania College, Lexington, Ky.	1780	Raymond F. McLain	490	242	37	1,444,490	54,277
Trinity College, Hartford, Conn.	1823	G. Keith Funston	865	540	63	4,097,661	185,000
Trinity College, Washington, D.C.	1897	Sr. Catherine Dorothea	482	—	61	521,337	50,000
Tufts College, Medford, Mass.	1852	Leonard Carmichael	3,547	2,138	760	9,671,659	200,000
Tulane Univ. of Louisiana, New Orleans, La.	1834	Rufus C. Harris	5,208	2,772	832	$13,400,209	477,492
Tulsa, University of, Tulsa, Okla.	1894	C. I. Pontius	4,284	2,420	150	1,727,707	52,259
Tusculum College, Greeneville, Tenn.	1794	Geo. K. Davies	424	170	27	1,480,000	22,000
Tuskegee Institute, Tuskegee Institute, Ala.	1881	Frederick D. Patterson	2,648	1,375	254	6,897,177	70,000
Tyler Junior College, Tyler, Tex.	1926	H. E. Jenkins	589	242	29	—	7,277
U							
Union College, Barbourville, Ky.	1879	Conway Boatman	430	241	42	561,155	17,856
Union College, Lincoln, Neb.	1891	Robert W. Woods	959	308	55	—	38,350
Union College, Schenectady, N.Y.	1795	Carter Davidson	1,506	1,064	127	6,000,000	133,000
U.S. Coast Guard Acad., New London, Conn.	1876	W. N. Derby	345	—	41	—	29,000
U.S. Military Academy, West Point, N.Y.	1802	Maxwell D. Taylor	2,713	—	265	—	128,000
U.S. Naval Academy, Annapolis, Md.	1845	J. L. Holloway, Jr.	2,853	—	385	—	110,000
Upsala College, East Orange, N.J.	1893	Evald B. Lawson	1,585	870	85	256,612	25,000
Ursinus College, Collegeville, Pa.	1869	Norman E. McClure	964	421	52	800,000	35,000
Ursuline College, Louisville, Ky.	1938	Mother M. Rosalin Schaefer	128	—	27	—	19,917
Ursuline Col. for Women, Cleveland, Ohio	1871	Mother M. Celestine Ahearn	252	1	31	—	20,000
Utah, University of, Salt Lake City, Utah	1850	A. Ray Olpin	8,777	4,350	437	791,283	189,756
Utah State Agricultural Col., Logan, Utah	1888	Franklin S. Harris	3,975	2,216	206	—	90,525
V							
Valparaiso University, Valparaiso, Ind.	1859	O. P. Kretzmann	1,894	927	106	507,168	96,121
Vanderbilt University, Nashville, Tenn.	1873	Harvie Branscomb	3,456	1,794	347	39,953,059	489,089
Vassar College, Poughkeepsie, N.Y.	1861	Sarah G. Blanding	1,428	47	174	13,300,000	255,000
Vermont, University of, and State Agricultural Col., Burlington, Vt.	1791	John S. Millis	2,680	1,500	203	3,678,944	200,000
Vermont Junior College, Montpelier, Vt.	1833	John H. Kingsley	292	76	26	125,000	5,400
Villa Maria College, Erie, Pa.	1925	Sister M. Doloretta	140	—	32	1,535,241	15,000
Villanova College, Villanova, Pa.	1842	F. X. N. McGuire	2,250	1,300	135	—	78,788
Virginia, University of, Charlottesville, Va.	1819	Colgate W. Darden, Jr.	5,004	3,568	569	14,000,000	484,826
Virginia Intermont College (Jr.), Bristol, Va.	1884	Rabun L. Brantley	440	1	34	504,974	12,000
Virginia Junior College, Virginia, Minn.	1921	Floyd B. Moe	332	152	25	—	18,530
Virginia Military Institute, Lexington, Va.	1839	R. J. Marshall	780	251	62	759,177	78,526
Virginia Polytechnic Inst., Blacksburg, Va.	1872	Walter S. Newman	5,301	3,632	266	349,312	619,801
Virginia State College, Petersburg, Virginia	1882	Luther H. Foster	1,311	592	120	173,000	36,385
Virginia State Tch. Col., Farmville, Va.	1884	D. S. Lancaster	750	17	57	—	46,884
Virginia Union University, Richmond, Va.	1865	John M. Ellison	1,085	323	52	826,624	30,000
Voorhees Normal and Industrial School (Jr.), Denmark, S.C.	1897	Earl H. McClenney, Sr.	170	35	10	47,706	4,010
W							
Wabash College, Crawfordsville, Ind.	1832	Frank H. Sparks	599	349	37	2,607,828	94,000
Wagner Mem. Lutheran College, Staten Island, N.Y.	1883	Walter C. Langsam	875	507	75	393,394	40,000
Wake Forest College, Wake Forest, N.C.	1834	Thurman D. Kitchin	2,000	1,043	124	4,850,000	101,496
Walla Walla College, College Place, Wash.	1892	G. W. Bowers	1,026	428	52	—	25,464
Ward-Belmont School (Jr.), Nashville, Tenn.	1865	Robert C. Provine	846	3	45	—	15,000
Washburn Municipal Univ, Topeka, Kan.	1865	Bryan S. Stoffer	1,606	970	111	1,399,535	48,078
Washington, State Col. of, Pullman, Wash.	1890	Wilson Compton	6,760	3,324	446	7,543,270	600,000
Washington, University of, Seattle, Wash.	1861	Raymond B. Allen	15,514	9,430	1,608	1,401,586	609,888
Washington and Jefferson Col., Wash., Pa.	1780	James H. Case, Jr.	1,147	778	73	1,808,000	65,000
Washington and Lee Univ., Lexington, Va.	1749	Francis P. Gaines	1,278	773	78	4,081,787	152,000
Washington College, Chestertown, Md.	1782	Gilbert Wilcox Mead	474	207	34	—	35,000
Washington Missionary Col., Takoma Pk., Washington D.C.	1904	W. H. Shephard	523	226	50	—	34,194
Washington University, St. Louis, Mo.	1853	Arthur H. Compton	7,549	6,757	1,152	23,786,531	736,670
Wayne University, Detroit, Mich.	1868	David D. Henry	9,005	5,049	842	4,824	296,338
Weatherford Col. of Southwestern Univ., Weatherford, Tex.	1868	J. N. R. Score	160	68	12	26,000	8,000
Weber College (Jr.), Ogden, Utah.	1889	H. A. Dixon	1,439	605	76	—	17,000
Webster College, Webster Groves, Mo.	1915	George F. Donovan	367	2	67	10,375	27,000
Wellesley College, Wellesley, Mass.	1870	Mildred M. Horton	1,723	5	215	13,217,620	242,000
Wells College, Aurora, N.Y.	1868	Richard L. Greene	326	—	50	1,631,602	103,000
Wentworth Mil. Acad. (Jr.), Lexington, Mo.	1880	J. M. Sellers	132	17	12	—	8,000
Wesleyan College, Macon, Ga.	1836	Silas Johnson	557	19	64	1,109,949	35,575
Wesleyan University, Middletown, Conn.	1831	Victor L. Butterfield	933	545	90	9,319,365	330,000
Westbrook Junior College, Portland, Me.	1831	Milton D. Proctor	377	2	35	63,466	7,800
Western Carolina Tch. Col., Cullowhee, N.C.	1889	W. E. Bird	550	293	38	—	22,024
Western College, (for Wom.), Oxford, Ohio	1853	Philip E. Henderson	558	—	57	882,177	50,000
Western Illinois State Tch. Col., Macomb, Ill.	1899	Frank A. Beu	1,334	490	107	—	61,371
Western Kentucky State Tch. Col., Bowling Green, Ky.	1906	Paul L. Garrett	1,903	852	100	—	68,000
Western Maryland Col., Westminster, Md.	1868	Lowell Skinner Ensor	856	287	62	882,000	45,000
Western Michigan College, Kalamazoo, Mich.	1903	Paul V. Sangren	3,868	1,871	275	—	70,000

Institution and Location	Year Founded	Chief Executive	Full Time Students	Students under Veterans' Program	Faculty	Endowment	Library Volumes
Western Ontario, Univ. of, London, Ont., Can.	1878	D. G. Edward Hall	3,420	1,000	208	$ 500,000	175,000
Western Reserve Univ., Cleveland, Ohio	1826	Winfred G. Leutner	6,519	3,806	836	17,159,472	600,000
Western State Col. of Colo., Gunnison, Colo.	1901	Peter P. Mickelson	688	320	41	—	39,000
Western Washington College of Education, Bellingham, Wash.	1899	Wm. W. Haggard	1,156	463	81	—	71,000
West Georgia College (Jr.), Carrollton, Ga.	1933	I. S. Ingram	651	227	23	—	10,550
West Liberty State Col., W. Liberty, W.Va.	1837	Paul N. Elbin	558	261	29	—	19,000
Westminster College, Fulton, Mo.	1851	C. W. McKenzie	582	335	36	650,000	33,000
Westminster College, New Wilmington, Pa.	1852	John Orr	1,197	572	72	900,000	35,000
Westminster College, Salt Lake City, Utah.	1875	Robert D. Steele	265	82	21	175,000	15,000
Westminster College (Jr.), Tehuacana, Tex.	1895	J. N. R. Score	120	60	14	—	6,000
West Texas State Col., Canyon, Tex.	1910	J. A. Hill	1,107	497	76	—	257,517
West Virginia State Col., Institute, W.Va.	1891	John W. Davis	1,794	763	57	—	28,744
West Virginia Univ., Morgantown, W.Va.	1867	Irvin Stewart	6,304	3,897	363	115,300	202,167
West Virginia Wesleyan Col., Buckhannon, W.Va.	1890	W. J. Scarborough	760	388	38	225,857	31,000
Wheaton College, Norton, Mass.	1834	A. Howard Meneely	486		71	1,241,723	61,547
Wheaton College, Wheaton, Ill.	1860	V. Raymond Edman	1,505	500	131	750,000	90,000
Wheelock College, Boston, Mass.	1889	Winifred E. Bain	351	4	18	—	11,000
Whitman College, Walla Walla, Wash.	1859	Winslow S. Anderson	849	330	55	1,480,000	79,800
Whittier College, Whittier, Calif.	1901	William C. Jones	1,062	524	49	800,000	51,778
Whitworth College, Spokane, Wash.	1890	Frank F. Warren	748	289	44	45,000	18,000
Wichita, Municipal Univ. of, Wichita, Kan.	1926	W. M. Jardine	3,032	1,529	150	92,849	77,116
Wiley College, Marshall, Tex.	1873	E. C. McLeod	987	430	30	600,000	19,000
Wilkes College, Wilkes-Barre, Pa.	1933	Eugene S. Farley	1,168	730	65	555,000	11,960
Willamette University, Salem, Ore.	1842	G. Herbert Smith	1,163	555	57	2,000,000	65,000
William and Mary, Col. of, Virginia Polytech. Inst, Norfolk, Va.	1930	Lewis W. Webb	811	435	57	—	13,690
William and Mary, Col. of, Williamsburg, Va.	1693	John Edwin Pomfret	1,925	898	124	1,661,500	328,183
William Jewell Col., Liberty, Mo.	1849	Walter Pope Binns	829	395	37	2,199,185	59,681
Williams College, Williamstown, Mass.	1793	James P. Baxter III	1,110	585	110	12,639,000	289,500
William Smith College, Geneva, N.Y.	1908	Walter H. Durfee	286	4	61	707,000	89,188
William Woods College (Jr.), Fulton, Mo.	1890	H. L. Smith	362	—	35	575,000	13,000
				X			
Xavier University, Cincinnati, Ohio	1831	Celestin J. Steiner	1,773	1,115	124	226,025	89,455
Xavier University, New Orleans, La.	1925	Mother M. Agatha	1,000	447	70	817,946	48,100
				Y			
Yale University, New Haven, Conn.	1701	Charles Seymour	8,671	5,203	639	124,024,084	3,642,730
Yankton College, Yankton, S.D.	1881	James C. Graham	433	189	33	709,300	41,000
Young L. G. Harris Col. (Jr.), Young Harris, Ga.*	1886	J. W. Sharp	349	43	15	130,000	12,000
Youngstown College, Youngstown, Ohio	1908	Howard W. Jones	3,087	2,093	80	—	40,901
Yuba College (Jr.), Marysville, Calif.	1927	J. J. Collins	561	179	34	—	15,000

U.N.R.R.A.: *see* UNITED NATIONS RELIEF AND REHABILITATION ADMINISTRATION.

Uranium.

The wartime development and use of uranium in the atomic bomb, and its prospective use in power generation by atomic fission, led to a world-wide survey of all known and prospective sources of uranium, but for security reasons very little information was made public in this connection. For the same reason, no country reported its output of uranium ores or products.

Prewar consumption was so small that it was supplied by by-product uranium recovered from radium and vanadium ores, but war developments caused uranium to be sought and mined for its own sake. Metallic uranium, which before the war was little more than a laboratory curiosity, was later produced by the ton.

There were wide differences of opinion as to possibility and feasibility of developing commercial power from fissionable material. It was soon recognized that the driving of an automobile or aeroplane was not feasible, but large-scale central station power seemed to have definite possibilities. However, while in some quarters it was asserted that this could be accomplished in from five to ten years, more conservative opinions multiplied these figures by five. (*See* also ATOMIC ENERGY; CHEMISTRY; METALLURGY; PHYSICS.) (G. A. Ro.)

Urology.

The administration of a mixture of two or more sulfonamides for the purpose of combating infections of the urinary system proved successful in 1947 in preventing renal complications. Equal amounts of small doses of sulfathiazole and sulfadiazine or sulfamerazine were found to have a high antibacterial activity, with evidence that they would cause little, if any, damage to the kidneys.

The supply of antibiotic agents was no longer limited, and these drugs were used to an increasing extent. The antibiotics were used frequently in combination with the sulfonamide drugs to good effect. The value of streptomycin in combating gram-negative organisms was attested. Large initial doses are essential, since resistance to the drug develops rapidly. The use of streptomycin, however, was curtailed because toxicity developed in some persons after long-continued use of the drug. This toxicity was especially manifested by involvement of the eighth, or acoustic, nerve apparatus, which results in ataxia and deafness. Systemic reaction was observed so frequently that legal measures were considered which would forbid the administration of streptomycin except under the guidance of a physician. For persistent local infections, such as genitourinary conditions, sinuses and open wounds, tyrothricin administered in a solution of 1:5,000 was found to be of value.

An interesting complication which followed transurethral operations on the prostate gland was reported; namely, haemolysis. An unexplained so-called oliguric syndrome, consisting of a reduction in the daily output of urine and uraemia after operations on the prostate gland, had occurred occasionally and no cause for it could be determined. On investigation, evidence of haemolysis was found, which apparently resulted from the entrance of sterile water, used as an irrigating agent, into the blood stream. The portal of entry was believed to be the prostatic veins that had been severed during operation. The resulting damage to the kidneys resembled the haemoglobinuric nephrosis observed in such situations as the transfusion of incompatible blood, blackwater fever, severe crushing injuries, etc. Considerable investigation was done on this subject, although it was realized that the condition probably is only one of several factors that may be important in the oliguric syndrome. To eliminate this factor, attempts were made to prevent haemolysis

by the use of isotonic solutions, such as a 5% solution of glucose, as irrigating fluids during operations on the prostate gland.

Much interest was aroused in the possibilities of the tiding-over of acute renal failure and uraemia (when the renal condition is such that some improvement might be expected), either by means of an artificial kidney or by peritoneal dialysis. Such a situation may be encountered in a variety of conditions, including the one mentioned. By such a procedure the nitrogenous waste products of metabolism are eliminated by means other than the kidneys until the kidneys are able to resume their normal function. With improved mechanism, the artificial kidney was successful in selected cases. Among older persons peritoneal lavage was of some value without necessitating the complicated mechanism of the other method.

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(W. F. BR.)

Uruguay. A republic in the southeastern part of South America, bounded on the east, south, west and north, respectively, by the Atlantic ocean, the Río de la Plata, Argentina and Brazil. Area, 72,172 sq.mi. (the smallest of any South American republic); est. pop. (1944), 2,235,000. Racial distribution is estimated at 90% white and most of the rest mestizo; large numbers of Europeans, especially Italians and Spaniards, live in Uruguay. The capital and chief port is Montevideo (1945 est. pop., 747,665); other important cities (with 1945 pop. ests. unless otherwise stated) are Paysandú (50,000), Salto (48,000), Mercedes (33,000), Minas (1942 est., 32,000), Tucuarembó (30,000), San José (1942 est., 30,000), Rocha (28,500), Melo (28,000), Durazno (1942 est., 27,000) and Santa Lucía (1942 est., 27,000). Presidents in 1947: Juan José Amézaga, until March 1; Tomás Berreta, March 1–Aug. 1; Luis Batlle Berres, from Aug. 1.

History.—Presidential elections on Nov. 24, 1946, had apparently placed Tomás Berreta, public works minister and candidate of the *Batllista Colorado* party, and his running mate, Deputy Luis Batlle Berres, in line for inauguration early in 1947, with a popular vote of 264,626 over the Nationalist candidate, Luis Alberto Herrera, and his vice-presidential running mate Martín Echegoyen, who polled 176,628 votes. Congress on Feb. 11 proclaimed Berreta and Batlle as the officially elected candidates. Berreta at the time was in the U.S. on a trip officially announced as aimed at seeking aid in getting farm machinery for Uruguayan agricultural expansion. Berreta and Batlle were inaugurated on March 1 for the term ending in 1951. Montevideo was host to the third plenary session of the Inter-American Council of Commerce and Production from April 8 to April 11; the meeting, which was attended by 300 business men, mostly from South American countries, was concerned chiefly with problems of readjustment from a wartime economy to peacetime production. Beginning June 30, a 24-hr. general strike crippled public transportation and other services in Montevideo; the strike was called by 60 unions in protest against a government ban on strikes in the public services. Pres. Berreta's health became increasingly bad in midyear and on Aug. 1 he received a leave of absence from the office, Vice-President Batlle succeeding to active control. Berreta died the following day and Batlle then became constitutional president for the balance of the term.

Finance.—The monetary unit is the peso, valued at 52.63 cents U.S. currency on Oct. 31, 1947. The public debt continued to grow steadily through the year; successive figures for it were: May 31, 685,700,000 pesos; June 30, 692,100,000 pesos; Aug. 31, 694,200,000 pesos. Government revenues for the first three months of 1947 were 47,300,000 pesos as against 32,700,000 pesos in the same period in 1946. The total gold and foreign exchange holdings available for foreign payments on Feb. 28 were about $145,000,000, including $70,000,000 in blocked sterling, $69,000,000 in gold, $4,400,000 in various currencies and $1,600,000 in an oversold dollar position. Gold held abroad by the Bank of the Republic on June 30 totalled 89,600,000 pesos in contrast with holdings of 142,900,000 pesos on the same date in 1946. A financial agreement with Great Britain was concluded in London on July 15 covering £17,000,000 in frozen credits held by Uruguay; the agreement provided that 10% of the total was to be made available to Uruguay within one year and that most of the balance would be used to buy British-owned public utilities in Uruguay. According to terms of the agreement, £1,000,000 would be released immediately for free disposal by Uruguay and up to £700,000 additional within the following 12 months after ratification of the agreement. Distribution of portions of the remaining credits involved these items: £2,000,000 for purchase of the Montevideo street railways; approximately £3,000,000 for purchase of other utilities exclusive of the Central Uruguayan railway; £6,000,000 for purchase of Uruguayan bonds held in Great Britain; and £100,000 for purchase of buildings in London for use as the Uruguayan embassy and consulate; any remaining balance was to be frozen until 1951.

Agriculture.—The area in wheat in 1946–47 was stated to be 903,166 ac. (1945–46: 864,602 ac.) and production for the season was estimated at 188,529 metric tons (1945–46: 216,595 tons); the lower yield was blamed largely on damage by locusts and frost. Tobacco production in 1946 was 1,156,007 kg. (1945: 823,442 kg.). The area devoted to linseed in 1946 was 410,144 ac. (1945: 592,103 ac.) and the production of linseed in 1946–47 was 83,227 metric tons (1945–46: 131,039 tons). The estimate of the area in rice in 1947 was 25,849 ac., an increase of 4,639 ac. over 1946, and production for the year was estimated at 37,000 metric tons, a gain of 20% over 1946. An estimate of the corn crop, made in June, was for a 58% increase in quantity over 1946, although the area was down 6%. Simultaneous estimates of peanut production forecast an increase of 22%, although the area was down 7%; the sunflower seed estimate dropped, however, by 8% and the area devoted to it by 12% from 1946 figures. It was thought by September that locusts would prove an unusually serious menace to agricultural prospects. Cattle sales at Montevideo in the first three months of 1947 were 73,493 (same period in 1946: 161,434); sheep sales in the same period were 447,730 (same period in 1946: 293,179). The decline in cattle sales was attributed to the prevailing low prices.

The government during the year considered a 25,000,000-peso irrigation plan designed to bring into cultivation 247,000 ac. of additional land over a ten-year period.

Trade and Communications.—The foreign trade import balance for the first four months of 1947 was approximately $15,000,000; the import balance with the U.S. for the first six months of 1947 was $34,000,000. Frozen mutton exports in the first three months of 1947 were 1,120 metric tons (same period in 1946: 3,466 tons); canned beef exports in the same period were 2,420 metric tons (same period in 1946: 3,828 tons); jerked beef exports in the same period were 1,540 metric tons (same period in 1946: 1,642 tons). Tanned cattle hide exports in the first three months of 1947 were 247,122 kg. (fourth quarter of 1946: 487,809 kg.); sole leather exports in the same period were 70,883 kg. (fourth quarter of 1946: 120,283 kg.). Wool exports from Oct. 1, 1946, to March 31, 1947, were 55,109 bales (same period in 1945–46: 70,727 bales); woollen yarn exports in the first three months of 1947 were 140,594 kg. (same period in 1946: 147,960 kg.); woollen fabric exports in the first three months of 1947 were 44,989 kg. (same period in 1946: 98,714 kg.). Uruguay concluded an agreement with Great Britain during the year for the export of 100,000 metric tons of meat annually, 60,000 tons in canned meats and the balance in chilled or frozen meats; the two governments were also negotiating a sales agreement covering eggs, cheese and powdered milk.

The municipality of Montevideo contracted to buy the city's transportation system, including buses and street cars, for which it was proposed to issue 17,000,000 pesos in bonds; a further 14,000,000-peso bond issue was proposed for improvements in the system. According to such plans, the city would operate all its transportation by 1954. The government extended its telephone monopoly during the first quarter of 1947, by which time it was almost complete. Automotive vehicles in operation Jan. 1, 1947, included: 47,800 passenger cars (49.4% of U.S. and Canadian makes), 19,000 trucks (60.5% of U.S. and Canadian makes), 1,550 buses (20.3% of U.S. and Canadian makes), 650 truck trailers and 1,800 motorcycles and three-wheeled vehicles. Authorities considered plans for building a three-branch, 14.9 mi. subway in Montevideo but press reaction to it was adverse.

The government concluded a treaty with Brazil for construction of an international bridge over the Cuareim river.

Manufacturing.—Cotton yarn production in the first three months of 1947 totalled about 750,000 kg. The estimate of wine production in 1947 was 60,000,000 l. (1946: 72,000,000 l.). Crude oil runs to stills in 1946 were 2,503,866 bbl. (1945: 1,965,417 bbl.); by-products produced in 1946 included: gasoline, 781,553 bbl.; aviation gasoline, 14,364 bbl.; kerosene, 428,992 bbl.; gas oil, 226,680 bbl.; fuel oil, 894,896 bbl.; diesel oil, 92,919 bbl. A proposal considered during the year involved harnessing of the Quequay river at a cost of 11,000,000 pesos to develop 70,000,000 kw. of electricity annually.

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U.S.S.R.: *see* UNION OF SOVIET SOCIALIST REPUBLICS.

Utah. A Rocky Mountain state, admitted to the union in 1896, popularly known as the "Beehive state." Area 84,916 sq.mi. (82,346 sq.mi. land; 2,570 sq.mi. water); pop. (Dec. 31, 1947) 650,000; (U.S. census 1940) 550,310. The rural (nonfarm) population was 150,465 in 1940, (farm) 94,352;

urban 305,493, with the following origins: white (native) 510,662; (foreign-born) 32,298; Negro (native) 1,225 (est. 1947, 3,000); (foreign-born) 10. Farm population decreased considerably after 1940, but was again increasing. Urban population increased about 60% because of war conditions and changed little after the close of the war. Capital, Salt Lake City (pop. est. 1947, 200,000). Other principal cities with 1947 est. pop.: Ogden (62,000), Provo (25,000) and Logan (15,000). In 1946 the Mormon Church gave its membership total as 996,505, a little less than one-half, or 495,000, in Utah and 113,750 in Salt Lake City.

History.—In 1947 state-wide and local observances were held commemorating the coming of the Mormon pioneers to the Salt Lake valley 100 years before. Visitors to Salt Lake City's famous Temple square exceeded the 1,000,000 mark—a new tourist record.

One of the best attended and most active National Governors' conferences took place in Salt Lake City, July 13 to 16.

One of the major developments brought about by the administration of Governor Herbert B. Maw during the centennial year was the final conversion of the Geneva Steel plant to private industry under the United States Steel corporation. During the 16 months this plant had been privately operated, it had employed 5,600 persons and paid out $18,000,000 in salaries. The benefits of this plant would extend to coal, oil and limestone mining and to many other industries that were planning to locate in the state.

On April 17, 1947, Heber Bennion, Jr., was appointed secretary of state to fill the unexpired term of E. E. Monson, who died suddenly on April 8; Ferrell H. Adams was auditor; Reese M. Reese, treasurer; Grover A. Giles, attorney-general; and Dr. E. Allen Bateman, superintendent of public instruction.

Education.—There were 149,948 children of school age in Utah in 1946 (fiscal year), and an average daily attendance at school of only 129,271 out of an enrolment of 144,118. The total cost of education for the fiscal year July 1946–July 1947, was $20,983,482.51 with $18,498,409.92 devoted to operating expenses. There were 4,857 teachers and 333 principals.

Social Insurance and Assistance, Public Welfare and Related Programs.—Total obligations of $9,654,801.35 incurred in 1946 for public assistance exclusive of administration, were distributed as follows: Old-age assistance, $6,226,377.87; aid to dependent children, $2,041,139.52; aid to blind, $74,624.75; aid to employables, $96,316.27; aid to unemployables, $810,116.59; other assistance, $402,226.35. A total of 15,395 households were receiving assistance in June 1946, as compared with 14,895 households in June 1945. From Jan. 1 to June 30, 1947, $5,699,565.53 was distributed for public assistance.

The 1947 legislature fixed the amount of "budgetary needs" for recipients of public assistance at not to exceed (per month) $45 for a one-person case, $90 for a two-person case, $114 for a three-person case and $15 per person for each additional person beyond three in a case, with an over-all maximum of $175 for any case. The maximum must be adjusted according to changes in the U.S. cost of living index Jan. 1 and July 1 each year.

Communications.—In 1947 there were 29,780 mi. of roads maintained in Utah by the following agencies: state highway department 5,427; counties 15,427; cities and towns 2,588; and by the U.S. government in various federal reservations and by the grazing service 6,338 mi. Celebration of Utah's centennial year increased vehicle-miles of highway travel by 14% over the previous high year, 1946, and motor vehicle registration went to 180,000 licences, a new high, with registration receipts totalling $1,785,000 for 1947. Receipts from the 4-cent gasoline tax were $6,186,000. State highway expenditures were $9,000,000 of which $4,200,000 were federal co-operative funds. Beginning July 1, 1947, the state was to distribute $1,500,000 annually to cities and counties from motor vehicle registration receipts for expenditure on local roads. There were 63.27 mi. of electric railway and approximately 2,370 mi. of steam railway in 1947.

Banking and Finance.—The 60 banks, 48 state and 12 national, had total assets of $572,166,650.45 on Oct. 6, 1947, and total bank deposits reached $538,698,632.87. On Dec. 31, 1946, the 13 state-chartered building and loan associations had aggregate assets of $36,739,158.68. On June 30, 1946, the 6 federal savings and loan associations had aggregate assets of $19,913,720.90.

State receipts for the year ending June 30, 1947, were $61,902,432.72; expenditures were $57,453,374.34. The total of outstanding bonds in 1947 was $1,220,000, with this amount available from the state liquor control fund for retirement of all outstanding bonds. Thus the state was out of debt.

Agriculture.—Figures not yet final showed cash income from farm marketings in 1946 was $35,819,000 for crops and $93,783,000 for livestock and livestock products, as compared with final figures of $38,500,000 for crops and $87,734,000 for livestock and livestock products in 1945.

Preliminary value of truck and canning crops was $6,436,000 for 1946; for 1945 $8,318,000. The value of canning tomatoes in 1947 was $1,755,000 and shipping tomatoes $38,000.

Table I.—Principal Agricultural Products of Utah, 1947 and 1946

Crop	Preliminary 1947	1946
Wheat, tons	262,020	209,430
Hay (tame and wild), tons	1,208,000	1,118,000
Potatoes, bu.	2,660,000	2,775,000
Sugar beets, short tons	704,000	568,000
Celery, crates	480,000	618,000
Tomatoes, fresh, bu.	82,000	66,000
" processing, tons	72,900	66,800
Onions, 100-lb. sacks	275,000	412,000
Peas, tons (processed)	15,120	17,260

Because of international agreements, all German and Italian prisoners of war were repatriated as of July 1, 1946, which caused a shortage of agricultural workers. However, these were replaced by approximately 800 Mexican nationals, which number increased to about 975 during the peak of the fall harvest. During May and June, 1947, the number of Mexican nationals, who aided in the thinning of the sugar beets and in the fruit and vegetable harvests, reached nearly 1,950. In October and the early part of November, they were used primarily in the sugar beet, tomato and potato harvests.

Manufacturing.—Manufacturing employment in Utah during 1947 was at a rate 65% greater than during the immediate prewar years—1937–41. The average number of workers in manufacturing in 1947 was about 27,500, by a large margin the highest postwar figure. Principal manufacturing fields are food products and primary metal industries. Several large new industrial plants were being built in 1947; many more were in the planning stage. Some of these were plants which would use products from the Geneva Steel mills but others were in such fields as gypsum, rubber products, oil refining, paint, cement, batteries and chemicals.

Annual manufacturing pay rolls in 1944, 1945 and 1946 were slightly in excess of $50,000,000. In 1947 the total was expected to approach $70,000,000. The gross value of Utah's manufactured goods was estimated at $450,000,000.

Mineral Production.—Preliminary reports show that metal mining in Utah in 1947 rebounded with great vigour from the lows of 1946, giving the state one of the best peacetime years in its mining history. Gold output climbed to a new all-time peak, and, except for three years during World War II, copper had its best year in state history. Silver, lead and zinc also made good gains.

In 1946, prolonged labour strikes and continued shortages of labour drove production of gold, silver, copper, lead and zinc to the lowest levels in recent years. Copper bore the brunt of the precipitous decline, but the output of each of the other four metals also slumped markedly. Despite appreciable increases in average prices of the five metals, except gold, the value of the five decreased 33% from $90,018,641 in 1945 to $60,202,627 in 1946. Production of manganiferous and tungsten ores increased in 1946, but output of molybdenum, fluorspar, coal, iron ore and vanadium declined. In 1946 the state had a production of 178,533 fine oz. of gold and 4,118,453 fine oz. of silver, as compared with 279,979 fine oz. of gold and 6,106,545 fine oz. of silver in 1945. The peak production year for copper was 1943.

Table II.—Principal Mineral Production in Utah, 1946 and 1945

Mineral	1946	1945
Copper, lb.	228,568,000	452,752,000
Lead, lb.	61,422,000	81,634,000
Zinc, lb.	56,584,000	67,260,000
Value of all ores	$60,202,627	$90,018,641

The 1947 coal production was 1,740,889 tons; the 1947 coke production was 1,078,462 tons. Oil production reached 55,000 bbl. per day.

(J. C. Ar.)

Utilities, Public: *see* PUBLIC UTILITIES.

Vanadium. The vanadium content of ores and concentrates produced by the major sources of supply is as follows, in short tons.

World Production of Vanadium

(Short tons of metal content)

	1937	1939	1941	1943	1945	1946
Northern Rhodesia	259	423	377	470	241	75
Peru	643	1,097	1,121	934	758	357
South-West Africa	652	567	297	636	141	110
United States	544	992	1,257	2,793	1,482	636
Total	2,150	3,200	3,100	4,850	2,600	1,178

Vanadium has been produced in small amounts in several other countries, and during the years of World War II there were appreciable outputs in Japan and Germany, the exact magnitude of which are not known, but which are reported to have been of the order of about half of the known outputs recorded above.

United States.—The trend of the vanadium industry in the United States is indicated by the following data, in short tons of vanadium content of ores and concentrates:

	1937	1939	1941	1943	1945	1946
Mine shipments	543	992	1,257	2,793	1,482	636
Imports	629	1,066	1,069	1,058	789	406
Peru	629	1,066	1,068	1,026	776	396
Consumption	?	?	?	3,631	2,547	825

While production and consumption declined each year after the war peak in 1943, consumption took an upward turn in the latter half of 1946, and by midyear of 1947 stood at the highest point after the close of the war. The resulting reaction on production brought receipts of ore at the mills during the first half of 1947 up to more than in the full year 1946. Although output dropped off during the third quarter, mill receipts for the nine months totalled 814 short tons. Imports also improved during 1947, but the total for the three quarters was only 315 short tons. (G. A. Ro.)

Vandenberg, Arthur Hendrick (1884–), U.S. senator and statesman, was born March 22, in Grand Rapids, Mich. He studied at the University of Michigan law school, Ann Arbor, Mich., for one year, and joined the *Grand Rapids Herald* as a reporter, becoming editor and general manager of the paper. He was appointed to fill a U.S. senate vacancy in 1928 and was re-elected in 1934, 1940 and 1946.

Before the United States entered World War II, Vandenberg, a noninterventionist, attacked the lend-lease bill and aid to Britain. After the Japanese struck Pearl Harbor, Vandenberg generally approved the administration's foreign policy.

In 1945 Pres. Franklin D. Roosevelt appointed him delegate to the United Nations conference in San Francisco, Calif. Vandenberg subsequently urged the senate to ratify the U.N. charter which he supported because "this plan regardless of its infirmities, holds great promise that the United Nations may collaborate for peace as effectively as they have made common cause for war."

On Dec. 30, 1946, Vandenberg was named president pro tempore of the senate. During 1946 and 1947, he supported Pres. Harry S. Truman's bipartisan foreign policy. His relations with the president were cordial, and his advice was frequently sought by James F. Byrnes and George C. Marshall.

In 1947, Vandenberg vigorously backed the Truman doctrine and the Marshall plan and advocated a policy of "friendly firmness" toward the Soviet Union.

The latter, however, regarded him as an "imperialist" and "warmaker."

On Dec. 31, Vandenberg definitely renounced any presidential aspirations, declaring he was convinced he could best serve the country by completing his senate term.

Varnishes: *see* PAINTS AND VARNISHES.

Vassar College. A college for women at Poughkeepsie, N.Y., founded by Matthew Vassar in 1861. The college year 1946–47 was the first in the administration of President Sarah Gibson Blanding, Vassar's sixth, and first woman, president, who had succeeded Dr. Henry Noble MacCracken upon his retirement the preceding July.

Vassar's enrolment in Sept. 1947 was 1,370 women resident undergraduate students, 44 of whom came from foreign countries, 11 graduate students and 47 male veterans. The latter group consisted of nonresident students from the nearby community who were first admitted in April 1946 when Vassar took the lead among women's colleges in making temporary room for veterans.

In May 1947 more than 3,000 Vassar alumnae, members of all living classes, revisited the campus for a series of five reunion week ends during which they discussed problems of family and community life of concern to college women.

In 1947 Vassar college put into operation its revised curriculum providing for less specialization and more correlation of student electives. To meet increased costs and salaries, the trustees voted in March to raise the tuition to $1,600, effective in 1946–47. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.)

Vatican City State. A sovereign independent state, established by the Lateran treaty between the Holy See and the Italian government on Feb. 11, 1929. The treaty is recognized in international law, and the reigning pope is the sovereign. The area of Vatican City is 0.5 sq.mi., excluding the papal estate of Castel Gandolfo and certain basilicas in Rome which are extraterritorial. Pop. (1938 est.): 750. Executive powers are exercised by the governor, responsible to the pope.

The Vatican in 1947 maintained diplomatic relations with 40 states. The status of relations with several additional countries was unsettled because of disturbed conditions. The Vatican had 28 nuncios, representatives of ambassadorial rank, and 5 internuncios, representatives of lesser rank, in as many countries. Bishop Gerald P. O'Hara, of Savannah-Atlanta, Ga., was named regent to the nunciature in Bucharest, Rumania. Bishop Joseph P. Hurley of Saint Augustine, Fla., continued as regent in Belgrade, Yugoslavia. The Vatican sent apostolic delegates, representatives without accredited rank, to 18 countries, including Canada, Great Britain and the United States.

During 1947 there was an exchange of correspondence between Pope Pius XII and Pres. Harry S. Truman dealing with world peace, and implicitly condemning communism. Myron Taylor continued at the Vatican as Truman's personal representative. Baptists in the United States protested both the interchange of letters and the return of Taylor as presidential representative at the Vatican as a violation of their doctrine of the separation of church and state. However, the president stated that he found the relationship helpful during the existing world crisis.

In March the Vatican gave a new interpretation to article xii of the 1929 concordat with Italy. Subsequently, the constituent assembly reaffirmed the Lateran agreement, regulating church-state relations in Italy.

In July the *Osservatore Romano,* semiofficial Vatican daily newspaper, attributed the break-up of the foreign ministers conference in Paris to soviet opposition to Allied peace plans and commented in strong language on Russia's rejection of the Marshall plan.

On the occasion of Secy. of State George C. Marshall's speech in Rio de Janeiro, Brazil, in August, the paper expressed its conviction that the Latin-American policy of the United States paved the way for peace and continental security, whereas communism constituted a threat to both. *L'Osservatore* recalled that similar principles had been expressed by many popes, and as late as Christmas Eve 1945, by Pius XII, who said that totalitarianism is not only incompatible with a true and sound democracy but also represents a permanent danger of war.

Extensive changes in Greek ecclesiastical jurisdictions were announced by the Holy See. The Rev. Marco Sigala was named archbishop of Athens, Greece, by Pope Pius XII, accompanied by other transfers and appointments.

The Vatican in August approved creation of an international relief organization to co-ordinate the relief work of Catholic groups in all countries. In announcing the program the pope paid tribute to the "grandiosity" of Catholic relief work in the United States.

During September the Food and Agricultural organization in-

vited the pope to send an observer to future meetings of that body. (*See* also PIUS XII; ROMAN CATHOLIC CHURCH.)

(J. LAF.)

Veal: *see* MEAT.

Vegetable Oils and Animal Fats.

Total U.S. production of fats and oils from domestic materials increased in 1947 to 9,900,000,000 lb. compared with 8,848,000,000 lb. in 1946 and the high record of 10,847,000,000 lb. in 1943. The increase in 1947 was principally in butter, lard, tallow and grease and cottonseed oil. Consumption of oils and fats also increased but less rapidly than production and imports. The principal increases in imports were in linseed oil, tung and copra. Stocks were increased during 1947 to replace the 460,000,000 lb. withdrawn in 1946. Stocks as a whole were down to 1,266,000,000 lb. on Dec. 31, 1946—the lowest level after the 1930s. By Aug. 1947 stocks had recovered to more than 1,400,000,000 lb.

Total U.S. butter production was estimated at 1,700,000,000 lb. in 1947, which was a gain of about 12% over 1946. Production of lard and pork fats also increased in 1947, although it was lower in the fall months than a year earlier. Linseed oil production was below 1946 as well as the average 1937–41. All of the drying oils were in reduced supply except tung oil, of which a larger amount was imported. Peanut-oil production increased sharply under the stimulus of a price support of $200 per ton through 1947—$28 per ton above the 1946 price. Crushers at times paid more than the support price. Large exports were made for crushing abroad. Civilian consumption of peanuts as food declined to 5.2 lb. per capita, lowest for 5 years, and allowed more of the crop to be crushed for oil. Cottonseed increased from the low level of 1946. Soybeans increased only slightly although support prices were maintained at the level of 1944–46.

U.S. Production of Principal Fats and Oils, 1943–1947

(In millions of pounds)

	1947*	1946	1945	1944	1943
Butter	718	1,450	1,699	1,818	2,015
Lard	901	2,130	2,132	3,203	3,056
Edible tallow	98	140	202	198	259
Edible vegetable oils	1,466	2,700	2,969	2,703	2,949
Soap fats and oils	860	1,830	1,923	2,149	1,817
Drying oils	209	510	463	735	720
Other oils	80	30	40	33	31
Totals	4,332	8,790	9,428	10,839	10,847

*January to June.

Prices of all fats and oils rose through the years of World War II, and after price ceilings were removed in 1946 advanced rapidly. The index of prices of 27 items was 148% of prewar, 1935–39, in 1945; 216% in 1946 and had advanced to 251% by Sept. 1947. Strong export demand from Europe as well as the large domestic consumption was expected to support prices through 1948. Animal fats were especially short and not likely to be produced in increased quantity in 1948. Supplies for import were increasing; but the strong demand of Europe was holding imports down to less than half the prewar volume, the total amounting to almost the same as exports. The world's production of animal fats was increasing slowly and oil seeds at a somewhat more rapid rate.

Consumption of fats and foods containing them increased slightly in 1947. In 1946 the total of food products consisting of butter, lard, margarine, shortening and other edible oils amounted to only 39.6 lb. per person compared with 47.4 lb. in 1940. Butter amounted to 8.2 lb., lard 11.8 lb., margarine 3.1 lb., shortening 10 lb. and oils 6.3 lb. The consumption of all oils including soap, paints, etc., was 63.7 lb. in 1946 and slightly more in 1947. Government operations in oils and fats were in smaller quantities than during the war years, but about 55,000,000 lb. of lard was bought for export to Austria and Germany in July and August. Total allocation of all kinds of fats and oils for 1947 amounted to 1,116,000,000 lb.

Production of fats and oils was smaller than in 1946 in Europe because of drought and the feed scarcity which held down livestock productions. Larger output of whale oil, copra and some other oils offset the reduction in Europe and provided exports amounting to nearly 1,000,000 tons more than was shipped in 1946. (*See* also BUTTER; COCONUTS; COTTON; MARGARINE; PEANUTS; SOYBEANS.)

(J. C. MS.)

Vegetables.

The U.S. crop of 25 vegetables, classed as truck crops for fresh market, in 1947 was 12% below the record crop of 1946 but 15% above average. New high records were made by sweet corn, kale, lettuce and watermelons. Other vegetables mostly yielded less than in 1946 but were above the ten-year average 1936–45. The tonnage of eight crops for processing was 13% less than in 1946 but 21% above average. Only three crops, cabbage, beets and spinach, were below average, while lima beans set a new high record. The total acreage of vegetable crops was 3,617,000 ac. compared with the record acreage of 4,035,000 ac. grown in 1946.

Prices of fresh vegetables were at high levels through 1947 in spite of continued high production and large stocks of canned vegetables. Consumption of fresh vegetables continued to be large, except for occasional gluts of heavy shipments of some crops. Crops for processing sold at high prices in the face of the large stocks of canned vegetables. Contracted tonnage prices were about the same as in 1946 but some open-market tonnage sold at lower prices.

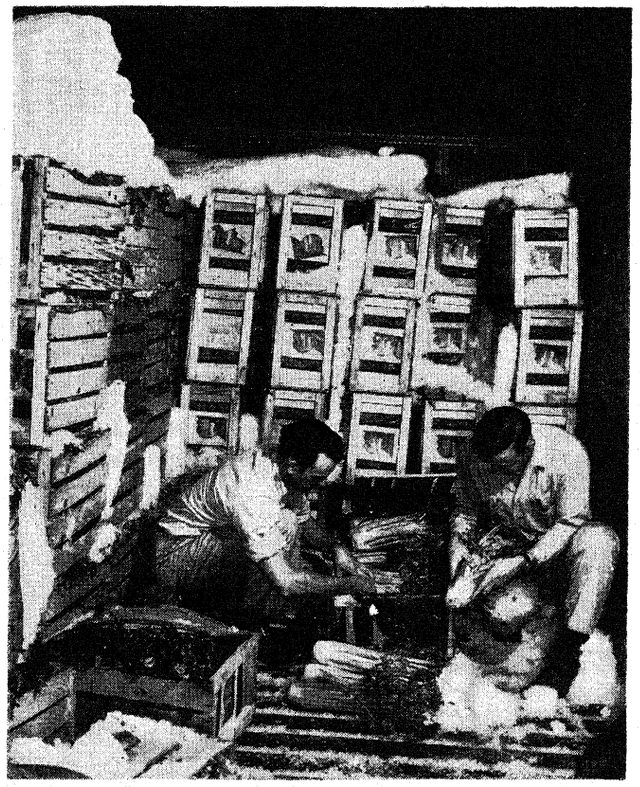
Commercial Truck Crops for the Fresh Market.—The total tonnage of 25 truck crops grown for the fresh market was estimated at 7,978,000 tons in 1947 compared with the record of 9,064,000 tons raised in 1946 and a ten-year average (1936–45) of 6,933,000 tons. The acreage of these crops was 10% less in 1947 than a year earlier, amounting to 1,844,000 ac., about 6% above the average. Yields were 2% below 1946 but 9% above average.

The crops that exceeded production of 1946 were kale, lettuce, sweet corn, artichokes, asparagus and watermelons, while the shortest crops were onions, melons, cabbage, eggplant and escarole. Higher market prices were reflected in the total value of the smaller crop, $597,589,000 compared with $577,366,000 in 1946 and the average of $338,677,000 in 1936–45. The top crops in total value were: lettuce $108,367,000; tomatoes $87,112,000; celery $56,864,000 and onions $53,142,000. Cabbage,

Table I.—U.S. Vegetable Production for Fresh Market, 1947, 1946 and 10-Year Average, 1936–45

(In thousands)

Crop	Unit	1947	1946	10-year average
Artichokes	boxes	761	700	835
Asparagus	crates	4,431	4,092	4,657
Beans, lima	bu.	1,489	1,549	1,331
Beans, snap	bu.	17,006	18,882	15,855
Beets	bu.	1,942	2,249	2,167
Cabbage	tons	1,150	1,386	1,140
Cantaloupes	crates	12,633	13,828	9,629
Carrots	bu.	23,797	26,430	20,519
Cauliflower	crates	11,385	12,741	8,899
Celery	crates	20,094	23,329	16,963
Corn, sweet	ears	325,520	319,860	263,094
Cucumbers	bu.	6,263	6,975	4,648
Eggplant	bu.	1,091	1,804	1,063
Escarole	hmp.	958	1,385	801
Honeyball melons	crates	70	193	297
Honeydew melons	crates	3,340	4,591	3,089
Kale	bu.	702	556	638
Lettuce	crates	34,254	33,801	23,575
Onions	sacks	36,800	50,878	34,509
Peas, green	bu.	4,373	5,275	7,617
Peppers, green	bu.	5,895	7,572	5,234
Shallots	bu.	443	668	562
Spinach	bu.	12,123	13,783	14,729
Tomatoes	bu.	28,830	34,229	26,069
Watermelons	melons	81,512	80,825	65,778



U.S. GOVERNMENT INSPECTORS spot-checking the condition of fresh celery shipped into Philadelphia produce yards by refrigerator car in 1947

cantaloupes and carrots were each worth more than $40,000,000. In value of truck crops, leading states were as follows: California $224,184,000; Florida $68,760,000; Texas $43,277,000; Arizona $39,477,000; New York $34,163,000; New Jersey $24,534,000; Michigan $23,040,000 and Colorado $20,022,000. Texas had advanced to third place and Arizona to fourth from sixth. New York and New Jersey had declined in comparative output. The steady development of southwestern truck production continued.

A study of the losses in retailing fresh fruits and vegetables in a number of stores in Pennsylvania and New Jersey disclosed an average of 7.4% of the value of the actual sales or $74 for each $1,000 of goods sold. The largest losses were in lettuce, tomatoes, melons, peppers and cauliflower among the vegetables and bananas, oranges, and apples among the fruits.

Commercial Truck Crops for Processing.—The total tonnage of 11 U.S. truck crops for processing harvested in 1947 was 5,470,930 tons compared with 6,304,060 tons raised in 1946 and the 10-year average 1936–45 of 4,522,080 tons. The acreage —1,800,000—of these 11 crops was 10% less than that of 1946 but 13% above the average of 1,600,000 ac., 1936–45. Yields per acre were above average in 1947 for asparagus, green lima beans, cucumbers, green peas, spinach and tomatoes and below average for snap beans, beets, cabbage for sauerkraut and sweet corn. Prices per ton for these processing crops were lower in 1947 than in 1946 for 6 crops and higher for 5, with the general result that the total value of the 11 crops was $209,125,000 in 1947 compared with $249,489,000 in 1946 and $114,943,000 for the 10-year average 1936–45. Crops that brought higher average season prices in 1947 were green lima beans, beets, cabbage, sweet corn, green peas and tomatoes.

The pack of canned vegetables for the calendar year 1947 was estimated at 6,461,000,000 lb. compared with 7,612,000,000 lb. in 1946 and the prewar average of 4,084,000,000 lb. (1935–39). Stocks at the beginning of 1947 were 4,562,000,000 lb., a high record, making a total available supply near the record of 1946. Civilian consumption was estimated at about 46 lb. per capita. The production of frozen vegetables, 390,000,000 lb., was the highest on record, except for 1946. Stocks of 332,000,000 lb. were the largest on record and tended to depress retail prices somewhat. Consumption of frozen vegetables increased steadily from a prewar average of less than ½ lb. to 2.25 lb. in 1947. Exports of canned vegetables declined from the high record of 1946. (*See* also AGRICULTURE; CORN; HORTICULTURE; LETTUCE; POTATOES; TOMATOES.) (J. C. Ms.)

Table II.—U.S. Production of 11 Vegetables for Processing, 1947, 1946 and 10-Year Average

(In tons)

Crop	1947	1946	Average 1936–45
Asparagus	102,510	119,990	75,670
Beans, lima	48,900	44,610	29,490
Beans, snap	166,000	207,400	160,700
Beets	73,600	141,380	105,600
Cabbage	69,900	269,200	162,200
Corn, sweet	1,042,600	1,241,800	962,500
Cucumbers	242,660	252,170	164,160
Peas, green	436,940	522,270	332,790
Pimentos	18,320	23,160	16,370
Spinach	57,500	88,400	70,500
Tomatoes	3,212,000	3,393,700	2,442,100

Venereal Diseases. According to a report made available in late 1947 by the interim commission, World Health organization, increases throughout the world in the incidence of venereal diseases because of World War II brought control to the fore as a major international problem. In war-torn and occupied countries the incidence rates of the venereal diseases were not only doubled and tripled, but, as in one of the European countries the increase was twelvefold. There was some evidence at the end of the year, however, that further increases had been checked in most European countries and that in some the number of cases had begun to decline.

In the U.S., the number of reported cases of civilian primary and secondary syphilis increased over 1946 for the second year in succession. This increase was the result of the return to civilian life of millions of adult males in the age group in which syphilis occurs frequently. The rates per 1,000 total population of primary and secondary syphilis cases reported by civilian and military sources did not reflect the sharp increase noted in the number of such cases reported for civilians in 1946–47. A study made by the U.S. public health service based on rates calculated for the combined civilian-armed forces' population of the U.S. showed a continuous increase in the rate of primary and secondary syphilis reported from 1941–46 with a levelling off in 1947. (*See* table on page 776.)

Since a steady decrease was shown in the congenital and late syphilis rates, the total syphilis reported rate had shown a continuous decline after 1943. New cases of early latent and congenital syphilis reported were approximately the same in fiscal 1947 as in fiscal 1946. Late and late latent cases reported were below the number in the previous year, although the downward trend in this group for 1947 was much less than it had been in 1944–45–46.

The general mortality and infant mortality rates for syphilis, as well as admissions to mental hospitals rates, all reached new low points for the latest years in which data were available in 1947. These were 9.3 (estimated) per 100,000 population for general mortality in 1946; .25 per 1,000 live births for infant mortality in 1945; and 5.7 per 100,000 population for admissions to mental hospitals in 1945. These figures probably reflected the effectiveness of treatment in prevention.

More than 400,000 civilian cases of gonorrhoea were reported in 1947, the largest number yet reported to the U.S. public health service. There was evidence, however, that this was far

Trend of Syphilis Morbidity Reporting, U.S. Civilians and Armed Forces 1941-47

Fiscal Year	Est. Pop. in thousands*	Reported Cases: Total including not stated	Reported Cases: Primary or secondary	Reported Cases: All early syphilis (primary, secondary, early latent)	Reported Cases: Congenital	Reported Cases: Late and late latent	Rate per 1,000 Population: Total including not stated	Rate per 1,000 Population: Primary or secondary	Rate per 1,000 Population: All early syphilis (primary, secondary early latent)	Rate per 1,000 Population: Congenital	Rate per 1,000 Population: Late and late latent
Continental U.S. Civilians											
1941	131,897	477,841	67,958	176,616	17,592	201,190	3.623	.515	1.339	.133	1.525
1942	131,943	472,245	75,704	192,137	16,924	202,216	3.579	.574	1.456	.128	1.533
1943	128,728	564,918	82,230	231,139	16,173	252,995	4.388	.639	1.796	.126	1.965
1944	127,028	458,199	78,418	200,808	13,576	203,396	3.607	.617	1.581	.107	1.601
1945	127,037	356,315	77,007	178,142	12,339	142,731	2.805	.606	1.402	.097	1.124
1946	133,543	360,918	94,957	202,293	12,106	125,836	2.703	.711	1.515	.091	0.942
1947	140,974	373,296	106,594	214,349	12,284	122,257	2.648	.756	1.520	.087	0.867
Total Civilian and Armed Forces											
1941	132,638	484,647	74,764	183,422	17,592	201,190	3.654	.564	1.383	.133	1.517
1942	133,953	486,386	89,845	206,278	16,924	202,216	3.631	.671	1.540	.126	1.510
1943	135,646	594,021	111,333	260,242	16,173	252,995	4.379	.821	1.919	.119	1.865
1944	137,368	501,947	122,166	244,556	13,576	203,396	3.654	.889	1.780	.099	1.481
1945	138,923	411,840	132,532	233,667	12,339	142,731	2.965	.954	1.682	.089	1.027
1946	140,387	409,531	143,570	250,906	12,106	125,836	2.917	1.023	1.787	.086	0.896
1947	142,673	399,067	132,365	240,120	12,284	122,257	2.797	.928	1.683	.086	0.857

*As of Jan. 1 (mid-point of fiscal year).

below the real incidence of gonorrhoea and it was not possible to interpret the increase in gonorrhoea reporting as being attributable to a higher incidence rate. Treatment of gonorrhoea on epidemiologic or clinical evidence rather than bacteriologic identification of the gonococcus was an increasingly widespread practice.

During the fiscal year health department clinics made approximately 1,500,000 diagnostic observations of persons to detect the presence or absence of venereal disease. About a third of these observations resulted in the diagnosis of at least one venereal disease. Among the previously untreated syphilis infections found by clinics, approximately 57,000 were primary and secondary, 56,000 early latent, 8,000 congenital and 38,000 late syphilis cases. About 70% of the primary and secondary cases without previous treatment were referred to in-patient care for therapy. Less than 5% of approximately 300,000 gonorrhoea cases diagnosed by clinics were referred for in-patient care. Clinics (excluding rapid treatment centres) obtained on an average of about one contact from each primary and secondary syphilis case diagnosed.

State-wide in-patient treatment services were provided through special federal grants supplementing local funds in 42 states, the District of Columbia and the Virgin Islands. Federal grants amounted to 75% of the total cost. Allotments were made to 36 rapid treatment centres and 29 bed contract plans in which syphilis patients were referred to general hospitals by health departments. During the year, 181,000 patients were admitted to rapid treatment centres. This was a 3% increase over the previous year. Syphilis patients comprised an even greater proportion of total admissions in 1947 (85%) than in 1946 (68%). Gonorrhoea admissions declined to 5% of total admissions in 1947 as compared with 18% in 1946.

Treatment for gonorrhoea was stabilized to one or two injections of penicillin on out-patient schedules. Studies on the treatment of syphilis with penicillin continued to show no factors detracting from the great promise indicated in early reports. Penicillin administered every two or three hours during an average of nine days was used successfully for the in-patient treatment of most cases of early acquired syphilis, and the treatment of syphilitic pregnant women. Out-patient schedules utilizing penicillin in oil and beeswax, administered once daily were also used with encouraging results.

New elements entering into projects developed by the venereal division of the U.S. public health service included an attempt to intensify contact investigation during the course of a program of mass blood testing; a program of public education designed specifically to spread an awareness of the symptoms of venereal disease in order to encourage infected individuals voluntarily to seek diagnosis, a program in which mobile clinics were used to examine persons on large plantations in the rural south, and a plan to intensify and speed up the process of contact investigation.

Congress appropriated $17,426,300 for the fiscal year for venereal disease control; $8,764,400 was allocated to the states and territories; $6,681,882 was expended for maintenance and operation of rapid treatment centres and project grants for other in-patient care; $1,980,018 was used for administration, clinical and laboratory research, demonstrations, scientific information, public and professional education and other control activities.

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(J. R. HR.)

Great Britain and Europe.—Increases in venereal disease in Europe, as mentioned above, were apparently checked at the end of 1947. In Great Britain the incidence of syphilis during the first six months showed a decrease in most London and provincial clinics, and there was every indication that the drop would be maintained. In 1946 the number of cases of syphilis had been twice as high as in 1945, an increase similar to that of 1920, two years after World War I. Cases of venereal diseases in the British army in 1946, per 1,000 per annum, had been 185 in Germany, 168 in Austria and Italy and 33 at home; the incidence of fresh cases among British soldiers for 1947 in the British zone was 31.2 per 1,000 per annum. In Berlin the number of cases was higher than this, but in Hamburg it was lower. There was on the other hand a large increase in venereal diseases in France. This was attributed to the closing of brothels by the decree of April 13, 1946, but H. Gounelle and P. Girault maintained that this was only a contributory cause and that the steep rise in incidence really began as far back as 1941.

Official figures in this field may be fallacious, however, as a much larger number of cases of gonorrhoea and syphilis, both service and civilian, were being treated with penicillin by specialists and general practitioners, and of these there was no record.

The success of the educational campaign carried out by the Central Council for Health Education in Britain in making the population "V.D. conscious" was shown by the increasing number of both men and women (106,000 in 1946) who attended clinics with signs or symptoms simulating venereal disease, but which on examination were considered to be nonvenereal in origin. In 1946 more than 50% of these cases were suffering from such diseases as nongonococcal urethritis, vaginitis, warts and balanitis.

Advances in treatment continued. R. B. Greenblatt and his collaborators showed that streptomycin was far more efficacious than antimony in the treatment of *granuloma venereum* (4th venereal disease). Streptomycin was also found to be effective in the treatment of gonorrhoea, but there was little indication that this antibiotic would replace penicillin, a relatively nontoxic drug. Pleuropneumonialike organisms are sensitive to streptomycin, and A. H. Harkness obtained an excellent result in a case of Reiter's diseases (nongonococcal urethritis with polyarthritis) after a ten days' course of this antibiotic.

British anti-lewisite, or BAL (known as AX 217 for security reasons during the war), was used extensively in Britain and the U.S., usually with excellent results, in the treatment of arsenical dermatitis. Its therapeutic value was established and plans were well advanced for an issue by firms in Britain of ampoules for

Combatting of Venereal Diseases:

intramuscular injection, subject to biological control. The preparation was used with success in other arsenical intoxications, such as granulo-cytopenia and encephalopathy.

Penicillin in oily suspensions (used largely for the one injection treatment of gonorrhoea) was employed more frequently in Britain for the treatment of syphilis (300,000 units twice daily for ten days); the three-hourly therapy with aqueous solutions, for which patients had to be admitted to hospital, was less favoured. Many cases of syphilis were, however, treated with aqueous solutions of twice-daily injections of 300,000 units or more; the results, as gauged by clinical response and serological tests, appeared to be equal to those obtained with multiple injections, but the final assessment demanded many years of clinical and serological observation.

Regulation 33B, a wartime measure that provided for the notification of persons alleged to have spread venereal disease, lapsed at the end of 1947. (*See* also PUBLIC HEALTH SERVICES.)

(A. H. Hs.)

Venezuela. A north-coast South American republic, bounded on the west, south, east and north, respectively, by Colombia, Brazil, British Guiana and the Caribbean. Area: 352,143 sq.mi.; pop. (1946 est.): 4,300,000, including slightly more than 100,000 forest-dwelling Indians and 23,320 Venezuelans living abroad. Racial distribution has never been officially calculated or estimated, but important fractions are mestizo, Negro and mulatto; about 80% of the population is rural. The capital is Caracas (1942 est. pop., 269,930); other important cities (with pop. by 1941 census) are Maracaibo (112,519), Valencia (53,938), Barquisimeto (54,176), Maracay (32,992), San Cristóbal (31,447), Cumaná (25,893), Puerto Cabello (22,087), Ciudad Bolívar (19,789), Coro (18,962) and Carúpano (16,548). President in 1947: Rómulo Betancourt.

History.—The year 1947 brought a virtual end to the provisional regime which had been in power after the successful revolution against the regime of Pres. Isaías Medina Angarita in Oct. 1945. Principal events of 1947 were the adoption of a new constitution in July and the election of a president and legislators in December. The provisional government resigned on March 23 and was reformed with the addition of four members; control remained essentially in the hands of the left-of-centre Acción Democrática, the political party which had taken the lead in the 1945 revolution. The new cabinet on March 26 declared amnesty for political exiles. United States Ambassador Frank P. Corrigan on April 11 walked out of a session of the constituent assembly when a Communist member spoke denouncing United States policies. The government on April 13 arrested 11 alleged conspirators and accused Gen. Eleázar López Contreras, president from 1935 to 1941 and a political exile from Oct. 1945, of plotting to return from the United States.

The constituent assembly signed and the provisional president promulgated the new constitution on July 5; it was Venezuela's 20th constitution and supplanted the one of 1936. The 1947 law provided for a federal government based on advanced domestic and international principles and divided territorially into 20 states, 2 territories and various small insular dependencies. The constitution established comprehensive individual and social rights and duties, including woman suffrage. The government is headed by a president elected by direct, popular vote for a five-year term and assisted by cabinet ministers of his own appointment. The bicameral congress is composed of a senate, in which the states have two senators each, and a chamber of deputies, members of which are chosen on a population basis; both senators and deputies serve for five years and the constitution authorizes proportional representation. The judiciary is headed by a supreme court of justice of ten members. The constitution provided for a good deal of economic planning.

The government reported on July 26 that a revolt plot in the Maracay garrison near Caracas had been suppressed, with one officer killed. Jovito Villalba, head of the leftist Democratic Republican Union party, was arrested Aug. 18 for holding an unauthorized political meeting. The government on Sept. 12 reported that another armed coup, at Caracas, had been crushed. Acción Democrática at a mass meeting on Sept. 12 nominated Rómulo Gallegos, aged 63, a prominent Venezuelan novelist, as its presidential candidate in the later elections. Copei, a conservative party with church support, subsequently nominated Rafael Caldera, aged 31, as its candidate. The provisional government and the constituent assembly took positive views in different foreign matters; on Oct. 11 the assembly termed the Paraguayan government, where a civil war had recently ended unsuccessfully for the rebels, one of "usurpation and terror" and "a menace to the continent." Authorities on Nov. 15 charged that the Dominican Republic might be concealing a plot by Venezuelan "reactionaries"; this charge was related to the ill feeling which for months had persisted between those two governments. As early as Feb. 2, leftist papers in Caracas had reported plans for an alleged invasion of Venezuela from the Caribbean; that rumoured invasion was attributed to López Contreras, a complicity which he denied at Miami, Fla.

National elections were held Dec. 13. Early and incomplete returns credited Gallegos with 121,799 votes, Caldera with 36,578 and Gustavo Machado (Communist) with 5,987; congressional candidates of Acción Democrática reportedly led by about a three-to-one margin. The government on Feb. 26 rejected a United Nations Relief and Rehabilitation association request for an additional $5,000,000 contribution. Two members of a scientific expedition were killed March 3 when attacked by Indians in the Guiana jungle. The government on May 11 announced that 740,000 ac. of land would be distributed to landless Venezuelans and European immigrants.

Religion.—Archbishop Lucas Guillermo Castillo on March 8 excommunicated four priests who quit the Roman Catholic Church to found a Venezuelan apostolic church.

Finance.—The monetary unit is the bolívar, valued on Oct. 31, 1947, at 29.85 cents, U.S. currency. The 1947–48 budget, submitted to the constituent assembly June 25, was the highest in Venezuela's history. It provided for expenditures of 1,199,500,000 bolívares and estimated revenues at 1,099,928,500 bolívares, the balance to be taken from treasury reserves. The 1946–47 budget, which originally totalled 787,109,000 bolívares, was ultimately increased to 1,038,991,054 bolívares. Liquid treasury reserves April 30, 1947, were 212,198,181 bolívares. Purchases of foreign exchange in 1947 by the central bank up to July 31 were $254,857,251 and sales in the same period were $258,465,881; purchases and sales, respectively, during the same period in 1946 were $163,282,551 and $161,587,548. Government revenues for the fiscal year 1946–47 were 1,095,286,000 bolívares, 65,000,000 higher than budget estimates and 31,176,043 higher than total expenditures. Foreign exchange held abroad, including earmarked gold, on July 31 were $88,960,460 (July 31, 1946: $71,625,095). The government during 1947 considered establishment of a federal mortgage bank.

Trade and Communications.—Crude oil exports for the first 5 months of 1947 were 161,282,072 bbl. The government considered plans for dredging the bar at the mouth of Lake Maracaibo which had long handicapped access to the rich oil deposits around and under the lake. The government made tentative plans in 1947 for establishment of a new national merchant fleet, the Compañía Venezolana de Navegación, with 6,000,000 bolívares of government and 4,000,000 bolívares of private capital. Plans developed during the year for additions to the joint merchant-marine project begun initially with Colombia and Ecuador in 1946. The Caracas transportation system was impeded by serious bus strikes in August. Air France began plane service via Martinique to La Guaira, near Caracas, in August. Venezuela concluded a commercial pact with Czechoslovakia Nov. 27.

Production.—Sugar production in the first four months of 1947 was 12,198 metric tons, the smallest figure in six years. Corn prospects for the year were considerably hurt by army worm damage. Nelson A. Rockefeller, former U.S. assistant secretary of state, announced in Caracas on Jan. 26 that he would establish a project, with U.S. and Venezuelan private capital, to aid Venezuelan agricultural production; the plan came to fruition with the signing of an agreement by Rockefeller at Caracas on June 23 to supply capital to stimulate Venezuelan agriculture and industry. Crude oil production in the first five months of 1947 was 176,643,149 bbl.; 273 new wells were completed during that period. The amount of crude petroleum refined in the same period was 13,770,168 bbl.

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(R. H. FN.)

Vermiculite. Following a doubling of the United States output of vermiculite during the war years, production was still growing in 1947 under the demand created by new building construction. After some decline in output in 1943 and 1944, there was an increase to 64,808 short tons in 1945 and 86,390 short tons in 1946. The chief uses are in lightweight concrete and plaster, and as a heat insulator.

(G. A. Ro.)

Vermont. A north Atlantic state of the United States of America, the only one of the New England states without a sea coast; popularly known as the "Green Mountain state"; admitted to the union in 1791. Area: 9,609 sq.mi., of which 331 sq.mi. are water. Population (1940): 359,231 (including 235,992 rural, 123,239 urban); 327,079 native white, 31,727 foreign-born, 384 Negro, 41 of other races. The U.S. bureau of the census on July 1, 1947, estimated the civilian population of the state to be 364,000. Montpelier is the capital city, with a population (1940) of 8,006. The chief cities are Burlington (27,686) and Rutland (17,082).

History.—Bills enacted by the general assembly in session from Jan. 8, 1947, to April 26, 1947, included measures relating to the state income tax, a minimum salary and retirement system for teachers, creation of a state department of public safety and the writing of a textbook of Vermont history. George D. Aiken and Ralph E. Flanders were U.S. senators from Vermont; Charles A. Plumley, representative to congress. Chief state officers were Ernest W. Gibson, Jr., governor; Lee E. Emerson, lieutenant governor; Rawson C. Myrick, secretary of state, and Levi R. Kelley, state treasurer. On Aug. 31, 1947, Myrick resigned from office and Helen E. Burbank, his deputy, became acting secretary of state. Miss Burbank was appointed to the office of secretary of state on Oct. 15, 1947, by Governor Gibson.

Education.—There were 857 elementary schools in the state in 1947, with a teaching staff of 1,751. The elementary school enrolment in 1946 was 43,849 (previously estimated at 38,608). In 1947 there were 568 one-room rural elementary schools. There were 85 approved public high schools in 1947, with a teaching staff of 707 and an enrolment of 18,905. The 3 state teachers colleges had a total enrolment of 365 and a teaching staff of 31. The state superintendent of schools in 1947 was the commissioner of education, Ralph E. Noble.

Social Insurance and Assistance, Public Welfare and Related Programs.—Relief in general was administered by the overseer of the poor in each town. A total of $2,132,648.50 was expended from state funds for old-age assistance; 5,823 persons received such aid in 1947. Dependent children receiving aid from state funds numbered 1,888 in 685 families during the month of June 1947; the amount expended from these funds during the year ending June 30, 1947, was $333,154.33; 1,122 children were under the care of the state as state wards. Blind assistance funds were distributed to 178 persons in the month of June 1947. The 3 state correctional institutions had a total of 337 inmates during the year 1947, with total expenses amounting to $510,909.12. Unemployment compensation benefits payments numbered 64,515 in 1947, and amounted to $1,055,140; 52,996 payments of readjustment allowances amounting to $1,046,421 and 1,795 self-employment payments amounting to $164,709 were made to World War II veterans.

Communications.—The total mileage of the public highway system (state, state-aid and town highways) as of June 30, 1947, was 14,214.22 of which 1,808.06 mi. were in the state highway system and 2,710.52 mi. were in the state-aid highway system. Construction and maintenance expenditures for state highways amounted to $3,850,685.16 during the fiscal year ending June 30, 1947, for state-aid highways in the same period $1,362,999.05 and for town highways $1,050,003.21. There were 954.79 mi. of steam railroads and 4.25 mi. of electric railroads on Dec. 31, 1947. There were 207 mi. of airways, with 21 airports and 2 airways in Vermont in 1947. Telephone subscribers were estimated at 80,000 on Dec. 31, 1947.

Banking and Finance.—The number of state and national banks as of June 30, 1947, was 80, of which 41 were state banks with total deposits of $201,908,674.70. There were 9 state co-operative building savings and loan associations with total assets of $3,083,228.45.

Total receipts of the state as of June 30, 1947, were $27,468,914.31; disbursements $28,640,833.46; unappropriated surplus $262,923.26; state debt $1,484,000.

Agriculture.—The total acreage of harvested crops in the state in 1947 according to the U.S. bureau of agricultural economics was 1,140,000 compared with 1,163,000 in 1946.

Manufacturing.—The total value of production (including manufacturing, processing, mining and quarrying, but not public utilities), as reported to the state department of industrial relations, was estimated at $304,000,000; there were about 38,500 persons employed in these industries, earning approximately $70,450,000 per year.

Table I.—Leading Agricultural Products of Vermont, 1947 and 1946

Crop	1947 (est.)	1946
All corn, bu.	1,920,000	2,320,000
Hay, all, tons	1,590,000	1,499,000
Potatoes, late, bu.	1,080,000	1,392,000
Oats, bu.	810,000	1,530,000
Apples, bu.	777,000	424,000
Maple syrup, gal.	799,000	607,000

Table II.—Principal Manufacturing Industries of Vermont, 1947 and 1946

Industry	Value of products: 1947 (est. year ending Dec. 31)	1946 (year ending June 30)
Machines and machine tools	$62,000,000	$71,520,380
Dairy products	56,000,000	53,167,512
Woollen and cotton goods	38,200,000	40,610,595
Woodworking	31,110,000*	17,462,350
Paper and paper products	20,000,000	19,107,551

*1947 estimate for woodworking includes lumbering and furniture.

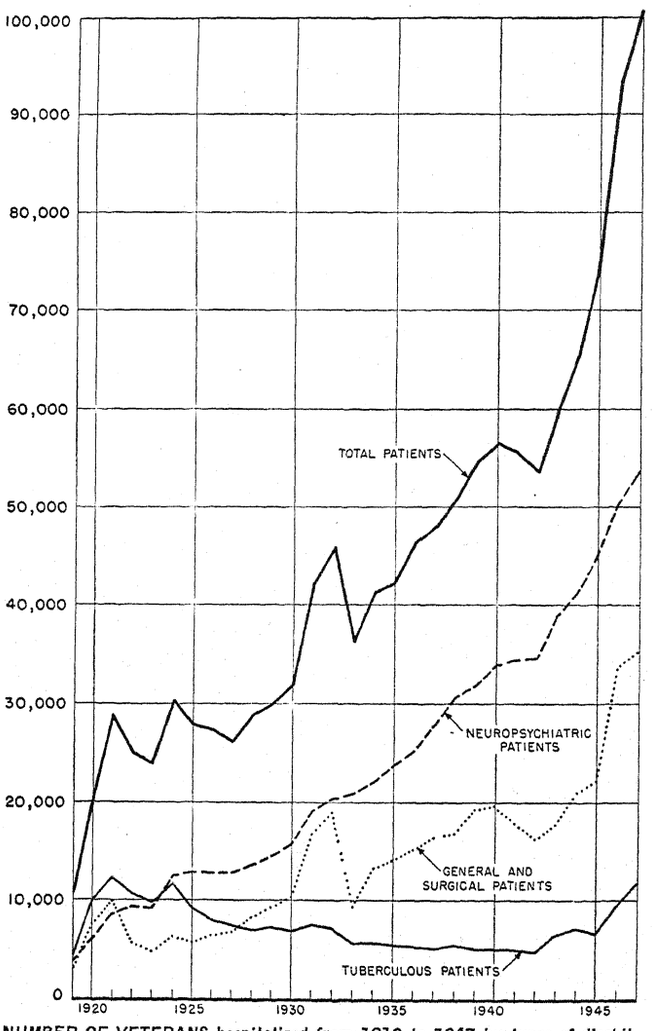
Mineral Production.—Total output value of mineral products of the state as reported to the state geologist for the year ending June 30, 1946, was $21,134,274 (est.).

Table III.—Principal Mineral Products of Vermont, 1946 and 1945

Mineral	Value, 1946 (est.)	Value, 1945
Granite	$12,682,000	$10,731,000
Marble	3,308,000	1,537,000
Lime products	1,263,140	1,276,865
Talc	763,834	841,012

(C. E. Fe.)

Veterans' Administration. To bring its services closer to the home-town level, the U.S. Veterans' administration decentralized many of its major functions in 1945. In addition to a central office in Washington, D.C., the agency had established 13 branch offices throughout the country for the purpose of supervising the field operations



NUMBER OF VETERANS hospitalized from 1919 to 1947 by types of disability, as compiled by the Veterans' administration

of nearly 1,000 offices, hospitals and homes in the continental U.S. and in Alaska, Puerto Rico, the Hawaiian Islands and the Philippine Islands.

On Nov. 1, 1947, the near 1,000 total included 736 field offices (formerly known as contact and subregional offices), 70 regional offices (9 of which were located at VA centres), 126 hospitals (21 of which were at VA centres) and 12 homes. The central office continued to exercise general control over all these operations.

Education and Training.—*Vocational Rehabilitation.*—Veterans with service-connected disabilities, enrolled under the Vocational Rehabilitation act in schools or on-the-job training establishments, had to undergo preliminary extensive advisement and guidance tests and interviews by trained VA personnel. The guidance was to continue as long as they were in training.

While training—and for two months after establishment of employability—a disabled veteran could receive a subsistence allowance of $65 a month if he had no dependents or $90 if he had dependents. Disability compensation payments were in no way reduced because of subsistence.

Compensation-plus-subsistence minimums were raised during 1947. For veterans with disabilities rated at less than 30%, compensation and subsistence had to total at least $105 without dependents or $115 with 1 dependent. If the totals were less, they would receive an additional sum from VA to make up the difference. The minimums for veterans with disabilities rated at 30% or more were $115 without dependents and $135 with 1 dependent. Additional amounts were paid to veterans with more than one dependent.

By Nov. 1, a total of 244,780 disabled veterans were in training under the rehabilitation act. Of these, 136,884 were enrolled in educational institutions and 107,649 were taking on-the-job training. At the same time, 20,649 trainees had been declared rehabilitated. This figure accounted for only 17% of the 123,613 disabled veterans who had interrupted their training for one reason or another.

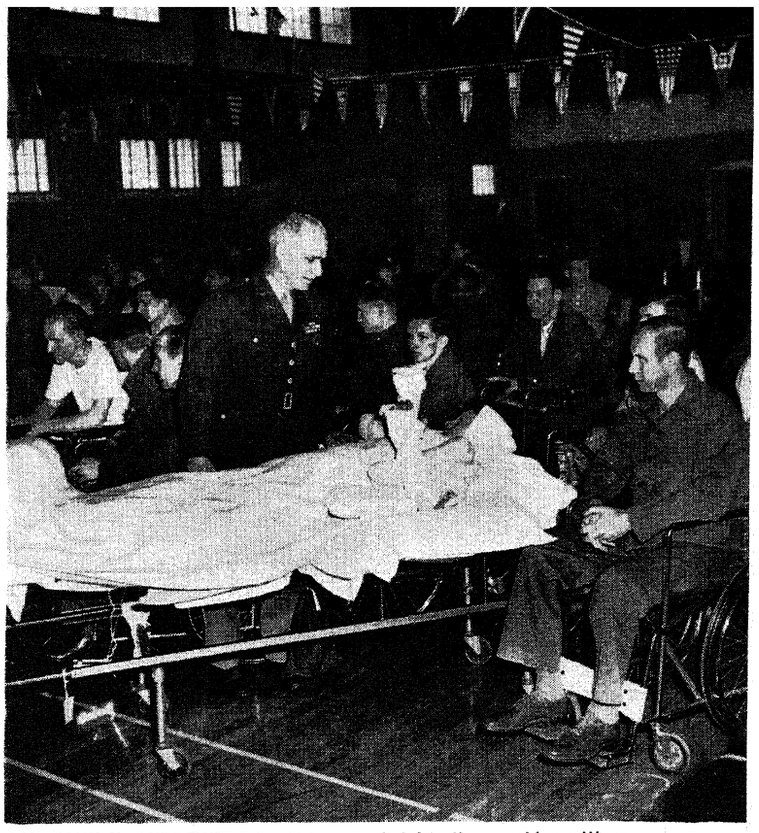
G.I. Bill Training.—Veterans training under the G.I. Bill of Rights continued to receive $65 a month subsistence allowance if they had no dependents, or $90 if they had dependents. If the veteran took on-the-job training, he retained whatever wages were paid him. However, if salary plus subsistence surpassed the wages of a beginning trained journeyman, VA cut his subsistence accordingly. Also, subsistence was reduced if his combined monthly income—subsistence plus wages—totalled more than $175 if he had no dependents, or $200 if he had dependents.

By Nov. 1, there were 2,413,576 veterans in schools and job-training establishments under the G.I. bill. The majority, or 1,859,545, were enrolled in educational institutions, while the remaining 554,031 were taking on-the-job training.

At that date, about 1,890,000 former G.I. bill students and trainees had dropped their courses. All but a mere 8,400 (who had used up all their available entitlement) were eligible for further training. G.I. bill discontinuances amounted to 44% of the 4,302,000 veterans who had entered training after the G.I. bill program went into effect.

Most education and training under both laws were scheduled to end July 25, 1956. G.I. bill education and training, for the majority of veterans, had to begin before July 26, 1951. An exception was made for persons who enlisted between Oct. 6, 1945, and Oct. 5, 1946, under the Voluntary Recruitment act. The period during which they could earn entitlement to all G.I. bill benefits—education, training, loan guarantee privileges and readjustment allowances—was not to expire until the end of their enlistment.

Veterans' Loans.—Public law 346, as amended, established



COL. JOHN N. ANDREWS of the Veterans' administration speaking with one of a group of veterans paralyzed in World War II who convened at Vaughan hospital in Hines, Ill., during Feb. 1947, to form a Paralyzed Veterans' association

provisions for the guarantee of loans or the insurance of credit, through private lending institutions, for veterans desiring to buy or build homes, purchase farms or farm equipment or go into business. The amount of the guarantee could not exceed 50% of the loan, or a maximum of $4,000 on real estate and $2,000 on non-real estate loans. Farm realty loans were to be paid off within 40 years; other real estate loans within 25 years, and non-real estate loans within 10 years. By Nov. 1, 1947, a total of more than 1,000,000 G.I. loans of all types, amounting to more than $6,000,000,000, had been approved for guarantee or insurance by VA. Nearly 90% of the loans, or about 972,000, were for homes; nearly 37,000 were farm loans and about 81,000 were business loans.

A VA analysis of G.I. home loans over a 4-month period (May through Aug. 1947) revealed that more than 45% of the veterans utilizing their loan guarantee privileges bought newly built houses at an average selling price of $8,200. The remaining veterans purchased homes previously occupied for sales prices averaging $6,675.

The deadline for applying for guaranteed loans was set at July 25, 1957, for all veterans except enlistees under the Voluntary Recruitment act.

Readjustment Allowances.—Readjustment allowances, provided for by public law 346 as amended, were designed to assist eligible veterans during periods of unemployment, or when self-employed and earning less than $100 a month. A totally unemployed veteran could receive $20 a week; a partially employed veteran up to $20 a week, less earnings above $3. A self-employed veteran could receive $100 a month, minus any net earnings during the month. Maximum unemployment allowance entitlement was for 52 weeks; for self-employment, $10\frac{2}{3}$ months.

During the week ending Nov. 1, 1947, 395,939 veterans claimed readjustment allowances for unemployment. During the same week, state unemployment compensation offices paid out more than $7,600,000. In Oct. 1947, 102,757 veterans claimed self-employment allowances. Unemployment compensation offi-

ces during the month disbursed nearly $10,000,000 in self-employment claims.

Allowances could be claimed through July 24, 1949, or two years after the date of discharge—whichever was later—but not later than July 25, 1952, except for enlistees under the Voluntary Recruitment act.

Medicine and Surgery.—On Nov. 1, 1947, 126 VA hospitals were in operation, including a number of temporary structures declared surplus by the armed forces. More than 101,200 beds were available for use in the hospitals, in addition to nearly 14,000 beds in other federal government, state and civil hospitals. In VA hospitals there were 11,500 beds for tuberculosis cases, 55,100 for neuropsychiatrics and 34,600 for general medical and surgical patients.

Considerably more than half of all patients in VA hospitals were neuropsychiatric cases, for whom 34 hospitals were in operation. Eighty-six mental-hygiene clinics were available to treat veterans not requiring hospitalization. VA also operated 18 tuberculosis hospitals, in addition to tuberculosis departments in its general hospitals, and tuberculosis-neuropsychiatric units in its neuropsychiatric hospitals.

Seventy-four general medicine and surgery hospitals were in operation by VA. General medicine also was practised in tuberculosis and neuropsychiatric hospitals. Surgical facilities—consisting of operating suites and the necessary trained personnel—were available in all the hospitals.

Intensive courses in medical rehabilitation were offered in all the hospitals to patients to help them after release. Amputees and paraplegics learned how to get up and down steps, on and off buses, cross streets, go shopping and the like. If they wished, patients could further their education or explore posthospital job possibilities by taking complete academic courses and vocational rehabilitation programs.

VA during 1947 embarked upon the greatest hospital construction program in the nation's history, providing for 91 new hospitals, located near medical centres whenever possible.

VA Homes.—A patient, to be admitted to any of VA's 12 homes, must have a condition essentially chronic in character, not susceptible of cure or decided improvement by hospital treatment, and must be incapacitated from earning a living for a protracted period. More than 14,600 veterans were in VA homes on Nov. 1, 1947.

Insurance.—National Service Life Insurance for World War II veterans originally was issued on a five-year level premium plan, providing the maximum temporary protection at the lowest cost. The term period of all insurance issued before Jan. 1, 1946, was extended three more years by Public Law 118, 79th congress. These policies, therefore, could be continued in their term form for eight years from the date of issue.

By the end of 1947, VA had written more than 19,200,000 N.S.L.I. policies, with a total face value of more than $150,000,000,000. On Nov. 1, 1947, less than one-third—or an estimated 6,000,000 policies—still were in force. Nearly 4,800,000 of these were term policies; the remainder were policies converted to the half-dozen VA permanent plans available: ordinary life, 30-payment life, 20-payment life, 20-year endowment, endowment at age 60 and endowment at age 65.

As a direct result of war casualties and other deaths, the beneficiaries of 398,175 World War II veterans were receiving insurance payments on Nov. 1, 1947.

More than 524,000 U.S. government life insurance policies for World War I veterans, representing nearly $2,300,000,000 of insurance, were in force on Nov. 1, 1947.

Pensions and Compensation.—In 1947 VA was paying monthly pensions and compensation to more than 3,200,000 disabled veterans and dependents of deceased veterans. Payments ranged from $13.80 to $360 a month for service-connected disabilities. On Nov. 1, 1947, the following cases were on VA's compensation and pension rolls:

War	Living veterans	Dependents of deceased veterans
Mexican War	0	45
Indian wars	797	2,278
Civil War	83	17,895
Spanish-American War	112,355	80,679
World War I	438,121	389,232
Regular establishment	42,692	19,291
World War II	1,712,696	416,370

Guardianship.—VA's guardianship load rose from 134,583 wards on Nov. 1, 1946, to 177,761 wards 1 year later. Of the latter figure, 93,591 were entitled to benefits because of service by veterans of World War I and earlier wars, and 84,170 were entitled to benefits because of service by World War II veterans. (*See* also MEDICAL REHABILITATION OF DISABLED VETERANS.)

(C. R. GY.)

Veterans of Foreign Wars.

The Veterans of Foreign Wars devoted its major effort in 1947 to a campaign to alleviate the housing shortage, which it termed the most critical problem facing veterans.

Declaring that the government housing program had proved to be an almost complete failure, the V.F.W. attacked the problem of providing homes for veterans on both the national and the community levels. The organization called frequent conferences between leaders in government and the building industry. It stressed the need for more prefabricated housing and persuaded federal authorities to accept the principle of government financing for the production of factory-built homes. On the community level, many of the 10,000 posts of the V.F.W. took the lead in organizing veteran housing projects and veteran housing co-operative associations. At its 48th national encampment in Cleveland, O., Sept. 4–9, the V.F.W. strongly endorsed the Taft-Ellender-Wagner housing bill, with certain amendments to protect private enterprise, and gave it highest priority in the organization's legislative program.

Along with its housing campaign, the V.F.W. conducted an intensified drive to promote national security through enlargement and modernization of the nation's military forces and the curbing of communist influence within the United States. As major points in its security program the V.F.W. asked enactment of a universal military training law, creation of the world's most powerful air force in being, return of atomic energy control to military authorities and government subsidization of a program of scientific research to develop new weapons. In a resolution approved by its national encampment, the V.F.W. demanded action to outlaw the Communist party in the United States and enjoin publication of the *Daily Worker*.

Pensions for all World War I veterans past the age of 65 were given first priority by the V.F.W. over all other veteran benefits which the organization was seeking. World War II veterans, who constitute a large majority in the V.F.W., voted through their delegates at the encampment to support their World War I comrades in the pension drive. Meanwhile, the V.F.W. reiterated support of the principle of adjusted service compensation for veterans of World War II.

The influence of younger veterans became more apparent in the organization during the year, with an increasing number of important offices and committee assignments going to the World War II men. World War II veterans were elected to the national offices of junior vice commander in chief and judge advocate general. Approximately one-half of the state departments chose veterans of the last conflict as department commanders.

Ray H. Brannaman of Denver, Colo., was commander in chief of the Veterans of Foreign Wars for the 1947–48 term. A former chairman of the Colorado Industrial commission and former executive director of the Colorado Good Roads association, Brannaman was moved up to the top job in the V.F.W. from the office of senior vice commander in chief. Other elective officers were Lyall T. Beggs, Madison, Wis., senior vice commander in chief; Clyde A. Lewis, Plattsburg, N.Y., junior vice commander in chief; R. B. Handy, Jr., Washington, D.C., quartermaster general; Hudson Hyatt, Cleveland, O., judge advocate general; Dr. William R. Morrison, Boston, Mass., surgeon general, and Canon Merritt F. Williams, Washington, D.C., national chaplain. (B. Y.)

Veterans' Organizations. In 1947 7,000,000 U.S. veterans were members of veterans' organizations. Five million were in the American Legion and the Veterans of Foreign Wars, and 1,000,000 more were in the other major national organizations—the Disabled American Veterans, Army and Navy union, American Veterans committee, American Veterans of World War II (Amvets), Air Forces association, Jewish War Veterans, Catholic War Veterans and Regular Veterans association.

The estimated number of U.S. veterans' organizations dropped from about 1,000 to 600 during 1947. Most of the decrease was because of local organizations being absorbed by the larger national groups, or dropped because of lack of interest by the participants. Of the old line organizations, only the American Legion continued to gain. The Veterans of Foreign Wars suffered a deficit for the first time in 20 years after overestimating their 1947 membership by considerably more than 1,000,000.

The World War II groups found progress difficult. Nationally, the field became limited to two organizations—The American Veterans committee, and the Amvets, representing a more conservative element. The quickest-growing of the new organizations was the Air Forces association, which had acquired a semiofficial status. Its membership rose to more than 100,000 in 1 year.

Attempts by the communists to infiltrate the American Legion failed during 1947. They then turned to the American Veterans committee and made a drive for control but were thoroughly defeated at the A.V.C.'s 1947 convention in Milwaukee, Wis.

The principal policy trends in U.S. veterans' organizations during 1947 were as follows:

(1) A refusal to use, to any great extent, powerful political pressure for anything except veterans' benefits. Organizational support was given to such measures as the cashing of terminal leave bonds, benefits for disabled veterans and bonus measures in the separate states.

(2) A series of abortive attempts to form political blocs.

(3) A determined campaign against communism. The American Legion sponsored a seminar on how to combat communism; the Jewish War Veterans barred communists from membership and the American Veterans committee passed a resolution attacking both communism and fascism. (*See* also AMERICAN LEGION; AMERICAN VETERANS COMMITTEE; AMERICAN VETERANS OF WORLD WAR II (AMVETS); DISABLED AMERICAN VETERANS; VETERANS OF FOREIGN WARS.) (RI. A. B.)

Canada.—The oldest veterans' organization in Canada, Army, Navy and Air Force Veterans, Inc., originally established after the War of 1812, had 271 units throughout the dominion in 1947, with a membership of 187,000. The Canadian Legion, formed in 1926 by amalgamation of a number of Canadian veterans' organizations, had 1,685 branches in Canada and 135 in the U.S., to which 300,000 members belonged. During 1947 the Legion successfully pressed for an increase in the government's rates of war pensions and veterans' allowances and conducted a citizenship training program. The Canadian Corps association was incorporated in 1947 and reported 30,000 members. During the year the corps promoted veterans' preference in civil service employment and pressed for military preparedness.

The National Council of Veterans Associations in Canada—made up of the Army, Navy and Air Force Veterans, the War Amputations of Canada, the Sir Arthur Pearson Association of War Blinded, the Canadian Pensioners association, the Canadian Paraplegic association and the Canadian Corps association—successfully placed legislative proposals before the government for the correction of defects and deficiencies in veterans' administration.

The International War Veterans' alliance, an organization of veterans in western Canada and the north-central United States, moved to unite all veterans' organizations in the British commonwealth and the United States into a body to perpetuate peace. (C. Cv.)

Other Countries.—In every nation which took part in World War II there was at least one ex-servicemen's, or veterans', organization in 1947. In Great Britain the British Legion (*q.v.*), formed after World War I, had adapted itself to serve as the organization for ex-servicemen of both world wars.

In France the picture was more confused because many leaders of pre-World War II associations were compromised by collaboration with the Pétain-sponsored *Légion Française des Anciens Combattants*. After liberation, however, the majority of the old associations were reformed, under new leadership, and they all joined the U.F.A.C. (*Union Française des Anciens Combattants*) whose honorary president was René Cassin, chairman Léon Viala and secretary general Maurice de Barral—all three active in the ex-servicemen movement before World War II. According to a report published July 2, 1947, in the *Journal Officiel*, 1,211,297 disabled ex-servicemen of both world wars were receiving a pension; there were also 785,000 pensioned war widows and 610,525 pensioners' parents.

The communist-sponsored F.T.P.F. (*Franc-Tireurs et Partisans Français*) formed a separate group. The same happened in Italy where an A.N.P.I. (*Associazione Nazionale Partigiani d'Italia*) was formed in 1947. In Yugoslavia the Union of Ex-Freedom Fighters was created. The same development could be observed in Poland, Rumania, Bulgaria and Czechoslovakia. On Dec. 8, 1947, in Rome, at the executive meeting of the A.N.P.I., Gen. Sidor Kovpak, the soviet guerrilla leader, called on European partisans to unite to fight against "fascism."

In July 1947 Sir Ian Fraser, president of the British Legion, visited the United States as a fraternal delegate to the American Legion convention in New York. In September Paul H. Griffith, national commander of the American Legion, heading a delegation of legionnaires, visited Great Britain, France, Belgium and Luxembourg. During these visits the idea of forming an interallied federation of ex-servicemen was discussed. Between the two world wars the *Fédération Interalliée des Anciens Combattants* (F.I.D.A.C.), with the American and British Legions as principal members, had its headquarters in Paris.

Veterinary Medicine. **Control of Rabies.**—A conference was held in 1947 to formulate plans for handling the United States rabies problem under central direction in lieu of municipal, county and state agencies. Represented were the American Public Health association, American Medical association, U.S. public health service, U.S. bureau of animal industry, U.S. Livestock Sanitary association, American Hospital association, and American Veterinary Medical association. The conference adopted the committee's codified

program and recommended that control of the disease on a national basis be vested jointly in (1) the U.S. bureau of animal industry, (2) the U.S. fish and wildlife service, and (3) the U.S. public health service.

The outbreak of foot-and-mouth disease in Mexico during 1946–47 (*see* below) raised a controversy as to whether wild animals susceptible to the infection should be killed also as a control measure. The killing of more than 22,000 deer in California as the final step to eradicate the epizootic of 1924 had been criticized as over-fastidious. Veterinary officials reported that only 10% of the deer in Yosemite National park had been affected in 1924.

Fowl Cholera.—Fowl cholera (*Pasteurelle aviseptica* infection) among migratory waterfowl in Texas, reported by the U.S. fish and wildlife service as obviously contracted from barnyard poultry, added another infectious disease to those interchangeable between wildlife and farm animals. Distemper in foxes and other wild carnivores and in domestic dogs was shown to be caused by the same specific virus. Mange in foxes and other wild animals in New England was found to infect livestock.

Bovine and Porcine Brucellosis.—Brucellosis of cattle and swine remained first in importance among diseases of domestic animals. In respect to financial losses suffered from animal disease, the bovine type, commonly named Bang's disease, continued to rank high, if not first, in the United States. Porcine brucellosis was found to be the principal source of the human infection (undulant fever). The 38,508 human cases with 1,340 deaths reported in the United States from 1927–42 were acknowledged to be but a fraction of the total incidence.

Equine Encephalomyelitis.—A report released by the U.S. bureau of animal industry May 7, 1947, indicated that the incidence of infectious equine encephalomyelitis in the United States was the lowest in 12 years. The total number of cases in 37 states was 2,805. There were fewer cases in the south Atlantic and Pacific coast states and more in the north and south central states. The virus-serum division of the U.S. bureau of animal industry estimated that 400,000 horses were vaccinated against the infection and attributed the lower incidence to that protection. No human cases suspected of being of equine origin were reported.

Foot-and-Mouth Disease in Mexico.—The appearance of foot-and-mouth disease in five Mexican states surrounding the federal district during the late fall of 1946 caused alarm among the cattle-raising and meat-packing interests of North America. The outbreak was charged to the importation of zebu bulls from Brazil. It had spread to the cattle herds of a vast area before its nature and potential were generally recognized. Except for enzootics, at long intervals, which were quickly stamped out, North America previously had been free from foot-and-mouth disease and as a consequence was able to develop the world's most profitable livestock industry. Alarm over the Mexican visitation prompted the two governments to form a Mexican-United States organization of veterinarians charged with the duty of planning and enforcing vigorous measures against spread of the infection beyond the original territory involved and to wage a co-operative campaign of complete eradication.

The quarantine against exportation of cattle "on the hoof" to the United States was a hardship to the Mexican cattle interests and necessitated the installation of large canning plants on Mexican territory as an emergency relief. The quarantine was reportedly a factor in the high price of beef in the United States. Dr. T. B. Simms, chief of the U.S. bureau of animal industry, reported that a relentless campaign of at least two years' duration would be required to achieve complete eradication.

Enzootics of Infectious Anaemia.—Infectious anaemia of horses is caused by a filtrable virus with the unique property of sojourning in the infected animal's blood, in highly virulent form, for the entire duration of its life, all the time capable of being transmitted to healthy horses by stinging insects. The disease remained incurable. The course of the illness may be acute, subacute, chronic or latent. The acute case may be fatal after a brief febrile illness, the subacute and chronic case may die in a matter of months and the prolonged or latent one may last for years with various degrees of impaired health interrupted at irregular intervals by spells (exacerbations) of weakness and fever. Usually, mosquitoes, stable flies or other insects are the transmitting agents.

In April 1947, enzootics of this grave equine infection broke out at several New England race tracks. Ordinarily, the disease is handled by killing the proved cases and by sanitary disposal of the carcasses. The significance of this outbreak lay in the 900 horses involved, the 47 deaths, the undetermined number of infected and the controversy raised by the livestock insurance companies as to their obligations in the lingering cases killed as a sanitary measure.

Problems of Mink Ranches.—The diseases of mink had been the most neglected in the investigational work and the literature of the growing industry of fur ranches. Based on 4,425 autopsies held on mink from 685 widely separated sources, deaths were found to have been caused by 89 causes. Predominating were pneumonia, food poisonings, hepatic degeneration, distemper-virus infection, malnutrition, renal and cystic calculi, gastroenteritis and unidentified generalized infections. Recognizable salmonellosis was found in 87 cases, splanchnic carcinoma in 9, and anthrax in 3. Owing to their wildness, mink show symptoms of illness only when grievously stricken.

Army Animals of the Japanese.—During the Asiatic operations of World War II, the Japanese used a large number of animals and left serious veterinary problems behind. The surplus animals abandoned in Burma, Indo-China and Malaya were distributed among the natives but were not permitted in India on account of the high incidence of epizootic lymphangitis. The riding horses, pack ponies and mules captured from the Japanese were sold to the Siamese army. Animal welfare of the Japanese was the worst of all the countries at war. The 33rd Japanese division lost 5,000 animals from starvation according to the report of the senior Japanese veterinary officer. Horses were kept ungroomed without bedding on undrained standings. The Japanese veterinary service had little besides mercurochrome in their outfits.

Hepatic Distomiasis.—The heavy financial losses suffered from liver-fluke infection of farm ruminants were reduced considerably during and after World War II by the use of hexachlorethane, a chemical related to the popular flukicides, carbon tetrachloride and tetrachlorethylene, but much less toxic for livestock. In extensive trials made by the zoological division of the U.S. bureau of animal industry the new chemical removed 70% of the adult flukes and 50% of the immature ones. The flukicides formerly employed were ineffective against the immature flukes and, therefore, left the livers of all the treated animals in a state of infection. Because hexachlorethane does not dissolve in the usual nontoxic solvents, it was used in the form of a suspension consisting of bentonite, flour and water mixed with a speedy, power-driven apparatus to ensure even distribution and passing the mixture twice through a 20-mesh screen.

Liver-fluke infection was found to be prevalent in the gulf, southwestern, Rocky mountain and Pacific coast states in regions where pasture lands were invested with fresh water snails which are essential intermediate hosts of the parasite (*Fasciola hepatica*). Besides impairing the health and thrift of cattle,

sheep and goats, hepatic distomiasis was estimated to have caused a loss of $1,000,000 worth of livers in 1945. The annual loss of beef and calf livers in the Gulf coast area alone was reported to be 90,000 lb.

Newcastle Disease.—The greatest threat ever to overtake the poultry industry of the western hemisphere was the exotic neurotropic virus infection which made its appearance in California in 1944 and which by 1947 had been recognized in nearly all the 48 states. The disease was known by various names: pseudo-foul pest in the East Indies, Ranikhet disease in India, avian distemper in the Philippines, Newcastle disease in Great Britain and avian pneumoencephalitis or the British eponym in the United States.

The infection strikes the respiratory and central nervous system simultaneously or consecutively. Whereas mortality in European and Asiatic theatres reportedly ranged up to 100%, the U.S. outbreak was comparatively mild, owing, it was said, to the disease being predominantly respiratory rather than pneumocephalic. The federal bureau of animal industry co-operated with the various poultry associations in conducting a nationwide educational program instructing poultrymen and veterinarians on methods of diagnosis and control. In the presence of the low mortality, the small poultrymen did not always identify the scattered enzootics.

Formalin-treated virus obtained from infected organs and crystal-violet vaccine prepared from infected chick-embryos were proved to possess immunogenicity of considerable importance but varied greatly in duration. Formalin-treated chick-embryo virus made under specified directions gave the most promising results. Hope of early eradication was not entertained despite the vigorous actions taken by state livestock sanitary services.

Man-to-Animal Transmissions of Tuberculosis.—J. Arthur Myers, phthisiologist of the school of medicine, University of Minnesota, pointed out the need of giving attention to the transmission of tuberculosis from man to animals, especially by persons suffering from the contagious pulmonary form. W. H. Feldman of the Mayo foundation, a well known investigator of interspecies transmissibility of the different types of *Mycobacterium tuberculosis*, showed that while cattle experimentally inoculated with the human type did not develop macroscopic lesions, they did show evidence of having the disease by reacting to the tuberculin test. Although no case of transmission of the human type from one animal to another was ever reported, there was a record of four herds of healthy dairy cows infected by a man suffering from pulmonary tuberculosis which proved to have been caused by the bovine type of the tubercle bacillus.

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Virginia.

One of the 13 original United States, Virginia is known as the "Old Dominion" and as the "Mother of Presidents." It is southernmost among the middle Atlantic states and has an area of 40,815 sq.mi., including 916 sq.mi. of water. Pop. (1940) 2,677,773, of which 35.3% were urban and 64.7% rural. On July 1, 1944, the bureau of the census estimated the state's civilian population at 3,199,115. Capital, Richmond (193,042 in 1940 and 225,000 in July 1944). Other major cities include Norfolk (144,332 and 167,900), Roanoke (69,287 and 66,641) and Portsmouth (50,745 and 59,472).

History.—The general assembly convened in special session in Jan. 1947. At the request of Gov. William M. Tuck, the legislators approved two major laws in the field of labour relations, one designed to assure a "right to work" to any citizen regardless of affiliation with a labour union and the other designed to prevent sudden interruptions in operation of public utilities because of labour disputes. The latter law was invoked by the governor in May, when the commonwealth seized and operated some telephone facilities for a brief period until a strike was settled. The assembly also voted an additional $9,000,000 in state funds for public instruction and established a new system of licensing for general hospitals and nursing homes. During the summer, interim study commissions were active in investigating insurance laws, statutes governing inspection of tourist establishments, public school problems, taxation and reorganization of the state government. At a general election in November, 10 Republicans and 130 Democrats were elected to the general assembly. L. Preston Collins was lieutenant governor in 1947; G. Tyler Miller was superintendent of public instruction.

Education.—In 1946–47, elementary school enrolment was 427,404, with a teaching staff of 12,548; secondary school enrolment was 137,670, with a teaching staff of 6,226.

Social Insurance and Assistance, Public Welfare and Related Programs.—For the year ended June 30, 1947, 12,002 persons received $1,011,446 in general relief; 18,482 received $3,033,169 in old-age assistance; 5,811 families with 17,120 dependent children, $1,781,466; 1,265 blind, $269,679; 2,240 under the regular foster care program, $386,544. In 1947, 288,046 checks for civilian unemployment compensation were written, amounting to $4,173,943, and 449,879 war veterans' readjustment allowance checks were written for $14,169,224. The civilian checks were 20% fewer than the preceding year, and the veterans' payments were down more than 30%. An average daily population of 4,364 was in 6 penal institutions for adults, and of 649, in 4 industrial schools for juveniles at the end of the fiscal year in June 1947.

Communications.—On Jan. 1, 1947, there were 9,320 mi. of highway in the state's primary system; on July 1, 1947, there were 38,136 mi. in the secondary system. During the year ended June 30, 1947, the state spent $54,534,742 on its highways, nearly double the previous year's expenditure. The total railroad mileage was 4,091.07 on Jan. 1, 1947. There were 440,090 telephones in Virginia on Nov. 30, 1947.

Banking and Finance.—On June 30, 1947, Virginia had 184 state banks with 54 branches, and 130 national banks and branches. On June 30, 1947, deposits of national banks were $996,797,000, and assets, $1,076,401,000. On June 30, 1947, deposits in state banks totalled $696,457,934, and assets, $755,473,267. Resources on Dec. 31, 1946, of 15 industrial loan associations were $9,389,447; of 56 building and loan associations, $42,963,130; of 26 credit unions, $1,262,642. For the fiscal year ended June

Table I.—*Leading Agricultural Products of Virginia, 1947 and 1946*

Crop	1947	1946	1947 Value
Corn, bu	42,490,000	40,284,000	$98,762,000
Wheat, bu.	8,522,000	8,344,000	21,305,000
Oats, bu.	3,456,000	4,260,000	3,802,000
Rye, bu.	392,000	392,000	843,000
Barley, bu.	2,478,000	2,272,000	3,593,000
Buckwheat, bu.	96,000	105,000	182,000
Tobacco, all types, lb.	161,112,000	178,821,000	62,873,000
Peanuts for nuts, lb.	199,260,000	191,250,000	22,118,000
Hay, all tame, tons	1,438,000	1,744,000	33,793,000
Apples, commercial, bu.	5,010,000	12,975,000	9,770,000
Peaches, bu.	1,800,000	2,640,000	3,420,000
Cotton, lint, bales	18,000	17,000	2,817,000
Potatoes, bu.	9,450,000	10,676,000	15,592,000
Sweet potatoes, bu.	3,500,000	3,250,000	6,125,000
Soybeans for beans, bu.	1,425,000	1,106,000	4,275,000

Table II.—*Principal Industries of Virginia, 1945 and 1944*

Industry	Value of products 1945	1944
Tobacco products	$790,582,323	$760,800,542
Food and kindred products	308,793,770	298,882,246
Textiles and their products	400,185,144	377,549,000
Wood products	95,684,644	105,860,200
Paper and printing	134,072,940	142,556,943
Chemical products	121,750,914	111,694,596
Transportation equipment	200,419,947	244,324,461
Metals and machinery	78,910,459	70,437,607

30, 1947, the state treasury received revenues of $252,300,660, about 25% more than in the previous year; expenditures were $248,750,205. The gross debt on June 30 was $14,287,952; there was no net debt, since a sinking fund of $16,153,824 left an excess of $1,865,872. The fiscal year ended with a general fund surplus of $22,940,351.

Agriculture.—The 1947 growing season was an irregular one. Late frosts in May cut the apple crop 61% below 1946, and unusually dry weather caused a poor crop of early corn. Improving conditions in the late summer brought total corn production to nearly 43,000,000 bu., highest in 27 years; the crop was produced on the second to lowest corn acreage in 80 years. The tobacco crop dropped to second place in value with a production down 10% from 1946. The value of principal crops was placed at $301,248,000, up 1% from 1946. Farmers harvested an estimated 3,681,000 ac., 4% below the average for 1936–45. The shortage of farm labour continued acute over most of the state. Prices for farm land tended to level off late in the year, but remained 117% above prices in 1939. Cash receipts to Virginia farmers in 1947 from farm marketings were estimated at 15% above 1946, when cash income (including government payments of $10,356,000) amounted to $370,956,000.

Manufacturing.—The total value of manufactured products for the year ended Dec. 31, 1945, was $2,197,718,834. Wage earners received $307,672,769 in this period, and total salaries amounted to $70,338,849. Figures on estimated production for 1946 had not been compiled by the state at the close of 1947, but it was estimated that probably 211,600 persons were engaged in manufacturing at the close of 1947 with substantially higher income than was received by the 210,000 wage earners and salaried workers of 1945. Principal industries in 1947 were tobacco products, food and kindred products, transportation equipment, textiles, paper and printing and chemical products.

Mineral Production.—The production value of raw mineral resources in the year ending Dec. 31, 1945, was placed at $84,081,000, 5% less than during the preceding year but far more than the $50,003,672 of 1940. Coal production in 1945 was valued at $61,140,000, 5% less than the 1944 output. Production in 1947 was believed to have been far more than this figure. Approximately 4,000 bbl. of petroleum and 54,000 cu.ft. of natural gas were produced in 1945. Nonmetallic minerals in that year had a production value of $17,210,000. The value of metallic ores exclusive of coal, chiefly zinc, titanium and manganese, was about $5,731,000.

(J. J. Kt.)

Virginia, University of. A state institution for higher education at Charlottesville, Va. Colgate Whitehead Darden, Jr., became the third president of the university on June 23, 1947. He succeeded John Lloyd Newcomb, who had held the office for 16 years. The new president, an alumnus of the university, of Columbia university and of Oxford university, had served Virginia in its general assembly, the U.S. house of representatives and as governor. Plans were announced during the year for the launching of a development fund campaign to be headed by Adm. William F. Halsey. The Virginia Geographical institute, under the direction of Col. Sidman P. Poole, began its work on terrain studies and by the end of the year had brought together a staff of eminent geographers. The Virginia Music festival, planned as an annual spring event, was held at the university during three days in June. The Friends of the University, composed of students, faculty and citizens at large and devoted to the cultivation of fine arts, came into being, and the Bibliographical Society of the University of Virginia was organized. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* Universities and Colleges.) (C. W. Dn.)

Virgin Islands. The Virgin Islands are an insular possession of the United States located 1,400 mi. southeast of New York and 39 mi. east of Puerto Rico. They form part of the chain of islands between the Caribbean sea and the Atlantic ocean. The three largest islands with an area of 133 sq.mi. are St. Croix (pop. 13,000 est. 1946); St. Thomas (16,200) and St. John (800). The chief cities are Charlotte Amalie, the capital on St. Thomas (9,801); Christiansted (4,495) and Frederiksted (2,498) on St. Croix.

The governor of the Virgin Islands is William Henry Hastie who was appointed by President Truman in 1946.

Education.—The public school enrolment in St. Thomas in 1947 was 2,624 of which 785 pupils were enrolled in the junior and senior high schools. In St. Croix the enrolment was 1,570 with about 361 pupils in high schools. The average expenditure per child in St. Thomas was $79.62. In St. Croix the average cost per pupil was $52.59. The average salary of teachers in St. Thomas was $1,400 and in St. Croix $1,035.

Finance.—The revenues of the municipality of St. Thomas and St. John during the fiscal year 1947 were $817,898.53 compared with $862,396.95 in the fiscal year 1946. Budget expenditures were $1,121,306.94. Income tax collections were $511,870 as compared with $622,573.27 in 1946.

For the municipality of St. Croix, revenues were $273,026.86 as compared with $262,257.54 in the preceding year. Budgeted expenditures were $428,226.86. Congress appropriated $135,000 toward the expenses of local government in the municipality of St. Croix. Income tax collections there amounted to $86,232.22 as against $103,069.94 in the previous year.

Trade and Communication.—In 1947 360 ocean-going vessels with a gross tonnage of 2,631,887 entered the St. Thomas harbour as against 353 with a gross tonnage of 1,493,725 in 1946. The volume of shipping was still considerably lower than in the years before World War II. Imports into the Virgin Islands from the United States during the calendar year 1946 totalled approximately $1,782,577; exports amounted to approximately $750,987.

During 1947 the Pan American Airways and Caribbean Atlantic Airlines served the islands with two daily flights.

St. Thomas and St. Croix are adequately provided with roads. A few miles of roads have been developed in St. John. Radio telephone service among the three islands and to the continental United States through Puerto Rico began in 1946.

Industry.—The growing and processing of sugar cane and its allied industries and the business derived through the harbour activities in St. Thomas constitute the economic life of the islands. Exports of rum in 1947 amounted to 244,809 proof gallons from St. Thomas and 146,071 proof gallons from St. Croix as against a total of 955,049 proof gallons in 1946.

St. Croix produces the entire sugar crop of the islands. This basic industry suffered seriously in 1947 because of severe drought. Despite increased acreage and higher prices and subsidies the yield dropped from 47,160 tons in 1946 to 36,304 tons in 1947, with a corresponding reduction in sucrose content from 4,970 tons in 1946 to 2,946 tons in 1947.

Plans were on foot to develop and construct additional facilities for the accommodation of tourists.

The economic problem of the Virgin Islands can be solved only when local foodstuffs and other essential supplies are produced and manufactured to such an extent as to make unnecessary the expenditure of large sums on importations. Great emphasis was laid in 1947 on the need for greater production and consumption of local products. The department of the interior and the department of commerce along with other local agencies were developing plans to help solve this situation.

The federal public works program, delayed considerably because of material shortages and inadequate shipping facilities, was under way in 1947. (W. H. He.)

Virgin Islands, British: *see* Leeward Islands.

Viruses: *see* Infantile Paralysis; Medicine; Pneumonia.

Vishinsky, Andrei Y. (1883–), soviet statesman, jurist and diplomat, was born in Kiev of an ancient Polish family. He studied law at the University of Kiev and joined the Menshevist group of the Social Democrats in 1902. He participated in the revolt of 1905 and served a year in prison. When the bolshevists took power, Vishinsky deserted the Menshevists, served in the red army for a year and joined the Communist party in 1920. He was professor of jurisprudence at Moscow university, 1925–27, was named the all-union deputy public prosecutor in 1933 and was public prosecutor from 1935 to 1939. He rose to fame as the public prosecutor in the treason and purge trials, 1936–38, and was appointed vice-chairman of the council of peoples' commissars and deputy commissar for foreign affairs in 1940. He attended virtually all of the important inter-Allied and United Nations conferences from 1945 through 1947. A skilled lawyer, Vishinsky was a formidable opponent in U.N. debate by virtue of his vast knowledge of legal and parliamentary technicalities. In June 1947, he won the Stalin prize (worth about $40,000) for his "work in legal science."

However, he was also given to impassioned oratory as attested in his vitriolic 92-minute attack on U.S. foreign policy before the United Nations general assembly (Sept. 18) in which he accused influential "reactionary circles" in the U.S. of "warmongering" against the Soviet Union; simultaneously he offered a resolution urging the U.N. to forbid its members to engage in war propaganda. The resolution, however, was defeated (Oct. 27),

and the assembly's political and security committee instead adopted unanimously a substitute measure condemning all forms of propaganda that might threaten the peace.

Vital Statistics: *see* BIRTH STATISTICS; CENSUS DATA, 1947; DEATH STATISTICS; INFANT MORTALITY; MARRIAGE AND DIVORCE; SUICIDE STATISTICS.

Vitamins. The synthesis of vitamin A was reported simultaneously and independently from two laboratories in 1947, by D. A. van Dorp and J. F. Arans working in the Netherlands and J. B. Cauley and co-workers in the United States. In neither case were accurate descriptions of the methods given. It was reported that the biologic potencies and the physical and chemical properties of the natural and synthetic vitamins were identical. This synthesis, if verified, was an important discovery in the field of vitamin chemistry.

Significant advances were made in finding the role of biotin, one of the B-complex vitamins, in metabolism. The older observation that biotin is concerned in the oxidation of pyruvate and lactate was narrowed down to a function in carbon-dioxide fixation by which pyruvate is converted to oxalacetate. It was shown by H. A. Lardy and colleagues that the function of biotin was definitely associated with carbon-dioxide fixation. They noted that oxalacetate as well as aspartic acid spared biotin needs for certain bacteria and further that carbon dioxide greatly stimulated growth in the presence, but not in the absence, of biotin. The same metabolic role for biotin was advanced by W. L. Shive and L. L. Rogers, who demonstrated that oxalacetate or aspartic acid compensated for the depression of bacterial growth caused by a biotin anti-metabolite. H. C. Lichstein and W. W. Umbreit demonstrated the need for biotin in the decarboxylation of oxalacetate, and these same workers demonstrated a second role for biotin in metabolism involving the enzyme systems concerned with the deamination of certain amino acids.

Of the known water-soluble vitamins, thiamin, riboflavin, pyridoxine, and niacin were shown to exert their physiologic action in the form of phosphoralated derivatives which combine with specific proteins to effect the catalysis of certain known reactions of intermediary metabolism. Largely as a result of the brilliant work of F. Lipmann and his collaborators, pantothenic acid was added to the list of vitamins which had been shown to function in this manner. Lipmann and his colleagues isolated a coenzyme concerned with acetylation, another process of intermediary metabolism, and this coenzyme was found to contain pantothenic acid. Further information on the chemistry and distribution of the coenzyme for acetylation was announced at the meeting of the American Society of Biological Chemists. In view of the universal presence of the pantothenic acid containing coenzyme in cells it seemed unlikely that its function is limited to acetylation processes.

Observations were made concerning transaminase and succinoxidase in normal and vitamin B_6 deficient rats; it had previously been shown that this vitamin is concerned with these two important enzyme activities. In earlier results it was shown that rats maintained on the vitamin B_6 deficient diet for six weeks had low levels of transaminase in all tissues examined. To find whether the effect was specific for transaminase activity or whether other enzymes were equally affected in vitamin B_6 deficiency, the succinoxidase activity was also determined in deficient and controlled rats. The vitamin B_6 deficient rats showed only a slight decrease of succinoxidase activity to about 80% to 90% of the normal level, thus suggesting a definite specificity of the effect on the transaminases.

The important role played by a number of the vitamins of the B-complex group in the enzyme systems which are involved in energy transformations in the living organism made it seem possible that a direct decrease in the work output of the muscle might result from dietary deficiencies. A number of investigators reported an increased fatigability, deterioration of physical fitness and decreased work output within a few days or weeks after certain of the vitamin B-complex factors were missing from the diet, or present in small quantities. Others failed to obtain such results. Part of this apparent disagreement may have resulted from the difficulty of measuring fatigue, work output, or physical fitness. N. W. Shock and W. H. Sebrell attempted to overcome this difficulty by studying the effect of various members of the vitamin B-complex on the work output of standardized frog muscle preparations and found some interesting, if not as yet explainable, results. They compared the work output of isolated muscles of frogs with the work output of the same muscles of the opposite legs perfused with glucose ringer solution containing variable amounts of the various vitamins of the B-complex. Thiamin, co-carboxylase, pantothenic acid, pyridoxine and riboflavin when present in small concentrations in the perfusion fluid were found to lead to work output of the muscles approximately 20% over that of the corresponding controls. All the substances tested gave about the same response. It was puzzling that so many substances of different chemical structure which are usually characterized by the specificity of their physiologic reactions gave the same effect.

In Vitamin B_1 or thiamin deficiency, pyruvate accumulates as does lactate, frequently in a definite ratio to pyruvate. F. S. Randalls and colleagues were interested in determining whether the impaired ability of the body to utilize pyruvate in the presence of thiamin deficiency is a uniform abnormality of all tissues or whether this impairment of metabolism may be more marked in the heart. Experimental work on dogs revealed that the pyruvate balance of the heart appears to be unlike that of other tissues. The workers concluded that normally the heart not only oxidizes all the carbohydrate products formed within it but also utilizes some poured into the blood stream by other organs. In thiamin deficiency this function is impaired. It was suggested that an important source of the increased pyruvic acid blood levels observed in thiamin deficiency is the heart tissue itself.

Additional evidence of the importance of certain vitamins of the B-complex in the formation of antibodies was obtained by A. E. Axelrod and associates. A severe impairment of antibody response was observed in pantothenic acid and pyridoxine-deficient rats. Variable but low antibody titers were observed in riboflavin-deficient animals. Good antibody response was observed in well nourished and starved control animals. (*See* also BIOCHEMISTRY; CHEMISTRY; CHEMOTHERAPY; FISHERIES; FLOUR; FOOD RESEARCH; MEDICINE.)

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(F. J. SE.)

Vocational Education: *see* EDUCATION.

Vocational Rehabilitation, Office of. Physically and mentally handicapped civilians of working age requiring vocational rehabilitation services in order to obtain or retain employment commensurate with their potential capacities, numbered at least



U.S. VETERANS, injured in World War II, are shown in Chicago demonstrating their skill in making automobile identification tags, during the 1947 observance of National Employ the Physical Handicapped week

1,500,000 in the United States in 1947, not including veterans of the armed forces with service-incurred disabilities. The number was increasing at the rate of 200,000 a year. All 48 states, the District of Columbia, Puerto Rico, Hawaii and Alaska entered into partnership with the Federal Security agency's Office of Vocational Rehabilitation to provide the necessary services and facilities.

There were during the year 52 general rehabilitation agencies administered by the state boards of education through divisions of vocational rehabilitation. In 35 states, there were agencies authorized by state laws to provide vocational rehabilitation services to rehabilitate blind persons. In 17 states general rehabilitation agencies provided services for all types of handicapped clients, including the blind.

The states and territories actually operated the programs, purchasing rehabilitation services from existing facilities and necessary medical care from general practitioners, specialists, clinics, hospitals and other sources—either public or private—available in the communities. The federal government, through the Office of Vocational Rehabilitation in the Federal Security agency, assisted the states and territories through financial grants-in-aid, establishment of standards of service and technical aid. The federal government assumed all necessary administrative costs incurred by the states as well as their expenditures for guidance and placement of disabled individuals. Medical examinations and treatment, training and the costs of other services were shared equally by the states and the federal government.

The states were fully reimbursed by the federal government for costs of services to war-disabled civilians such as merchant seamen, members of the Civil Air Patrol and the aircraft warning service injured in performance of duty.

During the fiscal year 1947, 43,880 clients—32,015 men and 11,865 women, including the blind—were rehabilitated into employment, and their cases were closed to the mutual satisfaction of themselves and their employers. Total annual earnings—not including those of farmers and family workers, whose earnings were difficult to estimate—increased almost 400% after rehabilitation, rising from an estimated annual rate of $13,922,100 before rehabilitation to $67,796,700 afterward. Of this group, 32,384 or 74% were unemployed when they were surveyed for services, 6,245 never having worked before and 9,250 only part time.

In addition, 19,900 other clients made vocational adjustments during the same period following diagnosis or counselling and planning, while 102,711 were still in process of rehabilitation at the close of the fiscal period.

Clients found employment in various professional and semiprofessional fields, and in skilled, semiskilled and unskilled occupations.

Rehabilitation programs were conducted at a total cost, during the 1947 fiscal year, of $19,313,314, of which the federal share was $14,188,933. The states' participation totalled $5,124,411, which represented state and local governmental funds supplemented by contributions from interested welfare, health, fraternal and other organizations. (*See* VETERANS' ADMINISTRATION.) (M. J. Sy.)

Wages and Hours.

Manufacturing pay rolls of the U.S. were substantially larger in the first nine months of 1947 than in the corresponding months of 1946 and increased during the rest of the year. The index numbers for Jan. 1947 were more than 34% higher than the figures for Jan. 1946. Substantial wage increases accounted for most of the increase. There were also more workers employed and fewer strikes.

Table I shows employment indexes for 1946 and the first nine months of 1947 in all manufactures, durable goods and nondurable goods. The table shows wage-earner employment and pay-rolls in both durable and nondurable goods industries. These indexes were based upon 1939 as 100. The chart on page 787 shows employment and pay-roll variations from 1919 to June 1947.

Table I.—*Indexes of Production-Worker Employment and Pay Rolls in Manufacturing Industries*

(1939 average=100)*

Months	All manufacturers				Durable goods				Nondurable goods			
	Wage-earner employment		Wage-earner pay roll		Wage-earner employment		Wage-earner pay roll		Wage-earner employment		Wage-earner pay roll	
	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946	1947	1946
Jan.	152.7	130.2	307.3	229.2	178.0	144.1	340.0	243.0	132.8	119.2	275.3	215.7
Feb.	153.7	123.9	310.6	214.3	180.1	125.2	344.6	204.2	133.0	122.8	277.4	224.1
March	154.0	132.1	314.1	238.3	180.9	141.7	349.9	244.8	132.8	124.4	129.2	232.1
April	152.9	135.9	310.7	249.2	180.8	151.6	349.9	267.3	130.9	123.5	272.3	231.4
May	150.6	139.6	312.2	253.5	178.0	159.0	353.8	275.1	129.1	124.3	271.5	232.3
June	151.4	141.9	319.6	262.8	179.7	162.4	365.9	289.1	129.1	125.7	274.2	237.0
July	149.9	143.6	313.9	267.1	174.7	165.7	350.4	296.3	130.3	126.2	278.1	238.5
Aug.	153.8	147.7	322.4	284.4	177.1	170.6	357.2	316.1	135.4	129.7	288.4	253.4
Sept.	156.7	149.5	337.2	290.3	179.5	173.1	372.8	323.3	138.7	130.9	302.4	258.1
Oct.	...	149.6	...	292.8	...	173.9	...	328.1	...	130.4	...	258.3
Nov.	...	152.0	...	292.8	...	176.7	...	331.1	...	132.5	...	266.0
Dec.	...	152.8	...	306.2	...	177.0	...	337.3	...	133.6	...	275.8

This table compiled from statistics released by the *Monthly Labor Review*, United States bureau of labour statistics.

*Indexes are based on 1939 average and adjusted to census of manufacturers. They are not comparable to indexes published prior to Dec. 1942 by the bureau of labour statistics.

Table II shows the average hours and earnings in Aug. 1946 and 1947 in the principal manufacturing and nonmanufacturing industries.

It is evident that a high level of wage earners' weekly "take-home" continued through Aug. 1947, as the result of higher hourly earnings.

Table II.—*Average Weekly Earnings, Average Weekly Hours and Average Earnings per Hour in Major Industrial Classifications, Month of August 1947 and 1946: U.S.*

Industry	Average weekly earnings		Average weekly hours		Average hourly earnings cents	
	1947	1946	1947	1946	1947	1946
ALL MANUFACTURING	$49.21	$44.99	39.8	40.5	123.8	111.2
Durable goods	52.56	48.02	40.0	40.5	131.3	118.6
Nondurable goods	45.75	41.89	39.5	40.4	115.9	103.6
Iron and steel	54.51	48.78	39.6	39.9	137.6	122.2
Electrical machinery	51.61	47.49	39.2	40.6	131.6	116.9
Machinery, not electrical	55.83	50.99	40.5	40.9	137.9	124.6
Transportation equipment, except automobiles	56.36	53.91	39.7	39.7	142.0	135.9
Automobiles	56.07	53.80	37.3	39.2	150.1	137.3
Nonferrous metals	51.35	48.00	39.7	40.8	129.4	117.7
Lumber basic	45.26	38.78	43.2	41.8	104.8	92.8
Furniture	44.06	40.09	41.2	41.9	106.9	95.7
Stone, clay and glass	48.96	43.23	40.5	40.7	120.9	106.3
Textile-mill products	39.40	37.00	38.2	40.1	103.1	92.4
Apparel products	36.59	36.48	35.2	37.0	104.0	98.6
Leather	40.26	36.74	38.1	37.8	105.7	97.2
Food	49.58	44.34	43.3	43.7	114.4	101.5
Tobacco	57.26	34.16	39.2	38.6	95.1	88.5
Paper and allied products	50.46	44.26	42.4	43.4	119.2	102.0
Printing and publishing	59.48	43.01	39.4	40.8	151.0	129.9
Chemical products	51.31	44.91	40.9	40.8	125.3	110.2
Products of petroleum	60.62	54.36	40.6	40.3	149.4	134.7
Rubber products	55.60	51.03	38.4	39.4	144.6	129.5
NONMANUFACTURING						
Coal mining:						
Anthracite	66.26	60.65	38.4	37.9	172.4	159.8
Bituminous	71.49	62.84	40.1	42.8	177.8	146.6
Metalliferous mining	56.27	49.59	41.6	40.9	135.3	121.2
Quarrying	52.28	47.11	46.1	46.5	113.1	101.6
Crude petroleum	59.71	53.42	50.1	40.9	148.6	130.7
Telephone	46.92	44.19	38.7	39.3	121.5	112.9
Telegraph	55.10	41.31	44.8	45.4	122.8	91.0
Electric light	57.97	52.27	42.4	41.6	137.8	126.0
Street railways and buses	58.00	55.25	46.6	48.6	124.9	109.9
Wholesale trade	52.05	48.14	41.1	41.7	125.8	114.8
Retail trade	38.14	33.81	41.1	41.3	100.2	89.3
Hotels	29.38	27.15	44.9	43.8	65.4	61.4

Compiled from Monthly Labor Review, United States bureau of labour statistics, Washington, D.C.

Table III shows a steady rise in average hourly earnings from 1941 to 1947. It was not possible to separate the increment added to hourly earnings by overtime work from the prevailing rates paid for standard hours of employment but additional increases occurred in many industries in 1947.

Table III.—*Rise in Hourly Earnings Rates in U.S.A., 1941–47*

Industry	Hourly earnings in August						
	1941	1942	1943	1944	1945	1946	1947
Manufactures in general	$ .745	$ .864	$ .965	$1.016	$1.025	$1.112	$1.238
Durable goods manufactures	.830	.966	1.060	1.111	1.114	1.186	1.313
Nondurable goods	.658	.738	.811	.865	.908	1.036	1.159
Iron and steel	.871	.967	1.037	1.076	1.109	1.222	1.376
Machinery	.844	.976	1.063	1.120	1.136	1.246	1.379
Lumber and products	.588	.677	.744	.803	.816	.928	1.048
Food and kindred products	.658	.732	.805	.844	.882	1.015	1.144
Tobacco products	.520	.587	.658	.715	.761	.885	.951
Rubber products	.861	.936	1.015	1.102	1.119	1.295	1.446
Anthracite mining	.989	.992	1.073	1.179	1.331	1.598	1.724
Bituminous mining	1.033	1.061	1.147	1.189	1.248	1.466	1.778
Wholesale trade	.798	.861	.944	.939	1.013	1.148	1.257
Building	1.001	1.174	1.246	1.323	1.383	*	*

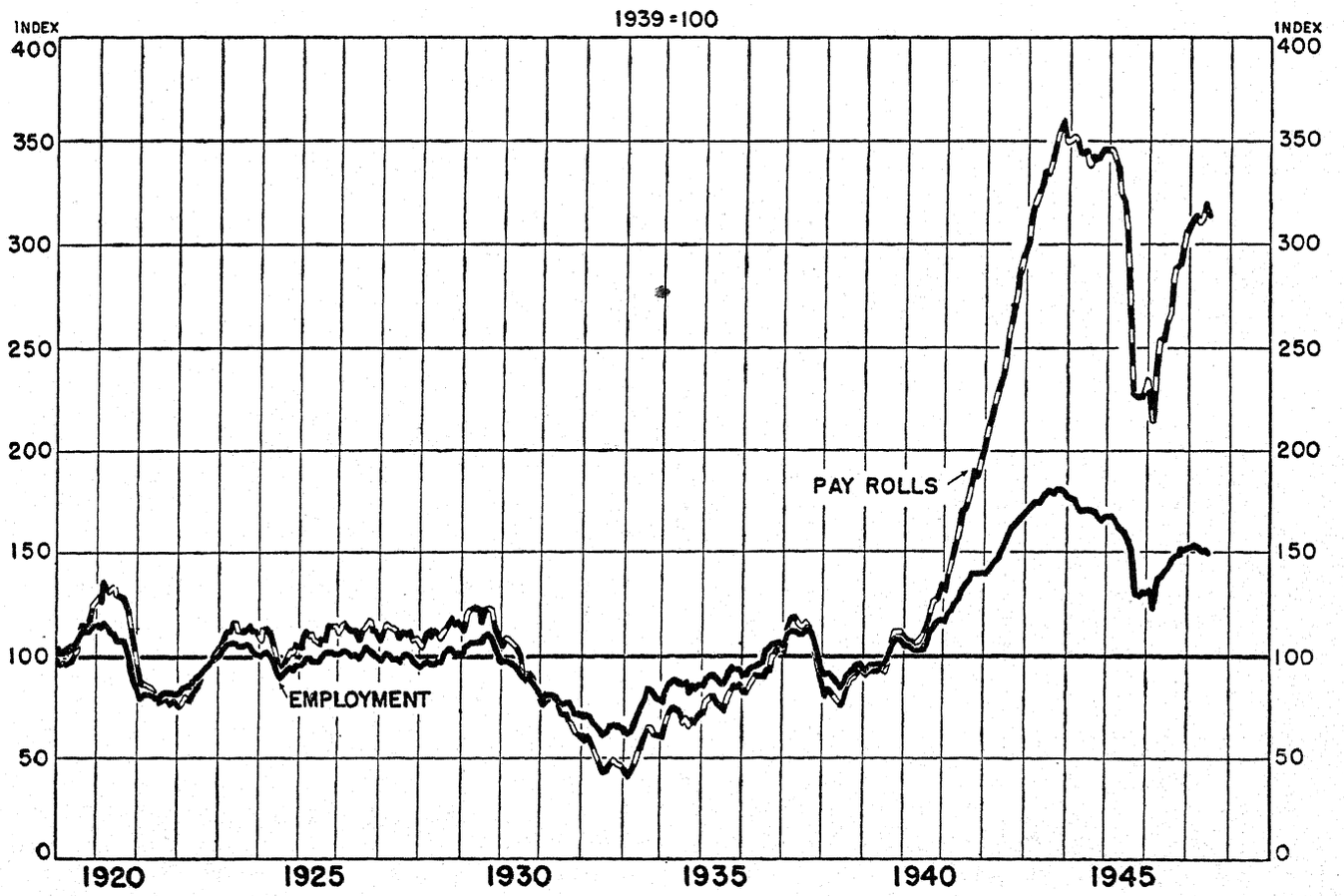
*Not available.

The much higher hourly earnings in some industries were the result of one or more of the following factors: (1) character of the labour supply employed, as to sex, age and skill; (2) productivity of the industry, principally determined by its degree of modernization, technical equipment and proportion of skilled workers; (3) degree to which union working conditions prevailed and (4) necessity of paying high wages to attract labour supply.

Weekly earnings measure wage-earner welfare better than do hourly rates (Table II). There were 3 industries of the 31 studied in which average weekly earnings exceeded $60 per week in Aug. 1947. The maximum was $71.49 in bituminous coal mining. The lowest weekly earnings were in hotels: $29.38. Of course, hotel earnings are supplemented by tips, and the statistics do not reveal this part of the employees' income. In Aug. 1947, there were 18 industries in which average weekly earnings were between $50 and $59.71 and 6 industries between $40 and $50. The average weekly earnings of durable goods manufacturers were $52.56 in Aug. 1947 compared with $48.02 in 1946.

The wages of farm labour, both monthly and daily wages, rose a little from 1946 levels, judging by the reports of the U.S.

EMPLOYMENT and pay rolls for all manufacturing industries, 1919 to June 1947, as compiled by the U.S. bureau of labour statistics (1939=100)



bureau of agricultural economics; adequate statistical data were not yet available. (D. D. L.)

Great Britain.—There was a considerable slackening off of the upward trend of wage rates; for the first eight months of 1947 the total estimated increases in weekly rates amounted to only £832,000, spread over 2,600,000 workers, as compared with £2,350,000, spread over 6,700,000 workers, in the corresponding period of 1946, when wage rates were already being kept largely stable in order to avoid inflation. The trade unions supported wage increases only in exceptional cases, mainly where they were clearly needed in order to remedy deficiencies in labour supply. The government, for its part, continued to hold the cost of essential foodstuffs as nearly stable as possible by means of subsidies, which had become much more costly because of higher world prices. There were some proposals to reduce the food subsidies on financial grounds, but no action was taken.

There was further discussion of the desirability of adopting some "national wages policy" to bring the supply of labour for the different industries into better relation to the requirements of the plan of production. The government's general attitude was that wage increases should be granted only where labour needed to be attracted into undermanned industries, or where they were linked with increases in productivity under systems of payment by results.

The old cost-of-living index (July 1914=100), stood at 155 in Sept. 1939 and at 203 in July 1947, when it was issued for the last time. The new index, which had no connection with the old, was based on June 1947, and stood in August at 100.1. It should be emphasized that, despite the food subsidies, the actual rise in the cost of living since 1939 had been much greater than the old index suggested, as it gave a disproportionately heavy weight to subsidized food items. The new policy on subsidies announced in the budget of Nov. 1947, whereby the total expenditure on them was to be kept stable, meant that further increases in prices would show up in retail prices and so increase the cost of living. The index of retail prices rose at the end of the year, and further rises were expected.

For earnings, as distinct from wage rates, in industry generally the latest published figures available in 1947 were for Oct. 1946, when the average for all workers covered by the figures stood at 101*s.*, or 90% above the level in Oct. 1938. For men over 21 the figure was 120*s.* 9*d.*, a rise of 75%; for women over 18 it was 65*s.* 3*d.*, a rise of 101%. Youths' earnings had risen slightly more than men's, and girls' slightly more than women's. The increases were greatest in textile and clothing, and smallest in building, printing and paper, and public utilities. Working hours averaged 47.6 per week for men and 42.6 for women, as compared with 47.7 and 43.5 in 1938. Hours per week had fallen for youths from 46.2 to 44.7, and for girls from 44.6 to 42.6.

The highest weekly earnings were in the metal, engineering and shipbuilding trades—men 132*s.* 9*d.* per week, women 70*s.* 7*d.* Certain important industries were not covered by the general figures. Of these, coal mining showed for the final quarter of 1946 average earnings of 24*s.* per man shift, as compared with 11*s.* 3*d.* in 1938, when miners' earnings were abnormally low. For adult miners only, the average for Oct.–Dec. 1946 was 134*s.* 8*d.* weekly, as compared with 62*s.* in 1938. Allowances in kind were valued at 5*s.* 1*d.* in 1946, and 2*s.* 1*d.* in 1938. For dock workers, weekly earnings in Oct. 1946 averaged 143*s.* 3*d.* (no prewar comparison was available). For railway workers, there were no complete figures later than March 1946, when weekly earnings averaged 121*s.* 6*d.* for adult men and 88*s.* 4*d.* for women, a rise, in the case of men, of 77% above the 1939 level. In agriculture the statutory minimum wage for adult men was raised from 80*s.* to 90*s.* per week, and for women from 62*s.* to 68*s.*, in both cases for a standard week of 48 hr. Statutory regulation under the Wages Councils act was extended to cover certain further groups of distributive workers. (*See* also AGRICULTURE; BUSINESS REVIEW; CANADA; CENSUS DATA, 1947; LABOUR UNIONS; LAW; PRICES.) (G. D. H. C.)

Wales: *see* GREAT BRITAIN & NORTHERN IRELAND, UNITED KINGDOM OF.

Wallace, Henry Agard (1888–), U.S. statesman. (See *Encyclopædia Britannica* for his early career.) Wallace was secretary of agriculture in the Roosevelt cabinet, 1933–40. He was elected vice-president in 1940 and after completion of his term became secretary of commerce in 1945. He resigned from the latter position on Sept. 20, 1946, at Pres. Harry S. Truman's request because of his attack on the administration's "get-tough-with-Russia" policy, which proved embarrassing to Secretary of State James F. Byrnes, then attending the Paris peace conference. Later Wallace became editor of the *New Republic*.

In 1947, Wallace launched a whirlwind crusade to reverse what he believed to be the faulty direction of U.S. foreign policy. He started his campaign with a visit to England, France and the Scandinavian countries in April, continuing it on his return to the United States with an 18,000-mi. tour of 15 states and the District of Columbia.

Although his tour at home and abroad attracted political criticism, it also drew large audiences, a phenomenon explained by some observers as a tribute to his "messianic" fervour. The motif running through Wallace's denunciations of the administration's foreign policy was that it would lead inevitably to war with the Soviet Union, and in a New York speech, Sept. 11, he said he would work within the Democratic party, but if it proved to be "a war party . . . then the people must have a new party."

Wallace announced (Dec. 29) that he would run for president in 1948 on a third party platform of "peace and abundance" for all, and he resigned the *New Republic* editorship.

Walnuts: *see* NUTS.

War Assets Administration: *see* SURPLUS PROPERTY DISPOSAL.

War Brides: *see* IMMIGRATION AND EMIGRATION.

War Crimes. Data available to the United Nations War Crimes commission in Oct. 1947 indicated that eight Allied countries (United States, United Kingdom, France, Netherlands, Norway, Greece, Yugoslavia and Australia) had conducted 1,600 war crimes trials, with an average of three persons tried in each. Of some 5,000 accused, 17% were acquitted. Of the 83% found guilty, one-third were sentenced to death and the remaining to fine or imprisonment. These trials were about equally divided between the European and far eastern areas. In the former area, half were tried in United States tribunals, and in the latter, less than a quarter. Data for trials by the Soviet Union and China were lacking. Czechoslovakia and Poland classified war criminals and collaborators together. They had dealt with nearly 28,000 persons accused of these crimes, of which about 1,000 had been sentenced to death and 18,000 to fine and imprisonment. The remaining 9,000 were acquitted.

Europe.—Since conclusion of the trial of major war criminals at Nuernberg in Oct. 1946, there were numerous trials of lesser war criminals. During 1947 death sentences were decreed by U.S. courts for officers of concentration camps at Dachau, Kaufbeuren and Buchenwald and for Captain Carl Hildebrand; Field

Marshal Erhard Milch was sentenced to life imprisonment for war crimes. Seven SS men, mostly physicians, were found guilty of war crimes and crimes against humanity for experiments on inmates of concentration camps. Three industrial magnates, including Friedrich Flick, were sentenced to imprisonment for exploiting slave labour.

British courts sentenced to death members of the staff of the Ravensbrueck women's concentration camp, including four women, and sentenced Field Marshal Albert Kesselring to death (later commuted to life imprisonment) for the massacre of Italian civilians at the Ardeatine caves.

French courts sentenced to death 21 SS men for murdering prisoners, and sentenced Captain Heinrich Tillesen to 15 years' imprisonment for murdering Dr. Matthias Erzberger, former chancellor of Germany.

The soviet court at Stalino obtained confessions from 4 of 12 German officers on the charge of participating in the massacre of 170,000 soviet civilians and 150,000 prisoners of war and the destruction of $2,000,000,000 worth of mining and industrial equipment. The Polish tribunal at Krakow sentenced to death 23 SS officers for crimes against humanity at the Auschwitz extermination camp.

In addition to these trials, preparations were made for the trial of the members of the four organizations (the SS, the SD, the gestapo, and the leadership corps of the nazi party) which had been found to be criminal organizations by the International tribunal at Nuernberg. According to the judgment of that tribunal, each alleged member of a criminal organization was entitled to individual trial.

Apart from war criminal trials, several trials were held by the Allied courts in the European zone for persons accused of sedition against military government. Thus on Feb. 23, it was announced that British and U.S. forces had arrested a number of higher officers of the SS and others for collaboration in an underground movement to restore nazi government and to lead Europe into war against Russia. On March 26, the U.S. commander at Frankfurt stated that a nazi plot in that city had been frustrated, and four former SA officers had been arrested.

German denazification courts sentenced the three men who had been acquitted by the International tribunal at Nuernberg (Hans Fritsche, Franz von Papen and Hjalmar Schacht) to prison terms of eight or nine years. Hitler's photographer, Heinrich Hoffman, was also sentenced to imprisonment by one of these courts. More than 2,000,000 persons were subject to denazification proceedings in the U.S. zone, and more than 400 German denazification tribunals were established to deal with them. In July 1946 General Joseph T. McNarney extended amnesty to youths and on the following Christmas to persons not charged as "major offenders" or "offenders" and whose financial status indicated they had not profited from the nazi regime or who were more than 50% disabled. These amnesties reduced those subject to trial by half. By the beginning of 1947, 125,738 persons had been tried, of whom more than 4% were found to be "major offenders" or "offenders," less than 9% "lesser offenders," and nearly 10% were exonerated. The rest were classified as "followers" not interned but subject to supervision and to certain limitations of occupation and public service.

A new United States directive for military government in Germany issued on July 11, 1947, urged "every effort to facilitate and bring to early completion the war crimes program. . . ."

Far East.—The trial of Japanese accused as "major war criminals," begun June 3, 1946, continued through 1947. The fact that there were more defendants (28) and more counts in the indictment (55) accounted in part for the greater length of the trial as compared with that at Nuernberg. General Hideki Tojo, whose defense began near the end of the year, assumed major responsibility for the war, which, however, he alleged was a defensive necessity for Japan.



BUCHENWALD concentration camp officials who were among the 31 defendants being tried for war crimes by a U.S. military tribunal at Dachau, Germany. All 31 were convicted on Aug. 12, 1947, with 22 sentenced to death and the remainder to life or long-term imprisonment

In the far eastern zone, there were numerous trials of lesser war criminals. The British court at Hong Kong sentenced to death the commandant and the doctor of the Shamshaipo prison camp for murdering prisoners, the chief of the Japanese gendarmery in Hong Kong, Colonel Noma Kennosuke, for atrocities against civilians and Colonel Nakano and Captain Imamura for maltreatment of prisoners of war in Formosa. The British court at Singapore sentenced Lt. Gen. Sabura Kawamura and Lt. Col. Masayuke Oishi to death for complicity in the murder of 5,000 Chinese after the fall of Singapore.

The French court at Saigon sentenced 13 members of the Japanese police for torturing French men and women.

The Australian court at Rabaul sentenced to death Lt. Masao Baba for ordering forced marches of British and Australian prisoners in Borneo in 1945 and Commander Hatakeyama for participation in the murder of Allied troops in the Netherlands Indies.

A Chinese court at Nanking sentenced to death Lt. Gen. Rensuke Isogai, governor of Hong Kong during the Japanese occupation, for ill treatment and starvation of civilians in Hong Kong.

Activities of the United Nations.—The trial and sentencing of war criminals had proceeded with a high degree of co-operation among the powers. Yugoslavia, however, complained that certain categories of war criminals, traitors and quislings in the U.S., British and French zones had not been turned over for

trial in its zone. With the support of the Soviet Union, it introduced a resolution concerning this matter in the second general assembly of the United Nations in Oct. 1947. The assembly rejected the resolution, which criticized the western powers, and approved a British resolution recommending that member states "continue with unabated energy to carry out their responsibilities for the surrender and trial of war crimes."

The United Nations War Crimes commission continued to function in London under the chairmanship of Lord Wright. It initiated the publication of a series of reports of war crimes trials, thus making available the legal principles developed in these trials.

The United Nations has proceeded with studies in pursuance of the resolutions of the first general assembly concerning the codification of international criminal law, including the war crimes set forth in the Nuernberg charter and the crime of genocide. (*See* also INTERNATIONAL LAW; WORLD WAR II.)

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(Q. W.)

War Damage Insurance: *see* INSURANCE.

War Debts.

A statement follows showing the World War I indebtedness of foreign governments to the United States as of July 1, 1947.

Country	Principal	Accrued Interest	Total Indebtedness
Funded debts:			
Belgium	$ 400,680,000.00	$ 119,531,077.60	$ 520,211,077.60
Czechoslovakia	165,241,108.90	19,006,198.84	184,247,307.74
Estonia	16,466,012.87	9,170,747.94	25,636,760.81
Finland	7,624,499.59	634,770.69	8,259,270.28
France	3,863,650,000.00	897,077,124.40	4,760,727,124.40
Germany (Austrian indebtedness)*	25,980,480.60	44,058.93	26,024,539.59
Great Britain	4,368,000,000.00	2,351,464,782.58	6,719,464,782.58
Greece	31,516,000.00	6,229,215.10	37,745,215.10
Hungary	1,908,560.00	965,118.38	2,873,678.38
Italy	2,004,900,000.00	57,276,909.34	2,062,176,909.34
Latvia	6,879,464.20	3,713,951.84	10,593,416.04
Lithuania	6,197,682.00	3,297,593.51	9,495,275.51
Poland	206,057,000.00	114,772,064.20	320,829,064.20
Rumania	63,860,560.43	14,666,897.10	78,527,457.53
Yugoslavia	61,625,000.00	2,387,968.78	64,012,968.78
Total	$11,230,586,368.65	$3,600,238,479.23	$14,830,824,847.88
Unfunded debts:			
Armenia	$ 11,959,917.49	$ 16,627,153.58	$ 28,587,071.07
Russia	192,601,297.37	274,738,070.32	467,339,367.69
Total	$ 204,561,214.86	$ 291,365,223.90	$ 495,926,438.76
Total of above	$11,435,147,583.51	$3,891,603,703.13	$15,326,751,286.64
Germany:†			
Army costs (reichsmarks)	997,500,000.00	87,490,551.50	1,084,990,551.50
Awards of Mixed Claims Commission (reichsmarks)	2,040,000,000.00	247,350,000.00	2,287,350,000.00
Total (reichsmarks)	3,037,500,000.00	334,840,551.50	3,372,340,551.50
Total (in dollars at 40.33 cents to the reichsmark)	$1,225,023,750.00	$135,041,194.42	$1,360,064,944.42

*The German government had been notified that the government of the United States would look to the German government for the discharge of this indebtedness of the government of Austria to the government of the United States.

†Indebtedness to the United States under agreements of June 23, 1930, and May 26, 1932.

(E. F. B.)

United States Loans, World War II and Later.—Although the total indebtedness of other countries to the United States government incurred during and after World War II approaches in amount that of World War I, the pattern differs materially. Whereas 70% of the original World War I debt was for war goods acquired prior to the armistice, 90% ascribable to World War II (as of June 30, 1947) arose in the two postwar years and was largely for rehabilitation and reconstruction purposes.

The main difference in the financing of the two wars was in

Foreign Credits of the U.S. Government—By Agency, by Type of Credit, and by Country, as of June 30, 1947

	Total	Outstanding	Unutilized commitments
Total	$9,608,334,680	$6,480,927,021	$3,127,407,659
By agency:			
Agriculture department	124,948,446	124,948,446	
Export-Import bank	2,696,328,803	1,757,692,989	938,635,814
Maritime commission	170,924,773	140,700,600	30,224,173
Reconstruction Finance Corp.:			
Proper	294,482,554	259,482,554	35,000,000
Office defense supplies	1,715,447	1,715,447	
Office rubber reserve	109,154	109,154	
U.S. Commercial company	12,068,644	3,592,122	8,477,522
State department: proper	44,065	44,065	
Office Foreign Liquidation commission	1,149,590,022	840,631,148	308,958,874
Treasury department: special British loan	3,750,000,000	2,050,000,000	1,700,000,000
Lend-lease fiscal operations	1,408,122,772	1,302,011,496	106,111,276
By type of credit:			
Loans	$6,744,082,077	$4,070,446,263	$2,673,635,814
Property credits	2,728,746,721	2,283,452,398	445,294,323
Surplus property	1,149,699,176	840,740,302	308,958,874
Lend-lease	1,408,122,772	1,302,011,496	106,111,276
Merchant ships	170,924,773	140,700,600	30,224,173
Commodity credits	135,505,882	127,028,360	8,477,522
Cotton	126,755,882	126,755,882	
Material	124,948,446	124,948,446	
Operating expenses	1,807,436	1,807,436	
Raw material	8,750,000	272,478	8,477,522
By country:			
American republics	$ 604,499,178	$ 315,605,276	$ 288,893,902
Argentina	210,000		210,000
Bolivia	19,532,816	9,597,816	9,935,000
Brazil	154,728,506	103,990,422	50,738,084
Chile	65,702,765	18,164,471	47,538,294
Colombia	34,676,982	19,625,415	15,051,567
Costa Rica	6,802,975	6,802,975	
Cuba	19,531,125	12,221,125	7,310,000
Dominican Republic	1,630,053	1,630,053	
Ecuador	16,973,659	6,393,659	10,580,000
Haiti	7,240,000	7,240,000	
Honduras	577,250	577,250	
Mexico	133,901,901	54,200,278	79,701,623
Nicaragua	2,289,500	2,289,500	
Panamá	121,000		121,000
Paraguay	4,901,450	4,901,450	
Peru	5,334,649	5,261,155	73,494
Salvador	1,257,372	1,257,372	
Uruguay	14,842,312	12,085,205	2,757,107
Venezuela	2,028,500	2,028,500	
Unclassified	112,216,363	47,338,630	64,877,733
Austria	10,750,000	1,304,715	9,445,285
Bahrein	209,205	209,205	
Belgium	146,249,848	146,249,848	
British Commonwealth	4,661,548,995	2,917,666,956	1,743,882,039
United Kingdom	4,629,482,554	2,894,482,554	1,735,000,000
Australia	7,000,000	7,000,000	
British Honduras	443,901	443,901	
Burma	5,000,000	5,000,000	
Canada	10,700,000	5,000,000	5,700,000
Newfoundland & Labrador	1,422,540	1,422,540	
New Zealand	5,500,000	4,317,961	1,182,039
Union of South Africa	2,000,000		2,000,000
China	241,960,011	175,903,399	66,056,612
Czechoslovakia	71,996,489	29,585,066	42,411,423
Denmark	30,000,000	15,086,000	14,914,000
Egypt	8,924,360	8,924,360	
Ethiopia	4,000,000	646,762	3,353,238
Finland	130,379,166	95,227,955	35,151,211
France	1,892,892,436	1,683,791,384	209,101,052
Germany	44,755,252	36,277,730	8,477,522
Greece	121,173,400	54,650,148	66,523,252
Hungary	36,900,000	10,289,503	26,610,497
Iran	34,316,159	9,247,170	25,068,989
Iraq	507,508	507,508	
Italy	327,339,308	219,371,652	107,967,656
Japan	105,750,630	98,136,119	7,614,511
Korea	25,000,000	3,266,816	21,733,184
Lebanon	4,771,167	1,807,816	2,963,351
Liberia	19,275,000	10,649,958	8,625,042
Netherlands & possession	480,524,314	322,350,774	158,173,540
Netherlands	281,159,907	253,920,018	27,239,889
Netherlands Indies	199,364,407	68,430,756	130,933,651
Norway	79,778,386	10,234,551	69,543,835
Philippines	65,000,000	65,000,000	
Poland	93,050,940	33,187,942	59,862,998
Portuguese possession: Angola	60,224	60,224	
Saudi Arabia	27,000,000	8,671,993	18,328,007
Siam	10,000,000	5,009,915	4,990,085
Turkey	40,162,703	5,693,605	34,469,098
U.S.S.R.	241,560,000	196,191,602	45,368,398
Yemen	1,000,000		1,000,000
Unclassified areas	47,000,001	121,069	46,878,932
Europe—special cotton credit	41,000,000		41,000,000
Special exporter-importer credits	1,000,001	121,069	878,932
Various countries	5,000,000		5,000,000

Source: Clearing office for foreign transactions, department of commerce.

the introduction of lend-lease in the later conflict. For the war period from July 1, 1940, to June 30, 1945, including the 18 months prior to Pearl Harbor, foreign aid in the form of grants and credits totalled about $50,000,000,000, the greater part of which represented lend-lease or other grants for which payment was not expected. For the first two postwar years, July 1, 1945, through June 30, 1947, aid amounted to about $12,000,000,000, the portion in the form of credits being somewhat larger than in grants.

The figures presented in the table on page 790 are exclusively credits, for which there is a definite obligation to repay principal, invariably with interest. The amounts shown relate to indebtedness as of June 30, 1947, and include a relatively small amount still due on some loans granted by the Export-Import bank prior to the war. They are, however, exclusive of World War I debts. The amount outstanding is the total amount originally disbursed or utilized less repayments. Unutilized commitments represent amounts still available to the borrower under the terms of the agreement. It was probable that, for one reason or another, some of this would never be utilized. For example, new sales of surplus property to Czechoslovakia and Hungary were suspended.

On the other hand, all except $300,000,000 of the $1,700,000,000 balance under the special loan to the United Kingdom had been utilized by Dec. 31, 1947.

The total of outstanding and unutilized commitments represented the maximum amount of credit which could be extended on the basis of authorizations at June 30, 1947. It was exclusive of the more than $800,000,000 uncommitted lending capacity of the Export-Import bank and other credits which might be approved thereafter by other agencies under programs authorized by the congress.

Credits extended abroad by the U.S. government were of three main types: Loans, property credits and commodity credits. Loans were invariably in the form of dollar credits, either restricted to expenditures on specific items or unrestricted as to locale or method of expenditure. Property credits and commodity credits, on the other hand, were expressed in terms of existing goods, most of which were produced or contracted for during the war years.

While loans thus added to the demand for new commodities, the other types of credit generally did not have a similar effect.

Property credits were extended in connection with the disposal of surplus property, including merchant ships, and in settlement for lend-lease goods on hand at the end of the war or in process of manufacture and part of the so-called lend-lease pipe line. Commodity programs involved credits extended to the military governments of Germany and Japan in the form of advances of cotton and other commodities to assist in the economic rehabilitation of these areas. (R. C. PE.)

War Prisoners: *see* PRISONERS OF WAR.

Warren, Earl (1891–), U.S. politician and governor of California, was born on March 19 in Los Angeles, Calif. He was graduated from the University of California in 1912, received his law degree in 1914 and was admitted to the bar the same year. He joined the army during World War I, but was not sent overseas.

He became deputy city attorney of Oakland in 1919. Six years later he was elected to the district attorneyship, and in 1938 California Republicans elected him as the state's attorney-general.

Warren, whose reputation as a "racket-busting" prosecutor rivalled that of Thomas E. Dewey in New York, was elected in 1942 as governor of California. Two years later, he turned down a G.O.P. offer to run for vice-president of the United States on the ground that he was obligated to complete his term as governor.

In the 1946 gubernatorial elections, Warren shattered precedent in California by winning both the Republican and Democratic nominations in the June 4 primaries, making his re-election in the November polls a foregone conclusion.

Because California's large number of electoral votes made it a "key" state, Warren figured in 1947 as a prominent aspirant for the G.O.P. presidential nomination. While he agreed on Nov. 13 to enter the state's primary, he said he would confine his campaign to California alone.

War Risk Insurance: *see* INSURANCE.

War Savings Stamps: *see* POST OFFICE.

Washington. A state in the extreme northwest United States, popularly known as the "Evergreen state," admitted to the union Nov. 11, 1889. Total area, 68,192 sq.mi. of which 66,977 sq.mi. are land; pop. (1940) 1,736,191; native, 1,525,812; foreign born 210,379. An estimate as of July 1, 1947, placed the population of the state at 2,233,000, an increase of 28.6% more than 1940. Capital, Olympia 16,000 (est.). The 1940 census and 1947 estimates for three largest cities were respectively: Seattle, 368,302 and 470,000; Spokane, 122,001 and 147,000; Tacoma, 109,308 and 136,000. Wartime growth and postwar stabilization are reflected in 1940 census and the estimates for 1945 and 1947 for two cities: Bremerton 15,134 to 72,000 to 35,000; Vancouver 18,788 to 39,510 to 26,000. The urban population in 1940 was 921,969 or 53.1%; in 1947 it was 1,350,507 (est.) or 60.5%.

History.—The state legislature in its 30th biennial session from Jan. 13 to March 13, was in complete control of a Republican majority whose influence was enhanced by its coalition with a group of right-wing Democrats. Changes made in the state's administrative structure were material, particularly with the reallocation of the functions of the former department of finance, budget and business to a new department of public institutions and to a director of the budget. A new state board of education was to consist of 12 members, of whom 2 were to be elected from each of the state's 6 congressional districts by conventions of representatives of local school directors. Nine ad interim committees were formed. One, a bipartisan legislative council of 21, was delegated primarily to study and examine administrative procedure. Its constitutionality was questioned, but its legality was upheld by the state supreme court. A similar committee was instructed to investigate un-American activities. Two of the constitutional amendments to be placed on the state's 1948 ballot related to local government. One was so worded that Seattle could sever its connection with King county and set up a new city-county jurisdiction; another would permit counties to adopt "Home Rule Charters" and effect radical administrative reorganization. The death of Fred Norman, Republican congressman from the 3rd district, on April 18, resulted in a spirited campaign in which Russell Mack on June 7 won over Charles Savage, Democratic member of the 79th congress but defeated for re-election in 1946.

State officers for 1948: governor, Monrad C. Wallgren; lieutenant governor, Victor A. Meyers; secretary of state, Belle Reeves (died Jan. 2, 1948, successor appointed by governor, Earl S. Coe); treasurer, Russell H. Fluent; auditor, Cliff Yelle; attorney general, Smith Troy; state superintendent of public instruction, Pearl Wanamaker (elected on nonpartisan basis); chief justice of the state supreme court, William F. Millard; speaker, house of representatives, Herbert M. Hamblen.

Education.—During the school year 1946–47, average daily attendance in elementary and secondary schools was 295,405; the total number of teachers 13,844 whose average salary was $2,624.01. Total current expenditures were $60,085,676.92, and the cost per pupil in attendance was $192.39. The 1947 legislature, furthermore, appropriated $20,000,000 to help finance school district building projects, and by increasing subventions to districts required them to grant salary increases of from $500 to $700 to public school teachers.

Social Insurance and Assistance, Public Welfare and Related Programs.—During the period Nov. 1946 through Oct. 1947, inclusive, public assistance in the state, including federal direct expenditures and state aid, cost $69,724,742.30. An average of 115,019 persons received assistance to the total amount of $66,186,635.42. An average of 16,662 persons per month received home assistance to the amount of $5,480,402.11. An average number of 65,772 old persons received a total of $45,552,983.73. An average number of 26,911 children received a total of $9,849,077.64. An average number of 645 blind persons received a total of $483,126. A total of 128,645 unemployed workers who had received at least one check were paid a total of $36,455,482 during the benefit year ending June 30, 1947. On Nov. 30, 1947, ten charitable institutions had a total population of 9,739 and four correctional institutions had 2,268 inmates, and both programs cost the state $8,607,740.17 during the fiscal year of April 1, 1946, to March 31, 1947.

Communications.—In 1944 there were 5,524 mi. of railroad in the state. In 1947 mileage of both state and rural highways was 52,126.99; federal-aid funds applied to 9,214.01. During 1947 up to Oct. 1, the state spent $10,561,017.46 for construction. On Oct. 31 the largest telephone company in the state reported 516,208 units, an annual gain of 45,657; independent firms had 75,000 (est.) subscribers.

Banking and Finance.—Whereas the per capita property tax of $25.64 during 1946 was the lowest for any of the far-western states, the total per capita of $84.05 for the fiscal year ending June 30, 1947, was the highest for any of the United States. In 1946 the total assessed valuation of real and personal property was $1,578,922,506. On March 31, 1947, the bond indebtedness of $4,240,000 and outstanding warrants amounting to $10,237,919.02 were easily covered by investments and cash balances. The treasurer's cash balance was $128,521,211.19. For the year ending on March 31, 1947, total receipts were $299,962,319.43 and disbursements were $299,100,407.37. One hundred and twenty-five banks in the state reported a total capital of $38,627,600; capital surpluses and undivided profits of $95,731,269.28; and assets of $2,297,613,881.55.

Agriculture.—In 1945 the state had 79,887 farms whose acreage totalled 16,719,726, and of these 4,186,000 ac. were in 1946 devoted to 52 crops. In 1946 the total farm crop was valued at $597,001,000, and in 1947 an official estimate placed this value at an all-time high of $625,000,000. The total farm income (exclusive of changes in inventory) in 1946 was $567,107,000; from crops $359,291,000; from livestock $185,646,000; from government payments $12,172,000. The state led all others in rural electrification with 95.1% of all farms on power lines.

Leading Agricultural Products of Washington, 1947 and 1946

Crop	1947 (est.)	1946
Wheat, bu.	68,368,000	77,965,000
Apples, bu.	33,480,000	32,710,000
Hay (all), tons	1,661,000	1,811,000
Pears, bu.	8,305,000	8,890,000
Peas (100-lb. bags)	6,542,000	6,926,000
Hops, lb.	19,824,000	19,720,000
Potatoes, bu.	8,000,000	10,120,000
Cherries, tons	33,400	34,700
Peaches, bu.	2,817,000	2,700,000
Oats, bu.	7,000,000	6,144,000

Manufacturing and Trade.—In 1946, income payments in the state amounted to $3,112,000,000 in contrast with $1,012,000,000 in 1939. Business transactions for the period May 1, 1946, to April 30, 1947, amounted to $6,459,711,783 representing an increase of 20.6% more than the previous year. Of this amount, manufactures constituted $1,326,177,-99; wholesaling $1,413,478,336; retailing $3,122,357,800; services (including professional) $360,376,716; mining and extracting $136,309,108. Total civilian employment in July 1947 was 957,000; wage earners and salaried persons 671,000; tradesmen and service personnel 262,000; transport and communication workers 69,000; employees of government and government contractors and others 164,000. Value of operating properties of public utilities in 1947 was $424,040,120. The Washington customs district reported exports valued at $151,694,868 and imports at $64,925,408 for the period Jan. through Aug. 1947.

Record catches of bottom fish, sole, ling and cod, found a ready market and indicated a new development in the fishing industry.

Mineral Production.—Mineral production in 1945 amounted to $31,588,-000 of which metals accounted for $7,140,242, and in 1946 the latter were estimated at $6,886,749. There was a steady decline in the yield of copper. In the northeastern part of the state, development of the largest known body of low-grade lead-zinc ore in the United States was begun.

(H. J. De.)

Washington, District of Columbia, national capital of the U.S.A., 11th largest of U.S. cities, had in 1940 a population of 663,091. In 1946, Washington reached a peak of population which had declined by June 30, 1947, to an estimated 861,000 for the district and 1,205,220 for the metropolitan area. The number of government employees, which reached about 300,000 during World War II, declined to 250,000 at the end of 1946 and to 195,000 by Dec. 1, 1947. The acute housing shortage continued through 1947. Some new private housing was provided in the suburbs and a few apartment houses built in the city. No new public housing was built and most of the temporary war housing remained in use.

From 1926, the National Capital Park and Planning commission had served as the co-ordinating planning agency. In 1947, the staff of the commission, with the aid of a planning consultant, made progress in bringing up to date the comprehensive plan of Washington, as authorized by the Urban Development act of 1946.

The total appropriation of congress for the fiscal year running from July 1947–48, was $95,516,741.80. The federal contribution to the budget was $12,000,000—about one-eighth of the total. For some years the federal government contributed 50%, but contributions gradually declined to less than 10%. The area of private property covering less than half the area of the district, but in 1947 assessed at full value at the rate of $2 per $100, could not carry the tax load for a city developed on the scale of the national capital. No taxes were paid by the federal government on the 41% of land in federal ownership.

Washington is governed in all legislative matters by the congress of the United States, as provided in the constitution. The principal administrative agency is a commission of three, appointed by the president of the United States, one of whom is nominated from the corps of engineers, U.S. army. In 1947, a subcommittee of the committee on the District of Columbia of the house of representatives conducted a study and recommended that congress delegate to a locally elected council of 12 most of the responsibility conferred on congress by the constitution, the chief executive to be appointed by the council. In view of the character and function of the federal city, it was not expected that the federal government would forfeit its essential control of its national capital. (H. Js.)

Washington, University of (Seattle). On April 10, 1947, announcement was made of a $150,000 grant to the university by the Rockefeller foundation for a modern research program to be carried out by the university's far eastern department.

Climaxing three days of symposia concerning atomic energy, labour economics and the humanities, Dr. Raymond Bernard Allen was formally invested as the university's 21st president in a colourful academic ceremony, May 24, 1947. A few of the outstanding participants in the inauguration were Ernest O. Lawrence, Nobel prize winner in physics; Edward U. Condon, director of the national bureau of standards; Robert A. Millikan, former president of the California Institute of Technology; L. A. DuBridge, president of the California Institute of Technology; Edgar L. Warren, director of the U.S. conciliation service; Senator Elbert D. Thomas of Utah; Dr. Stafford Warren, dean of the University of California at Los Angeles medical school; and Robert Gordon Sproul, president of the University of California.

On Oct. 23, 1947, President Allen announced the planned construction of a 200-ton, 60-in. cyclotron, to cost $375,000. Also planned were a large cloud chamber for cosmic ray studies and a 4,000,000-volt Graaf generator.

As the year ended, a $20,000,000 building program was under construction, while $11,000,000 in additional construction was in the planning stage. Buildings nearing completion were units of the health sciences group, Thomson hall, Engineering hall, C. C. More hall, and additions to Johnson hall, Physics hall and the library. Planned for early completion were a student union building, an administration building, the Hiram Conibear Crew house, Fisheries hall and a fine arts building. (For statistics of

endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (R. B. A.)

Washington University (St. Louis). Washington university, at St. Louis, Mo., is nondenominational and coeducational. It comprises the college of liberal arts, the schools of engineering, architecture, law, social studies, fine arts, business and public administration, medicine, dentistry, nursing, botany, graduate studies and the University college (principally adult education). A department of music was inaugurated in 1947.

Completion of a laboratory during the year provided facilities for research in the chemistry of radioactive substances, supplementing work carried on in the university's cyclotron.

Other new buildings were a 70-family apartment building for faculty members, and a centre for student and alumni activities.

During the year the Washington university school of medicine was appointed to advise in health services and research carried on at the Los Alamos Atomic Bomb project in New Mexico.

Gifts and bequests totalling $732,269 were received during the fiscal year ending June 30, 1947.

Dr. Arthur Holly Compton, Nobel prize winner and leader in the development of atomic energy, is the chancellor of the university. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.)

(A. H. C.)

Water Supply: *see* PUBLIC HEALTH ENGINEERING.

Wealth and Income, Distribution of. A report on the distribution of U.S. liquid assets and income, published in 1947 by the federal reserve board, provided data for 1946 and early 1947 on the basis of a small field canvass of family spending units. An earlier report had provided similar information for the year 1945. The summary data on liquid asset holdings are provided in Tables I and II. Holdings covered by these data included government bonds and savings and checking accounts; the investigators were unable to obtain satisfactory information on holdings of currency.

Table I.—*Distribution of Spending Units and Liquid Assets by Amount of Liquid Asset Holdings,* Early 1947*

Spending units ranked according to their holdings of liquid assets	Per cent of total liquid assets held	Amount of liquid assets held by smallest holder in group
Highest tenth	60	$4,250
Second	17	2,150
Third	10	1,300
Fourth	6	800
Fifth	4	450
Sixth	2	250
Seventh	1	50
Eighth	†	0
Ninth	0	0
Lowest tenth	0	0
All spending units	100	

*The term "total liquid assets" is used to represent total holdings in U.S. government bonds and in savings and checking accounts.
†Less than one-half of 1%.

Table I shows the distribution of the spending units—either single individuals or family groups pooling their major items of income and expense—according to their holdings of liquid assets. It may be seen that these holdings were unevenly distributed over the ten units.

Table II shows the distribution of spending units and liquid assets by the size of income of each unit, for 1946 and 1945. It is readily apparent from these data that the 50% of the spending units holding small liquid assets was not so highly concentrated at the lower end of the income scale. There was, however, a marked tendency for the higher income groups to have substantially larger accumulated savings in the form of liquid assets. The group with incomes of $4,000 or more represented only 18% of the spending units in 1946, but this group owned more than 50% of total liquid assets.

Table II.—*Distribution of Spending Units and Liquid Assets by Income Classes, 1946 and 1945*

Annual income (money income before taxes)	Proportion of spending units		Per cent of total liquid assets held*	
	1946	1945	1946	1945
$ 0– 999	17%	20%	5%	7%
1,000–1,999	23	27	11	14
2,000–2,999	25	23	17	17
3,000–3,999	17	15	16	16
4,000–4,999	8	7	12	10
5,000–7,499	6	5	13	13
7,500 and over	4	3	26	23
All spending units	100%	100%	100%	100%

*The term "total liquid assets" is used to represent total holdings in U.S. government bonds and in savings and checking accounts.

Interest in the distribution of liquid assets arose from its possible effect upon the postwar level of U.S. economic activity. Because holdings of these assets were so concentrated, it was concluded that the effect on the postwar economy would depend largely upon the decisions of a small part of the population. The survey inquired into the intentions of the spending units in regard to possible disposal of their liquid assets and found that the majority considered their liquid assets as a nest egg for long-range purposes. Most of them did not intend to use their assets for current expenditures, even for durable goods and housing, but planned to finance these outlays out of current income or borrowing. Intentions to buy consumer durable goods other than automobiles in 1947 were significantly less pronounced than were intentions to buy those same goods in 1946. In purchasing durable goods during 1947, consumers planned to use their liquid asset holdings to a greater extent than in the previous year.

Table III.—*Distribution of Spending Units, Income, and Saving by Income Classes in 1941, 1945 and 1946**

Annual income (money income before taxes)	Percentage of total: 1941 Spending units	1941 Total income	1941 Total saving	1945 Spending units	1945 Total income	1945 Total saving	1946 Spending units	1946 Total income	1946 Total saving
Under $1,000	35%	9%	−6%	20%	5%	−1%	17%	3%	−7%
$1,000–$1,999	30	21	9	27	16	11	23	12	2
$2,000–$2,999	20	24	11	23	23	14	25	21	9
$3,000–$4,999	10	18	18	22	32	36	25	33	35
$5,000 and over	5	28	68	8	24	40	10	31	61
All classes	100%	100%	100%	100%	100%	100%	100%	100%	100%

*Figures for 1941 taken from *Spending and Saving of the Nation's Families in Wartime*, bureau of labour statistics bulletin No. 723, Oct. 1942. Table I of this bulletin gave the distribution of income by income classes, and Tables I and IV were used to estimate total net saving by income classes. For 1945 and 1946, the data were taken from the national liquid assets survey, and the survey of consumer finances.

Readers are cautioned that the findings of the surveys are not strictly comparable. The surveys for 1945 and 1946 differ somewhat from that for 1941 in the definition of spending units, in the coverage of spending units and in the methods used in collecting the data. Moreover, the form used to estimate savings in 1945 was less complete than the forms used in 1946 and 1941.

As the survey of liquid assets included information on the size distribution of income, changes in the distribution since 1941 could be traced by comparison with earlier studies. Such a comparison is presented in Table III. It can be seen that the distribution of income in 1946 differed greatly from that of 1941. The major trends over the war period were a shifting of spending units from the lower to the higher income groups and a large decline between 1941 and 1945 in the percentage of saving that was accounted for by the spending units with high incomes. Between 1945 and 1946, the proportion of total savings accounted for by units in the top income bracket increased substantially, reversing the wartime trend.

State Distribution of Income.—Income payments to individuals in 1946 were at a record level in nearly every state. For the continental United States as a whole, total income received by individuals was more than $169,000,000,000, approximately one-tenth above the previous all-time high of $155,000,-

Table IV.—*Income Payments to Individuals, by States and Regions*

States and regions	Total income payments: Amount (In millions of dollars) 1940	1945	1946	Per cent change 1940 to 1946	1945 to 1946	Per capita income: Amount (dollars) 1940	1946	Per cent change 1940 to 1946
Continental United States	75,852	155,201	169,373	+123	+ 9	575	1,200	+109
New England	6,124	10,860	11,995	+ 96	+10	725	1,320	+ 82
Connecticut	1,417	2,635	2,877	+103	+ 9	827	1,465	+ 77
Maine	431	847	917	+113	+ 8	509	1,044	+105
Massachusetts	3,309	5,631	6,269	+ 90	+11	766	1,356	+ 77
New Hampshire	269	460	543	+102	+18	546	1,048	+ 92
Rhode Island	511	956	1,006	+ 97	+ 5	715	1,347	+ 88
Vermont	187	331	383	+105	+16	521	1,085	+108
Middle East	24,319	43,577	48,031	+ 98	+10	752	1,432	+ 90
Delaware	239	393	430	+ 80	+ 9	896	1,493	+ 67
District of Columbia	905	1,607	1,736	+ 92	+ 8	1,080	1,569	+ 45
Maryland	1,222	2,501	2,716	+122	+ 9	713	1,293	+ 81
New Jersey	3,138	5,774	6,161	+ 96	+ 7	803	1,494	+ 86
New York	11,830	20,454	22,895	+ 94	+12	863	1,633	+ 89
Pennsylvania	6,225	11,376	12,437	+100	+ 9	628	1,238	+ 97
West Virginia	760	1,472	1,656	+118	+13	398	914	+130
Southeast	9,043	22,267	23,395	+159	+ 5	322	801	+149
Alabama	763	2,021	2,073	+172	+ 3	268	733	+174
Arkansas	493	1,218	1,328	+169	+ 9	252	697	+177
Florida	900	2,420	2,372	+163	− 2	471	1,010	+114
Georgia	986	2,445	2,567	+160	+ 5	315	809	+157
Kentucky	880	1,957	2,163	+146	+10	308	778	+153
Louisiana	847	1,986	1,982	+134	*	357	784	+120
Mississippi	444	1,205	1,182	+167	− 2	202	555	+175
North Carolina	1,131	2,621	3,031	+168	+16	316	817	+159
South Carolina	545	1,303	1,407	+158	+ 8	286	729	+155
Tennessee	927	2,443	2,535	+174	+ 4	317	843	+166
Virginia	1,127	2,648	2,755	+144	+ 4	450	952	+112
Southwest	3,908	9,370	9,714	+149	+ 4	399	927	+132
Arizona	237	594	627	+164	+ 6	473	995	+110
New Mexico	190	448	491	+158	+10	356	911	+156
Oklahoma	829	1,801	1,848	+123	+ 3	356	825	+132
Texas	2,652	6,527	6,748	+154	+ 3	413	954	+131
Central	21,664	42,893	47,838	+121	+12	605	1,264	+109
Illinois	5,740	10,695	12,019	+109	+12	726	1,486	+105
Indiana	1,858	4,102	4,386	+136	+ 7	541	1,158	+114
Iowa	1,233	2,375	3,012	+144	+27	485	1,183	+144
Michigan	3,425	6,799	7,379	+115	+ 9	649	1,215	+ 87
Minnesota	1,424	2,614	3,082	+116	+18	509	1,090	+114
Missouri	1,914	3,776	4,349	+127	+15	505	1,143	+126
Ohio	4,448	9,114	9,808	+120	+ 8	643	1,302	+102
Wisconsin	1,622	3,418	3,803	+134	+11	516	1,198	+132
Northwest	3,363	7,692	8,439	+151	+10	454	1,162	+156
Colorado	589	1,271	1,380	+134	+ 9	524	1,196	+128
Idaho	232	525	588	+153	+12	440	1,243	+182
Kansas	757	1,908	1,992	+163	+ 4	422	1,062	+152
Montana	321	555	669	+108	+20	574	1,394	+143
Nebraska	569	1,333	1,489	+162	+12	433	1,164	+169
North Dakota	237	566	624	+163	+10	368	1,162	+216
South Dakota	242	598	673	+178	+13	376	1,228	+227
Utah	265	649	689	+160	+ 6	480	1,063	+121
Wyoming	151	287	335	+122	+17	605	1,264	+109
Far West	7,431	18,542	19,961	+169	+ 8	750	1,465	+ 95
California	5,606	13,649	14,879	+165	+ 9	805	1,531	+ 90
Nevada	92	210	235	+155	+12	836	1,703	+104
Oregon	633	1,631	1,729	+173	+ 6	579	1,188	+105
Washington	1,100	3,052	3,118	+184	+ 2	632	1,346	+113

Source: United States department of commerce.
*Less than five-tenths of 1%.

000,000 in 1945. Higher prices were an important element in the 1946 income rise.

The state and regional income totals for 1946, shown in Table IV, reflected swift adjustments to peacetime conditions in all parts of the country. Most of the large relative gains achieved by the south and west over the war years were left intact. From 1940 to 1946 there was a significant relative shift of income from New England and the middle eastern states to the south and west. While, particularly for purposes of market analysis, significance attached to the latter shift, correlative data on population and levels of average incomes also should be taken into account. For example, New England and the middle eastern states, despite their long-term declining relative trends in total income, still had comparatively high per capita incomes and were principal centres of population. In 1946 they received more than one-third of all income paid out in the nation.

Also to be noted was the concentration of low-income states in the south. Although the substantial income gains by the southern states after 1929 had narrowed the relative difference between them and the rest of the country, these states had an average per capita income in 1946 only three-fifths as high as the average for all other states.

The record $1,200 per capita income of the continental United States in 1946 was 109% above the average of $575 for 1940. In almost all states, the 1946 per capita income exceeded wartime highs. In three-fourths of the states, it was at least double the 1940 level.

Particularly noteworthy, in view of its top-ranking advance in total income payments, was the fact that the far west's rise in per capita income from 1940 to 1946 was less than the national average. The upsurge of total income was accompanied by a large increase (37%) in population. The 1940–46 increase in population for the nation as a whole was 7%. (*See* also INCOME AND PRODUCT, U.S.) (M. GT.)

Great Britain.—Figures for the distribution of incomes in 1945 (*see* Table V) were published in 1947; although they were provisional, the improved method of estimation made them much more accurate than the figures for the previous year, so that comparison would be misleading; comparison with 1938, however, is possible if an allowance is made for the changed level of prices.

Table V.—*Distribution of Incomes in the United Kingdom, 1945*

Ranges of income £	Number of incomes 000's	%	Amount of income £,000,000	%	Proportion of income retained after tax %
Under 250	(19,000)	71.5	3,565	46.1	96.7
250– 500	5,400	20.3	1,895	24.5	85.5
500– 1,000	1,650	6.2	1,140	14.7	73.1
1,000– 2,000	410	1.5	535	6.9	63.4
2,000–10,000	124	0.5	462	6.0	47.6
10,000 and over	8	0.03	138	1.8	18.8
TOTAL	(26,500)	100.0	7,735	100.0	84.0

Note: £1,480,000,000 of private incomes (£870,000,000 after tax), consisting mainly of excess profits tax and undistributed profits of companies, could not be allocated to ranges of income and are not included in the total shown. Increases from social insurance and assistance are included in the lowest range.
Source: *National Income and Expenditure of the United Kingdom, 1938-1946* (Cmd. 7,099, H.M.S.O., 1947) crown copyright reserved. The figures in brackets are approximate private estimates.

Eire.—The official study of the national income in Eire, following the British White Papers, made it possible for the first time to prepare a comprehensive distribution of incomes, though excluding the agricultural population, about one-half of the total population of Eire. The results published for 1938 and 1943 are given in Table VI. The concentration of the distribution in the lower ranges was definitely greater than in the British distribution.

Table VI.—*Distribution of Incomes in Eire, 1938 and 1943*

(Excluding agricultural occupations)

Ranges of Income £	Number of Incomes (000's) 1938	1943	Amount of income (£.000,000) 1938	1943
Under 150	(490)	(450)	52.7	69.1
150–250	85.0	103.1	16.9	20.5
250–500	53.6	65.1	17.9	21.5
500–1,000	16.4	20.9	10.9	14.0
1,000–2,000	4.3	6.3	5.8	8.6
2,000–10,000	1.8	2.7	6.1	8.9
10,000 and over	0.1	0.1	1.8	1.7
Total	(650)	(650)	112.1	144.3

Note: The total of the table falls short of the total of private incomes by agricultural incomes (£39,300,000 in 1938 and £84,600,000 in 1943) and other private income, such as undistributed company profits (£12,500,000 in 1938 and £23,800,000 in 1943).
Source: *Eire National Income and Expenditure* (P. No. 7,356, 1946). The figures in brackets are approximate private estimates.

Sweden.—In Sweden distribution of incomes was published for 1945 in a form comparable with previous years, and is given in Table VII. The total of the table falls short of the national income by a large sum. There had been during 1945–47 a shift of incomes from the lower toward the middle ranges above

Table VII.—*Distribution of Incomes in Sweden, 1945*

Ranges of income Kr.	Number of incomes 000's	%	Amount of income Kr. 000,000	%
600– 1,000	230	7.7	187	1.5
1,000– 2,000	664	21.6	990	8.0
2,000– 4,000	1,099	35.7	3,252	26.3
4,000– 8,000	851	27.6	4,570	37.0
8,000–15,000	174	5.6	1,786	14.4
15,000–30,000	44	1.4	874	7.1
30,000 and over	13	0.4	699	5.7
TOTAL	3,075	100.0	12,358	100.0

Note: The national income exceeded the total shown here by about 5,000,000,000 Kr.
Source: *Swedish Statistical Yearbook.*

kr.4,000, which may be explained by the general rise in prices.

Australia.—In Australia the official estimates of the national income similarly made the preparation of a distribution of incomes possible. The estimates published for 1938–39 and 1943–44, given in Table VIII, do not give the number of incomes in each range, but only the amount of income. As a rough guide it may be assumed that the relationship of numbers to amounts in any range is about the same as in the preceding tables.

Table VIII.—*Distribution of Incomes in Australia, 1938–39 and 1943–44*

Ranges of income £	Amount of income 1938–39 (£.000,000)	(%)	1943–44 (£.000,000)	(%)
Under £150	142.4	21.3	66.2	7.4
150–250	163.7	24.5	102.4	11.5
250–500	207.1	31.0	407.8	45.9
500–1,000	69.5	10.4	159.7	18.0
1,000–2,000	38.8	5.8	74.3	8.4
2,000 and over	46.5	7.0	78.6	8.8
Total	668.0	100.0	889.0	100.0

Note: The total of the table falls short of the total of private incomes by £159,000,000 in 1938–39 and £429,000,000 in 1943–44, including pensions, pay of the armed forces and undistributed company profits, etc.
Source: *Australia National Income Estimates 1938–39 to 1945–46* (F. 6561, 1946).

(*See* also BUDGET, NATIONAL.) (T. BAR.)

Weather: *see* METEOROLOGY.

Wedemeyer, Albert Coady (1897–), U.S. army officer, was born on July 9 in Omaha, Neb. A graduate of the U.S. Military academy at West Point, N.Y., 1918, he was commissioned a 2nd lieutenant in the army and advanced through the grades to the rank of lieutenant general in Jan. 1945.

He was graduated in 1936 from the Command and General Staff school at Fort Leavenworth, Kan., attended the Kriegs (war) Akademie in Berlin from 1936 to 1938 and was on the U.S. war department's general staff from 1941 to 1943.

Wedemeyer was dispatched to the Southeast Asia theatre in 1943 where, in October, he was appointed deputy chief of staff to Adm. Lord Louis Mountbatten, Allied theatre commander. After Gen. Joseph W. Stilwell's removal from China on Oct. 27, 1944, Wedemeyer was given command of U.S. forces there and was named chief of staff of the China theatre.

Nearly two years after the end of World War II, Wedemeyer was dispatched to China and Korea by Pres. Harry S. Truman (July 1947) to make "an appraisal of the over-all situation" there. On completing his four-week tour of duty, Wedemeyer severely criticized the "greed and incompetence" in Chiang Kai-shek's government in a statement issued in Nanking, Aug. 24. However, in his appearance Dec. 17 before the senate appropriations committee, Wedemeyer urged all-out aid to Chiang Kai-shek in his fight against Chinese communists, declaring that more important than Chiang's "benevolent despotism" was the fact that "the man has fought communism all his life."

Earlier (Oct. 27, 1947), the army department announced that Wedemeyer would become director of plans and operations in the army general staff.

Wellesley College. A four-year liberal arts college for women, founded in 1870 by Henry Fowle Durant and located in Wellesley, Mass. The 1947 enrolment was the largest in the history of the college. Pre-eminently for candidates for the B.A. degree, Wellesley offers also the degrees of M.A., M.A. in education, M.S. and a certificate in hygiene and physical education.

Convinced that tax-exempt institutions are socially obligated to serve their communities as directly and continuously as possible, the trustees of Wellesley college made available the facilities of the college for summer educational ventures related to but not identical with the winter program of an undergraduate liberal arts college for women.

The summer of 1947 marked the second summer for the Institute for Foreign Students. This institute was established to orient 42 men and women from 24 countries to North American college life and community living and to help them acquire a greater comprehension of the English language. It was unusual in its attempt to teach students with 15 different language backgrounds, who were registered for entrance to 24 different colleges or universities.

The summer of 1947 also saw the inauguration of the Wellesley summer theatre and school. Five productions were presented by students of the theatre with a professional staff of actors and a star for each production. Plans were made to continue the Wellesley summer theatre and school in 1948.

The year 1947 was the fourth year for Wellesley's summer internship program, sponsored by the department of political science to enable qualified students to gain first-hand knowledge about the work of the federal government. Ten students spent six weeks of the summer working as interns in the offices of senators, congressmen, federal agencies and the Democratic and Republican national committees.

The Anne L. Page Memorial school, for children from three through eight years of age, is completely maintained by the college and serves as a centre for child study, observation and participation for students from all departments of the college.

The organization of the 75th anniversary fund campaign was a major activity of all the administrative officers of the college. It was hoped that $7,500,000 would be raised by June 1950 for faculty salaries and student scholarships and the construction of a new dormitory and library.

(For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (M. M. HN.)

West Africa, British: *see* BRITISH WEST AFRICA.
Western Samoa: *see* NEW ZEALAND, DOMINION OF; PACIFIC ISLANDS UNDER TRUSTEESHIP; TRUSTEE TERRITORIES.

West Indies. An archipelago between Florida and the South American coast opposite the mouth of the Orinoco river. The West Indies include: the Greater Antilles (in order of size, Cuba, Hispaniola or Haiti, Jamaica and Puerto Rico); the Lesser Antilles (grouped generally into the Leeward Islands, to the north, and the Windward Islands, to the south) between Puerto Rico and the Venezuelan coast; the Bahama group northeast of Cuba; and certain more distant islands, including Curaçao and Aruba near the mouth of Lake Maracaibo in Venezuela. The whole West Indies group is less commonly known as the Antilles. The land area is approximately 92,000 sq.mi. The population is about 14,883,000 (this represents the total of the latest figures for each unit, which are not all for the same year), and in some of the islands has a very high density, *e.g.*, in Barbados where there are almost 1,200 people per sq.mi. The racial distribution is approximately 75% white and 25% Negro and mulatto in Cuba and Puerto Rico, and from 80% to 100% Negro and mulatto elsewhere, except that in Trinidad about 40% are of East Indian origin. Roman Catholicism is the predominant religion except in Trinidad and a few other places; a considerable practice of African-inspired voodooism still prevails in Haiti. Languages include Spanish, English, French and Dutch, in addition to various patois largely of African origin but influenced also by word importations from Portuguese and many other sources. Politically, the West Indies include the three independent republics of Cuba, Haiti and the Dominican Republic, two United States territories and six British, one Dutch and two French colonies. In addition to

prewar bases, the West Indies are the location of five U.S. naval bases, the sites for which were obtained from Great Britain by lease in 1940.

History.—The chief general developments in 1947 affecting the archipelago as a whole revolved around the continuing activity of the Caribbean commission. This agency was an outgrowth of the Anglo-American Caribbean commission established in 1942 to concern itself with the economic and social problems of British and United States possessions in the Caribbean area. The structure of and participation in the commission were broadened in 1945 to include representatives of France and the Netherlands for their respective colonies in the Caribbean. The second West Indian conference, held in the U.S. Virgin Islands in February and March of 1946, considerably broadened and stimulated the work of the commission and its activities continued to expand during 1947. It was engaged especially in studies of food supply and migration of agricultural workers from one unit to another. The commission also undertook a study during 1947 of the feasibility of establishing a schooner pool to facilitate small-scale interisland shipping services. The staff of the commission was altered by the addition of a larger number of persons from the West Indian islands themselves. Another feature of the year was the increased interest displayed in the activities of the Caribbean commission by the independent republics.

Trade and Communications.—West Indian economy is based primarily upon export of agricultural staples, of which sugar is by far the most important. The principal exceptions are banana production in some of the islands, petroleum and asphalt production in Trinidad, and oil refining in Aruba and Curaçao where two of the world's largest refineries operate, chiefly on the basis of oil imported from Venezuela. Many of the islands have other mineral resources of greater or less potential value, though these are little developed. The Cuban sugar crop reached a record figure in 1947 and another large production was anticipated for 1948.

The largest mileage, both of railways and highways, is found in Cuba. Other islands are, on the whole, poorly served with surface transportation arteries. Despite the closeness of the islands, interisland transportation is chronically difficult and increasing dependence is placed for passenger traffic on the air lines, of which the most important are the British West Indian Airways, Pan American World Airways and its affiliated companies, and K.L.M. (Royal Dutch Airlines).

Agriculture.—West Indian agriculture as a whole experienced a reasonably prosperous year in 1947, although local production of different crops was adversely affected in different islands by a wide variety of factors. Political and economic unrest in some of the islands also had an unfavourable reaction on agricultural production. (*See* also BAHAMAS; BARBADOS; CUBA; CURAÇAO; DOMINICAN REPUBLIC; FRENCH OVERSEAS TERRITORIES; HAITI; JAMAICA; LEEWARD ISLANDS; PUERTO RICO; TRINIDAD; VIRGIN ISLANDS; WINDWARD ISLANDS.)

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West Indies, British: *see* BAHAMAS; BARBADOS; JAMAICA; LEEWARD ISLANDS; TRINIDAD; WINDWARD ISLANDS.

West Virginia.

The 35th state in the union was conditionally admitted on Dec. 31, 1862, and proclaimed a separate state on April 20, 1863, effective 60 days later. It has an area of 24,282 sq.mi., of which 148 sq.mi. are water surface. The population (1940) was 1,901,974, of which 1,742,320 were white and 41,782 were foreign born. The urban residents numbered 534,292 or 28.1% of the total population. Charleston (pop. 67,914) is the capital. Other cities, in the order of size, are: Huntington (78,836), Wheeling (61,099), Clarksburg (30,579), Parkersburg (30,103), Fairmont (23,105) and Bluefield (20,641).

History.—The chief state officers in 1947 were: governor, Clarence W. Meadows; secretary of state, William S. O'Brien; treasurer, R. E. Talbott; auditor, Edgar B. Sims; attorney general, Ira J. Parthlow; state superintendent of free schools, W. W. Trent. In the 1946 general election a registered Democratic majority of 178,000 was all but wiped out at the polls. Harley M. Kilgore (D.) was re-elected to the U.S. senate over Thomas B. Sweeney (R.) by about 3,500 votes, and Frank C. Haymond (D.) was elected by about the same majority to the state supreme court of appeals to succeed Judge H. H. Rose, deceased. Representatives in congress, elected in Nov. 1946, were: First district, Francis J. Love (R.); second district, Melvin C. Snyder (R.); third district, E. G. Rohrbaugh (R.); fourth district, Hubert S. Ellis (R.); fifth district, John Kee (D.); sixth district, Dr. E. H. Hedrick (D.).

Education.—For the year 1946–47 the total pupil enrolment (net) in the 4,197 state elementary schools was 287,360. In the 378 state high schools it was 129,322. There were 10,106 elementary and 5,158 high school teachers. The total state appropriation for elementary and secondary education was $21,364,029. The state supported nine teacher-training colleges which in the first semester had a total student enrolment of 8,388 and teaching staff of 340. It also supported the university (Morgantown), West Virginia State college (Negro, Institute), West Virginia Institute of Technology (Montgomery), and Potomac State school (Keyser, a junior college under control of the university).

Social Insurance and Assistance, Public Welfare and Related Programs.—For the year ending June 30, 1947, the total expenditure for old-age assistance was $4,177,345; for the blind, $207,693; for dependent children, $3,561,737. The total cost including administration was $8,386,184.66. The total general relief fund was $1,490,284.87. Eight correctional institutions were largely self-sustaining but they cost the state in excess of $200,000.

Communications.—On Jan. 1, 1947, the state contained about 3,350 mi. of steam railway, or 6,677 mi. including double tracks and sidings. There were 8 mi. of electric railways. There were 17,601 mi. of improved highways (15,585 mi. hard surfaced), and a road system aggregating 33,186 mi., both primary and secondary. There were 294,500 telephones (Bell, 260,000 and connecting lines, 31,000), not including 3,500 local non-connecting phones.

Banking and Finance.—On June 30, 1947, the total deposits of the 105 state banks and trust companies were $389,488,849.48; the total for the 76 national banks was $472,471,891.80; resources of 22 federal savings and loan associations were $32,227,152.31; resources of 19 active building and loan associations, $10,426,462.66; and resources of 23 loan companies were $14,244,052.92. State receipts for 1946–47 were $190,317,423.70; disbursements, $177,315,633.36; balance, June 30, 1947, $44,571,667.84. On June 30, 1946, the total state funded indebtedness was $63,995,000, less a sinking fund of $5,203,853.50, leaving a net indebtedness of $58,791,146.50.

Agriculture.—The total cash income from farm crops and livestock in 1946 was $110,191,000; income from government payments was $4,340,000. The number of farms in 1945 was 97,600 with a total acreage of 8,741,017, valued at $341,000,000.

Principal Agricultural Products of West Virginia, 1946

	Yield, 1946	Value, 1946
Corn, bu.	10,200,000	$18,360,000
Wheat, bu.	1,501,000	3,107,000
Oats, bu.	1,792,000	1,846,000
Buckwheat, bu.	133,000	205,000
Hay (all), tons	1,060,000	21,412,000
Apples (commercial), bu.	4,550,000	10,692,000
Potatoes (Irish), bu.	2,970,000	5,346,000
Barley, bu.	203,000	311,000

Industry.—In 1945–46 industry and business employed 606,500 persons who earned $1,300,000,000 in a total estimated production valued in excess of $1,656,000,000. In the order of the number of persons employed, the largest industrial groups, together with the total sums paid each were: coal mining and coke making 115,021—$380,661,000; iron, steel and metals 41,753—$109,047,000; chemical and allied products 20,179—$64,522,000; glass and glassware 19,792—$49,114,000; lumber and wood products 18,210—$29,631,000; clothing and textiles 14,044—$28,444,000; clay, stone, etc., 15,426—$34,188,000; automobiles and trucks 16,530—$34,847,000; petroleum and its products 11,002—$24,297,000; construction (not buildings) 12,335—$27,387,000; and public utilities 8,600—$19,350,000.

Mineral Production.—The production of crude oil for 1946 was 2,940,000 bbl.; in 1945 the natural gas production was 200,000,000,000 cu.ft.; coal (1945) 151,909,714 short tons; and coke (bee-hive and by-products, 1945) 2,738,422 short tons. The total value of mineral production (1945) was $597,377,000.

BIBLIOGRAPHY.—*West Virginia Bluebook* (1946) and various state official documental reports. (C. H. A.)

Whaling: *see* FISHERIES.

Wheat.

The U.S. wheat crop broke all records again in 1947; it was not only far above the average but more than 20% above the crop of 1946. Large acreage and heavy yield, the result of favourable weather from seedtime to harvest, produced the record outturn.

The crop was estimated at 1,364,919,000 bu. compared with a crop of 1,153,046,000 bu. in 1946, 1,108,224,000 bu. in 1945

and 1,060,111,000 bu. in 1944. The 10-year average 1936–45 was 890,306,000 bu. Acreage harvested was 74,186,000, 10% above the 67,075,000 ac. of 1946. Only 3,152,000 ac. were not harvested in 1947 because of good growth in all areas. About 2,000,000 ac. of "volunteer" wheat, which grew from seed left in the soil from previous crops, were included in the 1947 crop.

The winter wheat crop of 1947 amounted to 1,067,970,000 bu. and spring seeded wheat 296,949,000 bu. This was the first 1,000,000,000 bu. winter wheat crop in U.S. history; the acreage was 12% above 1946 and the average yield 19.5 bu. per acre, compared with an average of 16.1 bu. per acre in the 10 years 1936–45. High yields in the big wheat states were: Kansas 20 bu.; Texas 18 bu.; Oklahoma 15.5 bu.; Colorado 24 bu. and Washington 26 bu.

The spring wheat crop was made up of 43,983,000 bu. of durum, grown almost entirely in the Dakotas and Minnesota, and 286,365,000 bu. of other spring wheats grown in 19 states. The durum yield was 15 bu. and other spring wheats 17.2 bu. per acre. North Dakota led in the production of spring wheat with 146,038,000 bu. including durum.

Production of wheat was greater in all classes in 1947, with hard red winter increasing 31% over 1946. The total crop included 761,894,000 bu. of hard red winter and 228,138,000 bu. of hard red spring; 241,913,000 bu. of soft red winter; 43,600,000 bu. of durum and 131,216,000 bu. of white wheat, winter and spring.

From 1941 the U.S. wheat supply had exceeded 1,200,000,000 bu. Stocks in carry over were large in 1941 and 1942, amounting to more than 600,000,000 bu., more than equal to the amount used for food in the United States. Use of wheat for domestic food, feed and alcohol, however, increased from about 700,000,000 bu. in 1941 to 1,216,000,000 bu. in 1943 and reduced the carry over rapidly to 316,700,000 bu. in the latter year. Exports began to increase in 1943 and were up to about 400,000,000 bu. in 1946 and an estimated 450,000,000 bu. in 1947–48. The carry over had dropped to 83,400,000 bu. in 1946 and was only 184,100,000 bu. in 1947. Domestic uses declined to 927,000,000 bu. in 1947 with restrictions on industrial uses, reduced feeding to livestock and the voluntary wheat-saving campaign. In December the secretary of agriculture estimated that about 450,000,000 bu. of the 1947 supply would be exported, leaving 957,000,000 bu. for use as food, feed, seed and carry over. The total amount of wheat allocated for export was estimated at 209,000,000 bu. by Dec. 1, 1947. Had U.S. production not reached remarkable proportions the world shortage of bread grain would have been vastly more serious.

Table I.—U.S. Wheat Production, 1947, 1946 and 10-yr. Average, 1936–45

(In thousands of bushels)

State	1947	1946	10-yr. Average	State	1947	1946	10-yr. Average
Kansas	286,702	212,977	158,517	New Mexico	9,420	2,896	3,047
North Dakota	146,038	139,824	106,205	New York	9,272	5,648	7,270
Texas	124,270	62,916	41,287	Virginia	8,522	8,344	7,976
Oklahoma	104,734	88,262	57,618	North Carolina	8,449	6,307	6,456
Nebraska	90,300	90,677	50,328	Utah	8,082	6,981	5,812
Washington	64,750	77,965	53,182	Maryland	7,770	7,320	7,389
Montana	64,325	62,888	54,564	Wyoming	6,130	6,232	3,290
Colorado	59,052	37,080	20,070	Tennessee	5,190	3,870	4,981
South Dakota	53,628	53,197	28,815	Kentucky	5,184	4,158	6,246
Ohio	49,028	48,522	42,154	South Carolina	4,356	2,706	2,612
Idaho	37,935	34,846	27,297	Iowa	3,252	4,335	6,060
Indiana	35,811	29,396	27,229	Georgia	3,240	2,093	2,049
Michigan	29,800	22,896	18,242	Wisconsin	2,793	2,265	1,538
Illinois	28,524	19,361	31,458	New Jersey	1,875	1,550	1,245
Missouri	24,438	18,195	25,020	West Virginia	1,763	1,463	1,776
Pennsylvania	22,296	19,912	18,537	Delaware	1,407	1,216	1,298
Oregon	21,615	25,168	20,585	Nevada	612	545	442
Minnesota	20,633	27,080	24,536	Mississippi	460	198	226
California	12,028	12,597	12,942	Arkansas	372	420	485

The wheat situation at the end of 1947 was as follows: A small carry over of 84,000,000 bu., a new crop of 1,406,000,000 bu., an export goal of 400,000,000 to 450,000,000 bu., restricted domestic consumption of about 925,000,000 bu.; and a carry over for July 1948 of about 100,000,000 bu. The wheat-saving campaign was expected to provide the quantity needed for export and reserve. These needs indicated the forces making for higher prices of wheat both in the U.S. and abroad.

During 1947 the price of wheat soared to the high peaks attained during and after World War I. At that time the supply of wheat was small and demand increased suddenly in contrast to World War II when the supply was large and the demand even larger. The price of wheat to growers was $1.92 per bushel average for the year ending July 1, 1947, the highest after 1919, when it was $2.16. In spite of the largest crop on record, prices advanced to $2.14 per bushel to growers in July, on to $2.43 in September and to $2.79 per bushel in December, the all-time record to that date. On the central markets prices broke all records, with No. 1 dark northern cash wheat selling at $3.30 at Minneapolis in November. The price of corn was also high and in September averaged $2.40 per bushel to growers, as compared with $2.43 for wheat. Rice was at the same general level and rye not far below. At no time in U.S. history had bread grains and feed grains ranged so high together.

Wheat prices remained above parity most of the time after early 1946, and by Nov. 1947 were 28% above parity of $2.14.

Public agitation over the high price of wheat led to an inquiry as to the amount and character of trading at the Chicago

THRESHING WHEAT at a collective farm in the Kazakh S.S.R. where a bumper crop was harvested in 1947

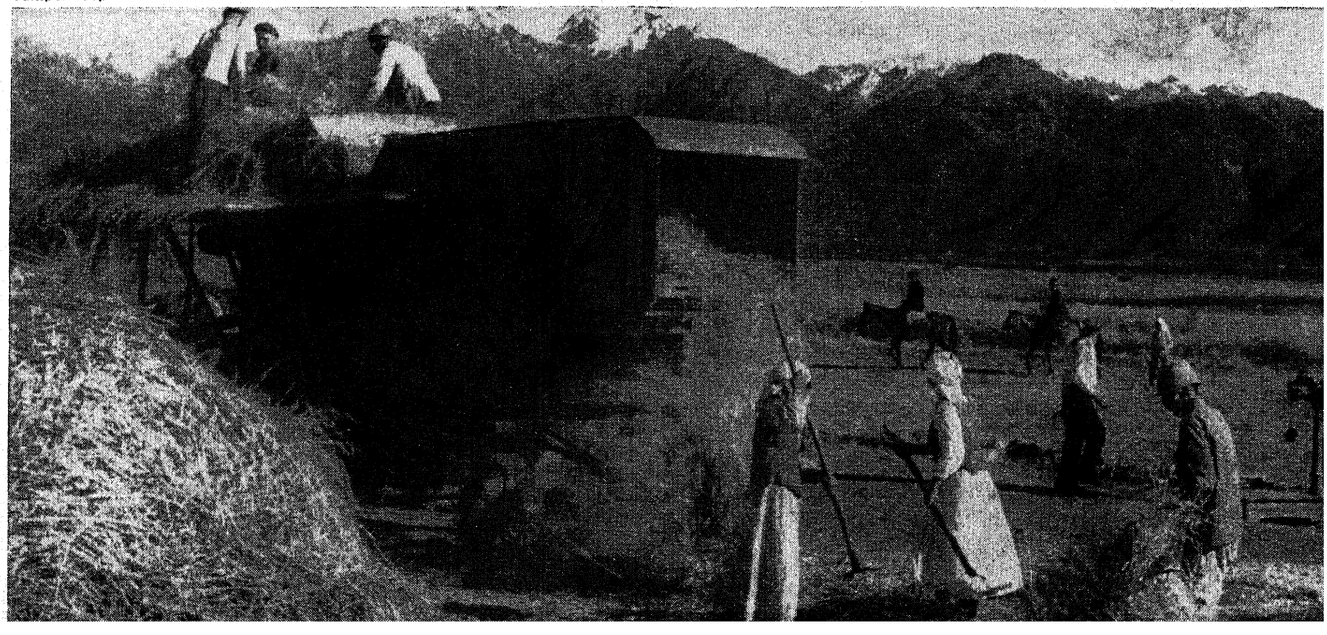


*Table II.— World Wheat Production, Revised Estimates for 1947, 1946, 1945 and 1944 and Average 1935–39**

(In million bushels)

	1947	1946	1945	1944	Average 1935–39
United States	1,364	1,153	1,108	1,060	758
Canada	341	413	305	416	312
Mexico	15	13	13	14	14
Europe	1,020	1,300	949	1,348	1,554
Great Britain	63	73	81	117	62
North Africa	130	126	77	96	127
Union of South Africa	16	15	10	11	16
Asia	1,490	1,548	1,430	1,560	1,442
Argentina	175	206	143	150	221
Australia	250	116	144	52	169
U.S.S.R.	875	.....	.....	.....	.....
World Total	5,775	5,735	3,570	4,010	4,040

*Revised estimates by the U.S. department of agriculture on basis of incomplete reports from several countries with adjustments for year of harvest.

board of trade. An analysis of the accounts on Sept. 17, 1947, showed that in a total of 3,827 accounts, there were: 456 hedging accounts; 846 farmers; 364 real estate men; 319 merchants; 308 housewives and 139 retired people and professional traders. The remainder included all classes of labourers, clerks, etc. These accounts were in the positions of about 45,000,000 bu. "long" and 35,000,000 bu. "short."

The world wheat crop of 1947 was estimated in December at 5,775,000,000 bu., compared with 5,735,000,000 bu. in 1946 and the prewar average of 4,040,000,000 bu. in 1935–39. (*See* Table II.) North American production was increased by the large U.S. crop, which more than offset the reduction of about 70,000,000 bu. in Canada. Severe drought in western Canada was responsible for the reduced crop there.

Production in Europe was estimated at 17% below 1946 and 32% below prewar levels. The severe winter cut the crop in France and droughts reduced yields in Italy and Spain. Eire was the only country showing a substantial increase. The European crop was more than 200,000,000 bu. below 1946 and 400,000,000 bu. below prewar averages. The United Kingdom crop was about 10% less than that of 1946 and a little above the prewar average. The Danube valley crops were reduced in acreage.

The Soviet Union crop was estimated to be larger, because of expanded acreage and better yields. While reports from behind the "iron curtain" were conflicting, enough was known to justify the estimate of somewhat less than the prewar output which was frequently more than 1,000,000,000 bu. The Chinese crop was reported as 8% above that of 1946 and above the prewar level. Conditions were unfavourable in India, and the crop was reported to be the smallest after 1928. Turkey's crop was about average.

Early estimates of prospects in Argentina showed a 13% reduction in acreage which would indicate a below-average crop. North Africa had crops comparable with those of the 1946 level and below domestic needs. Australia's outlook was good for a crop of about 250,000,000 bu., which would be above prewar levels.

World exports in the crop year ending July 1947 amounted to about 758,000,000 bu., compared with 560,000,000 bu. in prewar years. This export total was made up as follows: United States, 400,000,000 bu.; Canada, 229,000,000 bu.; Argentina, 70,000,000 bu.; Australia, 49,000,000 bu.; other countries, about 10,000,000 bu. (*See* also FLOUR.) (J. C. Ms.)

Wholesale Trade: *see* BUSINESS REVIEW.

Wilderness Preservation. The national policy of preserving dedicated remnants of wilderness in the United States prevailed in 1947 over specific threats from various enterprises in various localities, and the conservation movement to support this policy appeared stronger at the close of the year than ever before. Success in combating many of the exploitation enterprises was, however, not final, and several conflicts were unresolved.

The most dramatic demonstration of public concern with wilderness preservation resulted from a proposal to construct a road, hotel-resort, parking area and mechanical ski lift in the San Gorgonio Primitive area—a dedicated tract of 35,365 ac. in the San Bernardino National forest in southern California. Advocated by the California Chamber of Commerce, the California Ski association and the National Ski association (though opposed by the national association's ski mountaineering committee), the proposal had in 1946 received the tentative endorsement of the U.S. forest service, and a public hearing had been announced for Feb. 19, 1947. Early in the year the proposal seemed certain of adoption, but as studies of both skiing and wilderness opportunities in the region were made and publicized, unexpected demands for preservation of the primitive area arose both locally and nationally. Thousands of letters, the forest service reported, were received from conservation organizations and from individuals in all parts of the country. Summing up a case for preservation, *The Living Wilderness* pointed out that "southern California's demands for skiing can certainly be reasonably well met without sacrificing this unique wilderness." The magazine emphasized that the many skiers already using the area would lose what all southern Californians would lose—"the choice of finding their outdoor recreation in a wilderness if they so wish"—and declared:

> If there were abundant opportunities for wilderness recreation in this region it might then be valid to balance 100,000 skiers against 10,000 wilderness users at a specific site and conclude that skiing facilities would be for the good of the greater number. But when we are considering a precious wilderness remnant, we are in fact balancing 100,000 skiers against the entire population, for we are threatening to deprive everybody forever of a choice that is the right of every American. And we are threatening to do this for a part of the population that has elsewhere reasonably good opportunities, and still better prospects, for the sport that they most enjoy. (*The Living Wilderness,* The Wilderness Society, Washington 9, D.C., 1947.)

The hearing, which required use of the San Bernardino municipal auditorium for two days and an intervening night session, revealed also protests from water users who valued wilderness preservation for watershed protection and from scientists who pointed out that the area included unique forms of plant life. As a result of the hearing and an intensive study of the proposal, the forest service in June concluded that the area had "higher public value as a wilderness and a watershed than as a downhill skiing area" and resolved the controversy by eliminating from the primitive area only some 1,400 ac. to permit road construction that would make the area readily accessible for wilderness skiing without affecting the rest of it.

This test case became celebrated among conservationists throughout the U.S., and the impetus and encouragement given the wilderness preservation movement by the decision were such as to suggest that it would come to have historic significance. This decision, with its related debate in which basic principles were dramatically publicized, was without doubt the year's outstanding event in wilderness preservation.

Notable also were the decision of Secretary of the Interior Julius A. Krug, announced on Aug. 15, to withhold leasing privileges that had been applied for oil and gas prospecting in the Teton Wilderness area, Wyoming, and the announcement by Gov. Thomas E. Dewey of New York on Nov. 13 of abandonment of the Higley Mountain dam project, which had been strenuously opposed because it would destroy the famous Moose river flats in the Adirondack wilderness, including one of the best deeryarding areas in the east.

Controversies which remained unresolved but in which preservationists had preliminary success during 1947 involved a proposal of lumber interests to remove large areas of virgin rainforest wilderness from Olympic National park in Washington, a move to abolish the Jackson Hole National monument in

Wyoming backed by certain cattle interests and by local enterprise concerned with prospects for commercial developments on lands within the monument and a project to construct an irrigation reservoir which would destroy Lake Solitude, the outstanding feature of the Cloud Peak Primitive area in the Big Horn National forest, Wyoming.

No dedicated wilderness area was lost from the national system during the year, and an invaluable area was added by establishment of the Everglades National park in Florida, dedicated by Pres. Harry S. Truman on Dec. 6. Progress was made toward establishing the proposed Quetico-Superior International Peace Memorial forest in the wilderness canoe country shared by the state of Minnesota and the Canadian province of Ontario. On Sept. 6 Pres. Truman restated the authority of the President's Quetico-Superior committee previously established by executive order and appointed Olaus J. Murie, director of the Wilderness society, to fill a vacancy on the committee and to serve as a member along with Charles S. Kelly, lawyer and conservationist of Chicago, Ill.; Ernest C. Oberholtzer of Ranier, Minn., president of the Quetico-Superior council; Regional Forester Jay H. Price of the U.S. forest service, Milwaukee, Wis.; and William Zimmerman, Jr., assistant commissioner of the U.S. office of Indian affairs. (H. Z.)

Wildlife Conservation. "Wildlife conservation"—according to a definition phrased by Harrison F. Lewis, superintendent of wildlife protection in Canada, at the annual meeting of the International Association of Game, Fish and Conservation Commissioners in Denver, Colo., on Sept. 8, 1947, "is the common term for the adjustment and development of the relationships between our species—mankind—and the large numbers of fellow-species that inhabit this same great globe with us. Its proper organization and application require the development and consideration of a philosophy whose ramifications and implications extend throughout all human affairs and down to the very foundations of life itself."

The further development and widened acceptance of this concept were highly significant in 1947.

As wildlife conservationists emerged rather completely from difficulties in their peacetime pursuit created by World War II, they faced a twofold basic problem. Land and water areas available to the wild species were increasingly threatened with curtailment by the human enterprise that had already appropriated so much of the continent. At the same time the numbers of sportsmen were increasing at a surprising rate, causing considerable concern for all the species that are hunted. It was apparent that preservation of wildlife habitat and control of hunting would both be dependent on effective public action based on a sense of the fundamental values involved.

The wildlife situation was in the main encouraging only as regards the prospects for intensified and more effective public interest. Smaller species that have made themselves at home around town and city dwellings and in rural farm areas, where they are prized for their song, their beauty and their protection of plantlife from insects, were abundant and in no apparent jeopardy. Deer in most of their habitat were in good numbers—in some places, where hunters are their only effective predators, even overabundant. Director Newton B. Drury of the national park service said: "The point has been reached in protection of wildlife in the national park areas where we can give quite general assurances that normal numbers of most species will be preserved." But throughout the North American continent most of the species that are hunted for sport and most of the fur animals and predators (other than coyotes) were present in small numbers, diminishing, and/or threatened.

The so-called big-game animals remained in the status described in 1946 as generally favourable, but in addition to increased tension over the status of the mountain sheep there was general concern over some prospects. Aeroplane travel to once remote regions, and threatened diminishing of the still remaining comparatively extensive wilderness areas available to these larger creatures led to frequent expressions of alarm.

Fur consumption in the U.S., already double the country's production, continued to increase. The fish and wildlife service reported that trappers in the face of this demand still took wild fur animals with an extravagant disregard for maintenance of breeding stocks. Surveys by the service resulted in estimates that about 2,700,000 trappers in the U.S. and Alaska (three-fourths of them farmers and farm boys) take in excess of 28,000,000 pieces annually and receive for them between $100,000,000 and $125,000,000.

An organization called Defenders of Furbearers and "devoted solely to eliminating as far as possible, by the use of humane traps, the torture suffered by millions of trapped furbearing animals every year, and to promoting, through education, the conservation of these animals" was established with headquarters at 1214 Sixteenth Street, N.W., Washington, D.C.

Among the birds that are hunted, the waterfowl continued to be most prominent in national interest. In fact, the still deepening waterfowl crisis was of international importance, the protection of these migratory birds being by treaty a joint concern of the U.S. with Canada and with Mexico. The fish and wildlife service, which conducts and correlates continent-wide and year-round investigations, reported that the continental population had continued its downward trend "at an alarming pace." An inventory of birds wintering in Canada, Alaska, coastal Latin-America, and the U.S. conducted in Jan. 1947, indicated an estimated total of only 54,000,000—a decrease of 26,000,000 from the 1946 estimate, more than 51,000,000 from the 1945 total, and a loss of more than 71,000,000 (more than 56%) from the 125,350,000 birds estimated in 1944. So drastic had the decline been that many, led by the National Audubon society and the American Nature association and even numerous sportsmen, advocated a prohibition of all waterfowl hunting. The regulations adopted for the hunting seasons that were allowed were drastic—so drastic that the Wildlife Management institute and others believed that the restrictions "should halt the decline." At the end of the year (and the shooting seasons) no official predictions were obtainable, but preparations had been made for another thorough inventory early in Jan. 1948.

The amazing increase in the numbers of hunters, which began while World War II was still being waged, continued. Sales of federal migratory-bird hunting stamps (the so-called "duck stamps" required of all wildfowlers over 16 years of age) totalled 2,016,819 in the fiscal year ended June 30, 1947—as compared with 1,725,505 the preceding year, 1,487,029 in 1945, and 1,169,352 in 1944. Not only wildfowlers but all hunters continued to increase in numbers. Total sales of hunting licences by the 48 states, which included all legal hunters, had not been summarized for 1947 by the end of the year, but a tabulation of sales during the year ended June 30, 1946, showed a total of 9,854,313 as compared with 8,194,296 in the preceding year. Indications, the fish and wildlife service reported, pointed to a continuation of the pronounced upward trend during 1947, and it seemed safe to speculate that there were in the U.S. in 1947 more than 10,000,000 licensed hunters.

With such increases in numbers of hunters, in the face of declining or threatened wildlife populations, wildlife management officials were especially encouraged by great advances made during the year in connection with the Federal Aid to Wildlife Restoration program. Financed from the 11% federal excise tax on firearms, shells and cartridges, this program as in previous

years provided individual states with 75% of the costs of approved projects to conduct wildlife studies and to acquire, restore, develop and maintain land and water areas devoted to wildlife. A total of more than $2,000,000 was made available to 47 states during the 1947 fiscal year, and for the fiscal year to end June 30, 1948, the full amount of the tax collected in the year ended June 30, 1946, was made available to the fish and wildlife service for apportionment to the states—a sum of $9,854,313, which if fully used would be increased by 33⅓% by participating states.

Outstanding event of the year was probably the 12th North American Wildlife conference sponsored by the Wildlife Management institute and held in San Antonio, Tex., Feb. 3–5 on the theme "Americans, Wildlife, and Their Land." Addresses by outstanding conservationists at general sessions and research reports by scientists at technical sessions were later published by the institute under the editorship of Ethel M. Quee as *Transactions of the Twelfth North American Wildlife Conference*—a 632-page volume constituting a remarkable representation of the current status of wildlife conservation and research. A notable feature of the book was an index covering not only this volume but also 18 earlier annual volumes in which were printed the proceedings of comparable conferences.

The principal source of wildlife information in the United States was the fish and wildlife service, U.S. department of the interior, Washington 25, D.C., which had available lists of federal publications and compilations—including a list of officials and organizations concerned with wildlife conservation and *Wildlife Review*, a periodical listing books, articles in journals and other publications and including critical notations. Leading private organizations were: American Forest association, publisher of *American Forests*, 919 Seventeenth Street, N.W., Washington 6, D.C.; American Nature association, publisher of *Nature Magazine*, 1214 Sixteenth Street, N.W., Washington 6, D.C.; Izaak Walton League of America, publisher of *Outdoor America*, 31 N. State Street, Chicago 2, Ill.; National Audubon society, publisher of *Audubon Magazine*, 1006 Fifth Avenue, New York 28, N.Y.; National Parks association, publisher of *National Parks Magazine*, 1212 Sixteenth Street, N.W., Washington 6, D.C.; National Wildlife federation, publisher of *Conservation News*, 3308 Fourteenth Street, N.W., Washington 10, D.C.; the Wilderness society, publisher of *The Living Wilderness*, 1840 Mintwood Place, N.W., Washington 9, D.C.; and the Wildlife Management institute, 822 Investment Bldg., Washington 5, D.C., sponsor of research projects, special investigations, annual North American wildlife conferences, and monographs. Scientific periodicals were notably *The Journal of Wildlife Management*, *The Journal of Mammalogy*, and *The Auk: A Quarterly Journal of Ornithology*—organs respectively of the Wildlife society, the American society of Mammalogists, and the American Ornithologists' union. (H. Z.)

Canada.—Most important event in an active year was the establishment of the dominion wildlife service, under the department of mines and resources. The new unit was empowered to administer the Migratory Birds' Convention act, the Northwest Game act and the Fur Export ordinance of the Northwest Territories. It was made responsible for the conservation of game and fur resources and other wild creatures in the Northwest Territories, the management of animals and birds and fish in the national parks of Canada, the handling of international problems relating to wildlife resources.

Early in April the Canadian parliament gave its approval to the establishment in Canada of a National Wildlife week to begin each year on April 10, the birthdate of Jack Miner, famed Kingsville, Ont., wildlife conservationist.

During the year U.S. biologists tagged more than 6,000 ducks and geese in Canada. At Lake Newell, Alberta, some of the banding was done for the first time with the aid of an aeroplane, which herded flocks of ducks and geese toward traps. Records were made of the age and sex of birds, as well as their numbers, in order to obtain later information on population survivals, hunting pressures, natural sex ratios and the flyways of individual species.

Ducks Unlimited (Canada) announced the banding of 4,347 waterfowl during 1947 in Manitoba, Saskatchewan and Alberta. At the end of 1947, the engineering department of D.U. reported that 6 projects started in 1946 were completed in 1947, 23 new projects built and 12 projects were still under construction. (C. Cy.)

Great Britain and Europe.—The British wildlife conservation special committee presented a report in July in connection with the national parks scheme that had been planned during the year (*see* NATIONAL PARKS AND MONUMENTS). The report urged the need for the preservation of scenic beauty, for nature reserves within the national parks as well as natural conservation outside them, and for wider government responsibility, a constructive scientific policy and educational facilities in the matter. It emphasized the importance of separate management for the nature reserves in the national parks and recommended preservation of tracts of land as conservation areas.

The International Office for the Protection of Nature was reorganized, with its headquarters in Amsterdam. The Society for the Preservation of the European Bison was in process of revival. In the summer an International Conference for the Protection of Nature was held at Brunnen under Swiss auspices. The promoters contemplated the formation of an international union of world-wide scope, but it was decided to invite U.N.E.S.C.O. to consider whether it could not undertake the pioneer work. Among the interesting conclusions of the conference was the recognition of the need for scientific research relating to the protection of nature and for the spread of public knowledge of the subject, and the particular importance of educating children in the study and appreciation of nature. The conference appeared to accept the view that the protection of nature was not merely a cultural question, but might also closely affect the welfare and even the existence of mankind. Somewhat ironically, on the conclusion of their discussions, the members of the conference were taken to visit the popular Swiss national park, only to learn that it was threatened with destruction in favour of a hydroelectric scheme. It seemed probable, however, that popular reaction against this project would be widespread.

Other evidences of revived interest in the protection of wildlife were the reversal of the decision—taken on financial grounds—to dismiss the staff of gamekeepers in the Gran Paradiso national park in Italy, where, in particular, chamois and ibex are protected; the establishment in Holland of a youth organization, already some 4,000 strong, with the protection of nature as one of its principal aims; and, lastly, a very well attended meeting in London of the International Committee for Bird Protection.

Africa.—Measures for the destruction of wildlife in Africa showed little, if any, sign of abatement in 1947, but representations made by the Society for the Preservation of the Fauna of the Empire to the colonial secretary were partly responsible for the holding of a conference by the governors of the east African colonies to discuss the obligations to protect wildlife undertaken on their behalf by the British government, and how those obligations not hitherto implemented should be honoured. The society, meanwhile, had sent out their own representative to study conditions in the different colonies and to take part in the conference. The conference report was not published before the end of the year.

The Fauna society feared that the example of Southern Rhodesia, whose government had pinned its faith on wholesale destruction of wild animals as the only method of controlling the tsetse fly, would be followed in other parts of Africa. The tsetse fly, which lives on blood, is well known as a vehicle of the trypanosomes which, when introduced into the blood stream of men or cattle, cause the diseases known in men as sleeping sickness and in cattle as *ngana*. The game animals, or some of them, are immune hosts of the trypanosomes. It was argued that by getting rid of the game, the source of supply and, at the same time, the vehicle of transmission to susceptible men or cattle would be eliminated. The society questioned whether the destruction of game would eliminate the fly, whether other means could not

be found of getting rid of it, and whether the slaughter of the animals which provide the fly with its natural food might not make matters worse by dispersing it over wider areas and driving it to feed on men and cattle. The Fauna society further pointed out that the government had as recently as 1933 procured a convention for the protection of African wildlife, which the British colonies had failed to implement, and that, so far as the tsetse fly and its control were concerned, many material facts could only be clarified by widespread scientific field research.

There were more hopeful signs elsewhere during the year. The Wild Life Conservation Society of South Africa continued its outspoken propaganda. The Natal Society for the Preservation of Wild Life and Natural Resorts and the Nigerian Field society were again active; a movement was on foot in Nyasaland to organize a society with the same objects in view; and the *Institut des Parcs Nationaux du Congo Belge* and the French *Institut de l'Afrique Noire* continued their good work. (H. G. M.)

Wilhelmina (WILHELMINA HELENA PAULINE MARIA OF ORANGE-NASSAU) (1880–), queen of the Netherlands, daughter of William III, king of the Netherlands, and Queen Emma, was born on Aug. 31. She succeeded to the throne in 1890 under the regency of her mother, and was enthroned in 1898. In 1901 she married Henry, duke of Mecklenburg-Schwerin (d. 1934), and in 1909 Princess Juliana, heir to the throne, was born. When the Netherlands were invaded on May 10, 1940, the royal family with members of the government sought refuge in London. Queen Wilhelmina returned to the royal palace at The Hague in July 1945.

In Jan. 1947 the queen acted as personal host to Prince Gustav Adolf of Sweden on the occasion of his state visit to Holland. The U.S. deputation from Albany, N.Y., which had come to Holland in connection with Albany's adoption of the Dutch town of Nijmegen, was received by her at Soestdijk on March 28. On May 5 the queen was present at the commemoration ceremony at the Canadian cemetery at Groesbeek, and on May 30 she flew from Soestdijk to Beek to be present at a similar ceremony at the U.S. cemetery at Margraten. Later in the year Queen Wilhelmina paid a flying visit to the British royal family in Scotland. On June 16 she marked the importance of the "Benelux" union by receiving the Dutch-Belgian-Luxembourg interparliamentary commission, and on Sept. 17 she received Tjokordo Gde Rake Soekawati, president of the independent state of East Indonesia.

Because of ill health and the need of rest, the queen was relieved from all official duties by a bill presented to parliament and passed on Oct. 10, appointing Princess Juliana regent until Dec. 1; the queen then resumed her duties.

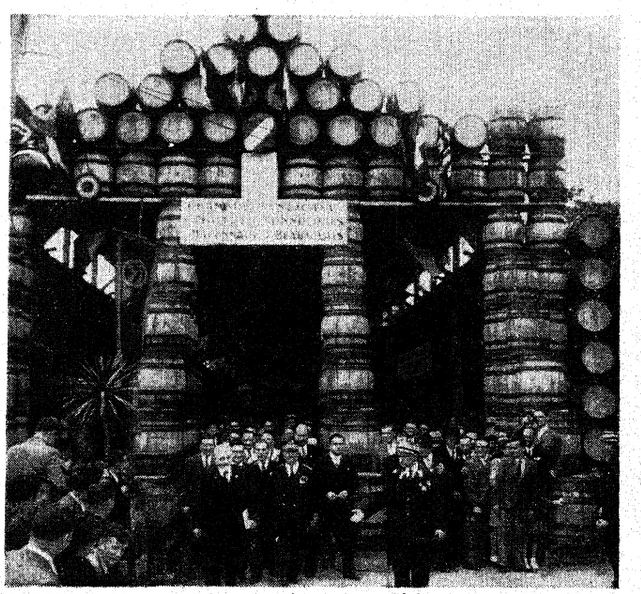
Windward Islands. The British Windward Islands (in the Caribbean sea) comprise the four islands of Dominica, St. Lucia, St. Vincent and Grenada—each ranking as a separate colony for purposes of internal administration—together with the smaller islands known as the Grenadines, which lie between St. Vincent and Grenada and are attached partly to the one island and partly to the other. Total area: 821 sq.mi.; total pop. (1946 census): 251,671 (Dominica 47,682; Grenada 72,374; St. Lucia 69,955; St. Vincent 61,660); the great majority of the inhabitants are Negroes: a few aboriginal Caribs still remain in St. Vincent and Dominica. St. George's is the headquarters of the governor of the Windward Islands as well as the capital of Grenada; it has a pop. (1946 census) of 5,774. Roseau (pop. 9,751) is the capital of Dominica, Castries (7,056) of St. Lucia and Kingstown (4,831) of St. Vincent. Each of the four islands retains its own institutions and is presided over by a resident administrator assisted by an executive council. There is a local legislative council, with an elective element, in all of them; but there is no central legislature for the Windward Islands as a whole, nor are there common laws, revenue or tariff unit. The governor, appointed by the British crown and assisted by a chief secretary for the Windward Islands, exercises general executive authority over the whole group. Governor: Sir Arthur Grimble (appointed 1942).

History.—The Windward Islands were among the territories represented at the conference held in Jamaica in Sept. 1947 to consider the question of closer union between the British colonies in the Caribbean arc. They were also concerned in the discussions held early in the year in St. Kitts (Leeward Islands) on the narrower issue of Leeward-Windward Islands amalgamation. Conclusions favourable to amalgamation were reached (*see* LEEWARD ISLANDS). A grant of £14,319 was sanctioned in July 1947, under the Colonial Development and Welfare act, for the training of teachers in St. Lucia.

Finance and Trade.—The legal tender throughout the Windward Islands is British sterling and the gold coins of the United States. Revenue (1946): Dominica £200,000; Grenada £472,000; St. Lucia £385,000; St. Vincent £292,000; total £1,349,000. Expenditure: Dominica £263,000; Grenada £473,000; St. Lucia £370,000; St. Vincent £309,000; total £1,415,000. Total imports (1946): £1,721,000; exports £1,232,000. The resources of the islands are almost wholly agricultural. The principal product of Grenada is cocoa, that of St. Lucia sugar and that of St. Vincent arrowroot. Other products of importance are nutmegs (Grenada) and Sea Island cotton (St. Vincent). Apart from these commodities, exports from the various islands include mace, bananas, coconuts and essential oils. The St. Vincent arrowroot industry is of primary significance, the island being the principal source of world supply. (J. E. SH.)

Wines. Wine production showed an average increase throughout the world in 1947. The quality in countries whose climate and methods of production allow annual variances was excellent and in some countries exceptional.

France maintained its position as largest producer of wines, although the yield was but 80% of the average crop prior to World War II. Champagne produced amounted to 7,000,000 gal. and, it was hoped, might rank high among the famous vintages. Burgundy and Rhône fared almost as well, with 87,000,000 gal. of remarkable wines high in alcohol. The Bordeaux area produced 73,000,000 gal. of fine wines, particularly white, of which there was 31,000,000 gal., a larger proportion than usual.



BARREL-MAKERS' exhibit at the wine fair which was opened in Macon, France, by Premier Paul Ramadier (left, carrying papers) during May 1947

World Production of Wine, 1946 and 1947

Millions of gallons

Country	1947	1946	Average		1947 Quality
Algeria	264	237	500		Excellent
Argentina	256	234	200		No variation
Australia	36	30	20	(Prewar)	Good
Austria	17	28			
Brazil	*	20.6			
Bulgaria	48	42			No variation
Chile	84.5	93			
Czechoslovakia	6.6	10.8			
France	1,100	910	1,342	(1936–41)	Excellent
Germany	*	50			Fine
Greece	52.8	68			
Hungary	52.8	100.5	100		
Italy	875	905	935	(1936–46)	Good
Luxembourg	1.9	2.4			
Morocco	8.7	8.4			
Palestine	1.7	2.2	1.6		Best in last 5 yr.
Peru	*	4.8			
Portugal	225	221	180	(1936–42)	Average
Rumania	156	139			
Spain	607	475			Excellent
South Africa	34.4	40.2	37.1	(1936–46)	No variation
Switzerland	22.2	19	15	(10 yr.)	Outstanding
Tunisia	14	12			No variation
U.S.A.	100	165	102.5	(1940–45)	
Uruguay	*	25			
U.S.S.R.	*	200			
Yugoslavia	*	97			
Total	3,965.6	3,742.5†			

*Unknown. †1946 total does not include countries with * in 1947.

Italy reported a good year in quality and normal production, which reflected favourably on its competitive position in the world market. In Spain the Jerez district produced 20% more than in 1946, all wine of exceptional quality. Portugal produced an average crop Its port production, controlled to the world demand, was fixed at 4,200,000 gal. of superlative quality.

The U.S. produced an estimated 100,000,000 gal., about 60% of the previous year, one-quarter of which was unfortified wine and three-quarters fortified with brandy; 95% of the crop was from California.

(*See* also LIQUORS, ALCOHOLIC.) (J. WE.)

Wisconsin. One of the north-central states of the United States, Wisconsin, popularly called the "Badger state," entered the union as the 30th state in 1848. Area, 56,154 sq.mi. of which 1,439 sq.mi. are water. The population was estimated, as of July 1, 1947, at 3,283,000, an increase of 145,413 as against the federal census figures of 1940. The urban population in 1940 was 1,679,144 and the rural 1,458,443. Only 24,835 were nonwhite. Foreign-born whites numbered 288,774. Capital, Madison (pop. 1940, 67,447). Milwaukee is the largest city with a population of 587,472. Other large cities are Racine (67,195), Kenosha (48,765), Green Bay (46,235), La Crosse (42,707) and Sheboygan (40,638).

History.—The legislature, meeting in biennial session during 1947, passed the largest budget in the history of the state, $142,000,000 for the fiscal biennium 1947–49, including $19,000,000 for the state university. It provided a veterans' housing program of more than $8,000,000, to be financed by a special tax of $1 per gallon on whiskey. It prohibited strikes in public utilities, providing instead for compulsory arbitration. It increased state educational aids to a record $13,000,000. It added 1,000 mi. to the state highway system, authorized co-operatives to establish health and sickness plans for members. It gave the Rural Electrification administration co-operatives the right of eminent domain except for lands held by a private utility for power purposes. It defeated plans for the reapportionment of senate and assembly districts, but took an important forward step in state government by establishing a permanent interim legislative council.

The state officers in 1947 were all Republican. The death on March 12, 1947, of Walter S. Goodland, who at 83 had won reelection as the nation's oldest governor the previous fall, brought Oscar Rennebohm, Madison, to the executive mansion. The subsequent death of John Smith, 76-year-old state treasurer, created a vacancy to which Rennebohm named John Sonderegger on Aug. 19, 1947. As 1947 was not an election year, other state officers were the same as in 1946: F. R. Zimmerman, secretary of state; J. E. Martin, attorney-general; John Callahan, superintendent of public instruction. The chief justice of the state supreme court was Marvin B. Rosenberry.



OSCAR RENNEBOHM, who became acting governor of Wisconsin on March 13, 1947, following the death of Gov. Walter S. Goodland

Wisconsin would in 1948 observe its centennial of statehood. Plans for the celebration were being formulated by a special centennial committee headed by Dr. Ora Rice, Delavan.

Education.—There were 6,037 elementary schools, 457 secondary schools, 24 county normal schools and 9 teachers' colleges in 1945–46. Enrolment in the elementary schools totalled 342,437; in secondary schools it was 141,919 and in county normal schools 614. Elementary schools employed 13,889 teachers, while secondary schools had 6,328 and the county normal schools had 94. The teachers' colleges had 446 faculty members teaching 3,738 college and 2,148 training-school students. State aid for education in the fiscal year 1945–46 totalled $9,534,361. Total expenditures in all elementary and secondary public schools was $66,812,932.

Social Insurance and Assistance, Public Welfare and Related Programs.—The number of cases receiving public assistance as of June 1947 was as follows: general relief 4,879; old-age assistance 47,137; aid to dependent children 7,156; aid to the blind 1,278; totally and permanently disabled 439—a total of 53,128 households. Expenditures for public assistance in the year ending June 30, 1947, were as follows: general relief $2,637,995; old-age assistance $21,281,391; aid to dependent children $6,371,247; aid to the blind $573,648; totally and permanently disabled $247,207—making a grand total of $31,111,488. Civilian unemployment benefit payments in 1946 were $7,771,329 as compared with $4,264,654 in 1945 and $1,249,692 in 1944. The contributions for 1946 totalled $7,590,280 as compared with $27,575,988 for 1945 and $42,081,693 for 1944.

Wisconsin's 13 charitable, mental and correctional institutions during the year ended June 30, 1947, were operated at a cost of $7,714,172. The average daily population for June 1947 was 9,318.

Communications.—Public highways as of Jan. 1, 1947, totalled 93,188 mi. divided as follows: 84,781 (towns), 2,400 (villages) and 6,006 (cities). Expenditures by the highway commission for the fiscal year 1946–47 were $35,842,047, much of which was returned to municipalities as aids. The total railway mileage (steam and electric) as of Dec. 31, 1946, was 6,780.42, with 52.69 mi. of trolley-coach routes (trackless). Airports numbered 124. There were 768,120 telephones.

Banking and Finance.—At the end of 1946 there were 463 state and 95 national banks. Deposits in the state banks totalled $1,496,290,304; the assets were $1,587,368,028. National banks had deposits of $1,346,990,000 and assets of $1,427,724,000. The 524 credit unions (12 fewer than in 1945) listed assets of $20,659,988. Assets of the 114 building and loan associations totalled $155,658,756.

State receipts for the fiscal year ending June 30, 1947, were $138,459,327; disbursements $126,166,587. Taxes collected by the state and returned to local subdivisions totalled $40,395,454; agency collections returned to counties were $1,012,983; state aids amounted to $36,842,845. There was no state debt.

Agriculture.—The total acreage harvested in 1946 was 10,265,000. The gross farm income excluding government payments was estimated at $990,275,000, consisting of $134,942,000 from crops and $855,333,000 from livestock and its products, including milk. The year 1946 was a record crop year for Wisconsin. Diversified farming is the foundation on which Wisconsin agriculture is built, and the amount of land used for farming has increased steadily as the state's agriculture has developed.

Manufacturing.—The total value of Wisconsin manufactured products in 1939 was $1,604,507,356. Wages paid were $251,946,993. The number of wage earners was 200,897 (average for the year). Wisconsin, with an extremely diversified industry, ranked first in the manufacture of cheese,

Table I.—*Leading Agricultural Products of Wisconsin, 1947 and 1946*

	1947 (est.)	1946	Value, 1947 (est.)
Corn (bu.)	105,840,000	111,980,000	$248,724,000
Oats (bu.)	120,873,000	124,758,000	132,960,000
Canning peas (lb.)	288,020,000	306,220,000	11,967,000
All tame hay (tons)	6,796,000	6,094,000	127,983,000
All clover and timothy (tons)	4,222,000	3,713,000	....
Alfalfa (tons)	2,263,000	1,517,000	....

milk products, malt and canned peas at that time. Within the state, the most important industries in value of manufactured products were: motor vehicles, paper and paperboard mills and wholesale meat packing. In 1946 the estimated average number of wage earners in Wisconsin manufacturing establishments was 308,400, compared with 327,225 in 1945, while the estimated weekly pay rolls had decreased from $15,245,000 to $14,087,000 in the same period.

Table II.—*Value of Mineral Products of Wisconsin, 1945 and 1944*

Mineral	1945	1944
Stone	$8,442,921	$7,741,499
Iron ore	3,575,133	4,190,380
Zinc	3,579,030	3,545,172
Sand and gravel	4,111,282	4,128,434

Mineral Production.—In 1945 the value of all mineral production in Wisconsin was $22,213,000 as compared with $22,794,000 for 1944 and $18,930,000 in 1943. (C. L. L.)

Wisconsin, University of. An institution of higher education at Madison, Wis. A record number of 2,100 students received degrees at Wisconsin's annual commencement in May 1947, the 94th in the university's 98-year history.

When the university opened for its 99th year on Sept. 29, 1947, a total of 23,442 students registered for instruction, 18,693 at Madison and 4,749 at 17 extension centres continued in cities in all parts of the state. This was an 85% increase over the highest prewar enrolment of 12,674 in 1939 and continued the university's record enrolment at the same high level set in 1946. The extension centre classes, taught by university instructors of regular faculty rank, were held in high schools, vocational schools and regular university centres for both freshmen and sophomores.

More than 46,625 young people and adults were enrolled in correspondence courses provided by the extension division during the year. More special institutes, 40 to be exact, attended by more than 7,000 citizens, were conducted for labour, agriculture, education, business and industry during 1947 than in any other of the university's 98 years.

With the huge demand for its educational services sustained through 1947, Wisconsin continued taking emergency measures to meet the situation and continued to carry forward plans, first inaugurated during World War II, involving the expenditure of more than $50,000,000 over a 10-year period for expansion and development of campus and building facilities. Besides the 17 extension centres, other emergency steps continued at Wisconsin to meet the immediate problems of the situation included temporary housing for students, temporary classrooms in the form of 15 Quonset huts and 27 temporary frame buildings. The faculty, increased by 65 full-time members to a record high of 883 members, established an integrated curriculum of liberal arts studies, and approved, on recommendation of Pres. Edwin Broun Fred, an intensive self-analysis of the university's work in education, science research and public service. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (R. Fs.)

Withholding Tax: *see* TAXATION.

Woman's Christian Temperance Union, National: *see* SOCIETIES AND ASSOCIATIONS.

Women's Clubs, General Federation of: *see* SOCIETIES AND ASSOCIATIONS.

Wool. The quantity of wool shorn in the U.S. in 1947, as estimated by the U.S. department of agriculture, was 256,302,000 lb., or 24,000,000 lb. less than in 1946 and 104,000,000 lb. less than the 1936–45 average. The record production of raw wool amounted to 459,000,000 lb. in 1942. The estimated number of sheep shorn in 1947 was 31,723,000, or about 3,000,000 head less than in 1946 and 13,500,000 below the 10-year average. The estimated weight per fleece was 8.8 lb., compared with 8.6 lb. in 1946 and the 10-year average of 7.97 lb. Pulled wool production for the year was estimated at 48,000,000 lb. against a total of 61,300,000 lb. in 1946 and a sharp reduction from the record production of 73,500,000 lb. in 1944. The reduction in poundage of both shorn and pulled wools may be attributed entirely to a decrease in the number of sheep shorn and slaughtered.

The 1947 world wool output, however, was equal to that of 1946, despite the decrease in United States production. The department of agriculture in October estimated the world wool production for the 1947–48 season at 3,700,000,000 lb. This was 12% smaller than the 1941 record of 4,200,000,000 lb. World production of apparel wool was estimated at about 2,900,000,000 lb. and consumption at 3,400,000,000 lb. This reduced the carry-over stock by 500,000,000 lb. The world carry-over of apparel wool on July 1, 1947, was estimated at 4,500,000,000 lb.

The Australian wool production in 1947 was estimated at 903,632,541 lb., an increase of approximately 25,000,000 lb. over the previous year. In New Zealand the clip was estimated at 349,873,367 lb., a decrease of nearly 3,000,000 lb. from the previous year. The estimated production of wool in Argentina for the year was 506,000,000 lb. Shipments for the year ending Sept. 30, 1947, amounted to 180,000 tons of greasy wool, which was nearly 40% under the record figure of the previous season. The United States purchased about 50%, while Belgium took 10%, France 8%, the U.S.S.R. 6%, and smaller quantities went chiefly to Italy, the Netherlands, Sweden, Spain, Switzerland and Poland.

During the month of March, negotiations by the Australian Wool Realization commission, involving the sale to Japan of lower-grade wools, were announced. The proposed $32,300,000 sale was the result of nearly a year's discussion and negotiation. As the Japanese government had no foreign exchange with which to finance the contract, and since all Australian wool is required by law to be sold by auction, the financing was done by a United States agency.

The first meeting of the International Wool Study group was held in London March 31 to April 3, and representatives of 25 countries participated. At about this time meetings were held in London and in Bradford, England, at which the utilization by British firms of surplus wool for processing in Germany was discussed, as well as the allocation of available combing and spinning space.

During early March three wool bills were brought before the house agriculture committee in Washington, D.C. All of these bills would allow the sale of domestic wools, in the government stockpile, by the secretary of agriculture for less than parity, to meet competition from abroad; and would permit, or require, the establishment of import quotas on foreign wools. One bill, which included the principal features of all, passed the senate but was vetoed by the president on June 26. His statement was to the effect that the bill in its original form contained features which were unnecessary for the support of the wool producers and would have a bad effect on international relations. Later the senate agricultural committee unanimously approved a new Wool Price Support bill, which was passed by the senate only four hours after the president's veto message had been received. On Aug. 5, President Harry S. Truman signed the Wool Price Support bill (S.1498) and the department of agriculture at once announced the new support program to be effective Aug. 15. This measure did two things: it authorized the Commodity Credit corporation to purchase the domestic wool clip until Dec. 31, 1948, at the 1946 level (an average price of 42.3 cents a pound, grease basis); and allowed the CCC to sell its stocks, consisting of about 400,000,000 lb. of the domestic wool stock-

pile, at prices competitive with those of foreign wool. Under the last price support law, such wools could not have been sold at less than parity. With this new law in effect and with the continued rise in price of the finer grades of wool in Australia and other wool centres, there were large weights of wool sold.

Following the offer of the United States to cut by 25% its duty of 34 cents per clean lb. on Australian wool, the commonwealth minister for reconstruction, who was in Geneva attending the United Nations Conference on Trade and Employment, was authorized to reopen negotiations with the United States on trade concessions. This would establish a new duty of 25½ cents per lb. clean basis on Australian wool entering the United States. This reduction in duty of the Tariff act of 1930, par. 1102 (b) for raw wool finer than 44s in grade, which was applicable to all most-favoured nations, including Argentina and Uruguay, was signed at Geneva on Oct. 30, to become effective Jan. 1, 1948.

The unprecedented demand for merino type of wools, principally from the continent, caused prices to advance rapidly at all sales in Australia as well as at London. A large credit, a revolving fund of £12,500,000, was granted the French wool textile interests by London banking institutions, the repayment being made in French exports of wool textiles. It was expected that this revolving fund would enable France to import £35,000,000 of British-owned wools as well as substantial quantities from South America. This large amount of credit caused France to outbid other nations, including the U.S., at all auction sales, both in Australia and South Africa. Other countries, except the United States, followed the upward swing in prices. The U.S., because of the tariff of 34 cents per lb., clean content, in effect at the time, was unable to compete, other than in certain specialty types. From January to November, prices rose at the Australian sales 50% on 64/70s and 42% on 58s. Other markets followed this upswing in prices.

Choice 60s/64s Chubut wool, from Argentina, rose in price from 33 cents per lb. in the grease in February to 41 cents per lb. in December.

United States wool textile mills consumed 358,700,000 scoured lb. of apparel wool in the first eight months of 1947, according to a report issued by the National Association of Wool Manufacturers. This was 13% less than that consumed in the corresponding period of 1946 but 95% greater than the average January–August consumption in the years 1935–1939. Domestic wool consumption in the Jan.–Aug. 1947 period was 60% greater than in the first eight months of 1946. The quantity of foreign apparel wool used in 1947 was down 25% from the same period in 1946.

In addition to higher prices of wool, increased wages were paid to labour in the woollen industry in the United States. A $27,456,000 annual wage increase went into effect Feb. 4 for 88,000 woollen workers covered by contracts with the Textile Workers Union of America (C.I.O.). All but 7 of 164 mills, which had agreements with the T.W.U.A., agreed on that day to a 15 cents an hour wage increase, lifting the minimum from 75 cents an hour, or $30 a week, to 90 cents an hour, or $36 a week.

On the basis of statistics of wool imports to the end of August, available from the department of commerce, it was estimated that the total of apparel types imported during the year amounted to 471,000,000 lb. (which included 80,000,000 lb. of 40s aside from those classed as "carpet" types). This indicated for the entire year little more than half the volume of apparel types, including the same 40s, imported in the calendar year 1946, which was 939,969,841 lb. The department of agriculture estimated the wool consumption for 1947 to be between 950,000,000 and 1,000,000,000 lb. (*See* also SHEEP; TEXTILE INDUSTRY.) (C. M. AN.)

Words and Meanings, New.

The most certain characteristic of a living language is its tendency to change. New conditions of all kinds, new ideas, new inventions—all must be described by new words, by extensions of old words or by new combinations of words. English thus adds many new words to its vocabulary every year, some destined to live long, others to die soon. The words listed below are but a small residue of those collected by the committee preparing this article.

Several groups of the coinages below are deserving of brief comment. As usual, scientific discoveries are well represented among the new words, witness "astatine," "bevatron," "gleep," "hurricane-buster plane," "sonic barrier," and "synchro-cyclotron." Medical science, in particular, is represented by such coinages as "Amidone," "Caronamide," "chloromycetin," "electronarcosis," "grisein," and "rickettsialpox." An extremely interesting group of coinages reflect economic and political problems, especially in the foreign sphere: "Benelux," "Bizonia," "cold war," "Cominform," "crypto-Communist," "Marshall plan," and "police state."

Finally may be mentioned those words which reflect domestic activities, sometimes in the lighter vein: "baby sit," "bubble gum" (a 1947 fad), "flying saucer," "new look," and "Trumanburger."

These words became prominent or were seemingly used for the first time during the years 1946 and 1947. Dates within the parentheses following a word or definition indicate the first recorded use of the new word or meaning in the files of the committee.

A preceding hyphen means that the word or meaning is suspected to be older than the date given. If no date is given, the first record on file is 1947.

across the board, *adj.* Touching or affecting all parts of (a system); general; as, "an across the board wage increase." (1945)

A.E.C. United States Atomic Energy Commission.

air letter. A letter developed by the U.S. post office consisting of a single sheet of paper (stamped with a ten-cent air mail stamp), which can be folded into the shape of an envelope, sealed and sent anywhere in the world.

airmark, *v.* To provide with **airmarkers** (1942), prominently placed signs for the direction of fliers.

Airphibian. A two-seater, single-engine monoplane made by Continental, Incorporated, which can be converted into an automobile quickly and easily. Trade name. (1946)

Amidone. A drug (4-4-diphenyl-6-dimethylamino-heptanone-3), still in the experimental stage, with some of the properties of morphia. Also known as **Dolophine, Methadon** and **10820.**

astatine. Element number 85, which was produced by radio decay.

Astra Dome. The observation deck built in the roofs of the coach, diner, sleeper and observation lounge car of the General Motors "Train of Tomorrow." The deck is 30 ft. long and 10 ft. wide, and its transparent dome is 2 ft. above the roof of the car. Trade-mark.

atomic itch. A skin irritation, accompanied by high fever, brought about by exposure to radiations from the atomic bomb.

atomic propulsion. Propulsion by means of atomic energy. (1945)

baby sit, *v. i.* To sit with a baby while its parents are out.

Bathyscaphe, *n.* The 3½-in.-thick steel chamber, with an outside diameter of 6½ ft., with which Professor Auguste Piccard planned to descend far into the ocean. Also called **Hydrostrat.**

Benelux. Word formed from **Belgium, Netherlands** and **Luxembourg** to describe their economic association.

bevatron. A super-cyclotron, as yet only a design.

biocide. Term proposed by Dr. E. M. Greenberg to describe the gradual destruction of body tissues brought about by self-indulgence and the unhealthy living habits and pressures accompanying civilization.

Bizonia. The Anglo-U.S. zone in western Germany.

blackmarketing, *n.* Operating on a black market.

bubble gum. A kind of chewing gum capable of being blown into large bubbles which eventually pop. (-1938)

-burger. *See* **Trumanburger.**

bush pilot. A pilot who operates an aeroplane, especially in Alaska, over sparsely settled country and to out-of-the-way places. (1945)

-buster. *See* **hurricane-buster plane.**

can, *v. t.* To enclose (a plane or ship) within corrugated-steel chambers as a protection against weather. (1946)

CARE. Cooperative for American Remittances to Europe, Inc. (1946)

Caronamide. A drug (4-carboxyphenylmethanesulfonanilide) developed by Dr. Karl H. Beyer, of Sharp and Dohme, which, by checking the excretion of penicillin, makes the latter drug more efficacious in those cases where a high concentration of penicillin is required.

chain reaction. *Fig.* A series of results, one caused by another.

chlordane. A contact insecticide. Also 1068, because it contains ten parts of carbon, six of hydrogen and eight of chlorine.

chloromycetin. A drug of the penicillin-streptomycin family recently discovered by Dr. Paul R. Burkholder, of Yale university, which may be effective against such diseases as epidemic typhus fever and parrot fever.

civilian, *n.* & *adj.* Pertaining to one not a (regular) member of a group, as, a temporary stenographer.

cold war. Bitter economic and political rivalry without outright fighting. (1946)

Cominform. Communist Information bureau.

crypto-Communist. One who sympathizes secretly with communism; a "fellow traveller." (1946)

cyclonium. *See* **prometheum.**

deep, *adj. Football.* Said of reserve players; as, "four deep in the line." (1942)

depth, *n. Football.* A supply of reserve players. (1945)

Diapene. Trade name of a bactericide for diaper rash.

dollar crisis. Condition resulting when a country whose exports to the United States fail to balance its imports begins using up its dollars.

EDVAC. Electronic Discrete Variable Computer, an electronic calculator.

electronarcosis, *n.* A treatment for the mentally ill in which the patient is kept unconscious for a short period of time by means of a mild electric current which is run through his brain.

Elgiloy. An alloy used in watchmaking, made by the Elgin National Watch Co.

ERP. European Recovery plan. The **Marshall plan** (*see* below).

fan-marker. *Aviation.* A vertical radio beam which indicates to the pilot of a descending aeroplane the distance to the end of the runway. (1944)

flying disk. *See* **flying saucer.**

flying saucer. One of a number of mysterious objects, first sighted over Oregon June 24, 1947, and later at other places, flying at great heights and at high speeds. Though the saucers were attributed in part to hallucinations resulting from mass hysteria, they were not satisfactorily explained.

francium. Name given by Mlle. Marguerite Perey to element number 87.

Freedom Train. A seven-car train, sponsored by the American Heritage foundation, containing an exhibit of important U.S. historical documents, which were displayed at various cities and towns throughout the United States.

Friendship Train. A train which went from Los Angeles to New York city, collecting voluntary contributions of food for Europe. Beginning as a train of 12 cars, it swelled to one of 266 by the time it reached New York. The food was shipped to Europe early in December on **Friend Ships.**

gleep. Name derived from the initials of "graphite low energy experimental pile" to describe Great Britain's first atomic pile.

Glocca Morra. Name that can be used for any desired place; as, "Things are fairly good in Glocca Morra." (-1947)

grisein. An antibiotic which complements streptomycin.

grovesium. *See* **prometheum.**

hot rod. *Slang.* A jalopy, stripped of excess trimmings, whose motor has been stepped up for high speeds. (-1945)

hot war. Actual fighting. Opposed to **cold war** (*q.v.*).

hurricane-buster plane. An aeroplane which attempts to break up hurricanes.

hurricane-hunter plane. An aeroplane for searching out and locating hurricanes.

Hydrostrat. *See* **Bathyscaphe.**

Hypospray. An instrument that forces liquid medicine under the skin.

ILS. Instrument Landing System, a radar system whereby a pilot is aided in landing his aeroplane. (1946)

IRO. International Refugee Organization. (1946)

jump-pass, *n.* & *v. Football.* A forward pass thrown as the passer jumps into the air. (-1947)

Launderette. A trade name of the Telecoin Corp. applied to a self-service laundry equipped with Bendix washing machines. (-1946)

lay-up, *n. Basketball.* A basket made by putting the ball through a basket by a jump and a gentle, one-handed push, usually off the back-board. (-1945)

Mach number. (After Dr. Ernest Mach.) The ratio between the speed of an object (as an aeroplane) and the speed of sound under the conditions (as of temperature) obtaining in the particular medium (usually air) in which the object is travelling. (1945)

MANIAC. The Mechanical and Numerical Integrator and Calculator, a calculating machine invented by John von Neumann.

Marshall plan. Term applied to the proposal of Secretary of State George C. Marshall that the United States give financial aid to western Europe to assist it in a long-term plan for recovery and rehabilitation.

Mesantoin. A trade name for an anticonvulsant drug.

Methadon. *See* **Amidone.**

momism. (From *mom,* colloquial for "mother.") Word coined by Philip Wylie to describe an American matriarchy, one aspect of which is the excessive "mothering" responsible for many neuroses, especially among men. (1942)

nation, *n.* A group of young people who meet to learn and practise the ways of democratic government.

new look. The new appearance of women's clothes resulting from innovations in style in 1947.

1947N. A comet, visible to the naked eye, so named because the 14th discovered during the year 1947.

one-worlder, *n.* An internationalist. (-1947)

PCA. Progressive Citizens of America.

Phone Vision. A principle developed by Zenith Radio Corp. for transmitting television over telephone wires.

pipe line. A channel of distribution. (1946)

police state. A state whose economic life is controlled by the government. Opposed to a country of free enterprise. **police statism.**

post atom(ic), *adj.* Subsequent to the dropping of the atomic bomb. (1945)

power line carrier. A type of telephone service, especially adapted to rural areas, which utilizes power lines. (1946)

price (a person) out of the market. To set prices so high that people refuse to buy. (1938) **price (goods) out of the market.** To price goods so high that they cease competing with their natural competitors. (1946)

prometheum. (After Prometheus.) Name proposed for the synthetically produced element number 61. Other proposals are **cyclonium, florentium, grovesium, illinium** and **thanium.**

propylthiouracil. A drug used in the treatment of goitre.

Radarange. A cooking range built by Raytheon Manufacturing Co. which utilizes the energy of ultra-high-frequency radio waves. (1946)

rickettsialpox, *n.* A disease, first identified in June 1946, with symptoms of chills, fever, sweating, backache and rash.

seeding, *n.* The dropping of chemicals, such as dry ice, from an aeroplane into a cloud to induce condensation. (Extension of older chemical usage, —1934.)

sideline, *v. t. Sport.* To keep (a player) on the sidelines, that is, out of play, because of an injury or the like. (-1946)

silken curtain. The well-mannered but firm censorship exercised by Great Britain over some of its foreign problems.

sky barrier. Same as **sonic barrier** (*see* below).

Skystreak. The U.S. navy's jet-propelled D-558 (made by the Douglas Aircraft Co.), which flew 650.6 m.p.h.

sonic barrier. *Aviation.* Point at the speed of sound where air disturbances supposedly create hazards for faster aeroplane flight. Also **sonic wall.** (-1947)

spiv, *n.* British. An operator on the black market; a minor racketeer.

spot check. A rough sampling. (-1945)

stanine, *n.* A blend (from "**st**andard **nine**") that originated in 1942 in Psychological Research Unit No. 1, AAF classification centre, Maxwell field, Ala., to describe (a) a score on a 9-point scale in an AAF aptitude test or (b) the combined score in several such tests, as for pilot, bombardier, etc. (-1942)

Stratofreighter. The Boeing cargo aeroplane, capable of hauling 20 tons of freight. Trade-mark. (1946)

Stratojet. The Boeing XB-47, a bomber powered by six jet engines. Trade-mark.

strip, *n.* In California, a section of road or highway on which are located high-class eating places. (1938)

synchro-cyclotron, *n.* A cyclotron with some features of a betatron; its modifications in design make it more powerful than the cyclotron.

1068. *See* **chlordane.**

thanium, *n. See* **prometheum.**

Trizonia, *n.* The United States, British and French zones in western Germany.

Trumanburger, *n.* A meat substitute (bun sandwich whose filling consists of mashed beans and barbecue sauce).

Truman doctrine. Name given to the policy of President Harry S. Truman of giving financial aid to nations (specifically Greece and Turkey) for rehabilitation and resistance to Communist control.

Tuf-Flex. An unbreakable glass made by Libby-Owens-Ford, recently used as a baseball backstop instead of the conventional wire netting. Trade name. (1945)

Ultrafax. Trade name of a high-speed communications system employing television.

UMT. Universal Military Training program.

Umtee (Pron. of UMT). A trainee in the Universal Military Training program.

venture, *adj.* Not controlled; as, "venture money," money one is willing to risk in a new enterprise. (1938)

watchdog commission. A government commission set up for careful observation of some trouble spot. (I. W. R.)

Works Agency, Federal: *see* FEDERAL WORKS AGENCY.

World Bank: *see* INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; INTERNATIONAL MONETARY FUND.

World Commerce: *see* INTERNATIONAL TRADE.

World Council of Churches: *see* CHRISTIAN UNITY.

World Federation of Trade Unions. At its general council meeting in June 1947, the federation elected Arthur Deakin, general

secretary of the British Transport and General Workers' union, as president. Its secretary was Louis Saillant, of the French Confédération Générale du Travail. A special W.F.T.U. mission visited Germany in Jan.–Feb. 1947, and reported strongly in favour of the maintenance of a united German trade union movement, which had then reached a membership of 6,000,000. The W.F.T.U. asked the military governments in Germany to avoid all steps that might endanger trade union unity, to allow the trade unions to play a larger part in denazification of industry, and to give them "on all official and semi-official bodies a representation at least equal to that of other groups of the community." The W.F.T.U. also set up a liaison bureau for Germany, and agreed in principle to accept the affiliation of the German trade union movement as soon as it had been able to establish a common trade union centre. W.F.T.U. delegations also visited Japan and Iran; a conference on trade unions in Africa was organized at Dakar in April when demands were put forward for the organization of effective social and health services in African colonial territories, on the same basis as those provided in the metropolitan countries. The British delegation dissented from this recommendation as impracticable at the present stage of African development.

The main work of the W.F.T.U. in 1947 was concerned with the organization of trade departments representing the workers in particular industries and services, to replace the prewar independent Trade Federation of Transport Workers, Miners, Textile Workers, etc.; separate conferences of the various trade groups were being held, and a set of approved rules were drawn up for adoption by the trade departments, regulating their relations with the W.F.T.U. There were discussions with the United Nations Economic and Social council concerning the form of recognition to be given to the W.F.T.U. by that body, so as to secure its right to speak at plenary sessions on all questions in which it has an interest. The W.F.T.U. placed a number of questions on the agenda of the Economic and Social council, including those of equal pay for men and women, abolition of racial and national discrimination, full employment, treatment of immigrant workers, suppression of trusts and monopolies, and standards of living in different countries. Discussions were also opened with the International Labour organization concerning the relation of the W.F.T.U. to that body under its revised constitution.

Early in 1947 the W.F.T.U. represented trade unions in 32 countries, with an approximate total membership of 65,000,000. Of these, 27,000,000 were in the U.S.S.R., and 26,000,000 in the rest of Europe, including 7,000,000 in Great Britain, 6,000,000 in France and 5,000,000 in Italy. Germany was not represented. Asia accounted for nearly 4,000,000, including 1,600,000 in China, and there were 860,000 in India. The United States was represented only by the Congress of Industrial Organizations, with 6,500,000 members. In Africa, only Nigeria was affiliated, with 500,000, and in the Pacific only Australia, with 625,000. No figures were available for Latin America.

(G. D. H. C.)

World Health Organization: *see* UNITED NATIONS (U.N.).

World War II.

The surrender dates of World War II follow:

Sept. 3, 1943: Italy surrendered unconditionally. On Oct. 13, 1943, Italy declared war against Germany and on July 15, 1945, against Japan.

Aug. 23, 1944: Rumania accepted the Allies' armistice terms and, on Aug. 25, declared war against Germany and Hungary.

Sept. 9, 1944: Bulgaria accepted Allied armistice terms.

Sept. 19, 1944: Finland signed armistice terms with Great Britain and Russia (the United States was not at war with Finland). On March 3, 1945, Finland announced it had been at war with Germany since Sept. 15, 1944.

Jan. 20, 1945: Hungary capitulated.

May 7, 1945: Germany surrendered.

Aug. 14, 1945: Japan surrendered.

It must be remembered in connection with the above listing that Germany, as early as 1942, had made overtures to Russia with the purpose of accomplishing a separate armistice with that power. Josef Goebbels was sure that Germany's position was weak and he enlisted Japanese aid in seeking a separate peace with Russia. Playing on that country's ire over the nonestablishment of a "second front," Germany tried to sell Russia the idea of a definite break with its allies, along with a peace with Germany. However, Russia could not reconcile these two points and nothing came of the attempt. In 1943, when things looked gloomy for the Germans, their diplomats again worked feverishly to effect a separate peace with Russia. They were ready to throw Finland and Rumania in as bribes. If the worst came to pass, the nazis would have preferred to capitulate to Marshal Joseph Stalin rather than to Franklin D. Roosevelt or Winston Churchill. However, German home sentiment soon revealed that if Russia should show any intention to pick up Germany's offer, Adolf Hitler would lose a considerable following. Since he had already lost Italy, he could not afford further loss at home. Russia turned a deaf ear to the proposition and nothing came of it.

Along with the national surrenders listed above, it is of interest to note several instances wherein groups of the enemy did not surrender, mentally or physically, according to accepted schedules.

U.S. forces fired first on Guam in July 1944 and in the next month had control of the island. A year later, in July 1945, a Japanese officer, his lieutenant, his orderly and 33 ragged soldiers surrendered on Guam to Col. Howard Stent of the U.S. marine corps. This Japanese group had hidden out in the jungles after their comrades in arms had surrendered. On Feb. 24, 1947, Allied police forces were forced to round up and arrest hundreds of diehard nazis in Berlin who fostered the idea of waging bacteriological warfare in an effort to restore Germany's armed might. The public press of July 18, 1947, reported a holdout force of 50,000 Japanese troops still battling in the Korean-Manchurian area, having failed to surrender on V-J day.

Official End of Hostilities.—The proclamation quoted below did not terminate the states of emergency declared by President Roosevelt on Sept. 8, 1939, and May 27, 1941, nor did it have the effect of terminating the state of war itself; it merely terminated the period of hostilities. It did, however, terminate immediately government powers under about 20 statutes and about 33 others at a later date, generally on July 1, 1947.

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

With God's help, this nation and our Allies, through sacrifice and devotion, courage and perseverance, wrung final and unconditional surrender from our enemies. Thereafter, we, together with the other United Nations, set about building a world in which justice shall replace force. With a spirit, through faith, with a determination that there shall be no more wars of aggression calculated to enslave the peoples of the world and destroy their civilization, and with the guidance of Almighty Providence, great gains have been made in translating military victory into permanent peace. Although a state of war still exists, it is at this time possible to declare, and I find it to be in the public interest to declare that hostilities have terminated.

Now, therefore, I, Harry S. Truman, President of the United States of America, do hereby proclaim the cessation of hostilities of World War II, effective twelve o'clock noon, December 31, 1946.

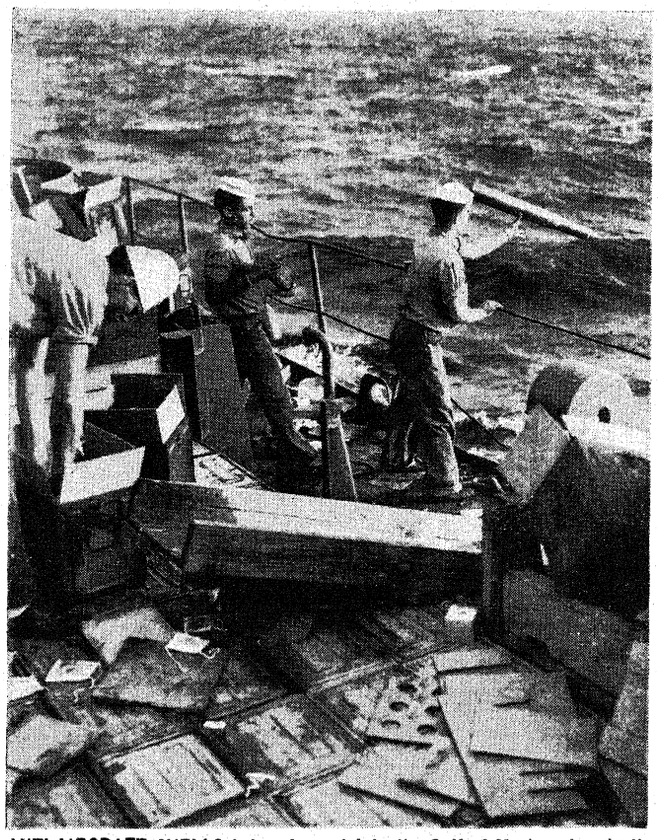
IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States of America to be affixed.

DONE at the city of Washington this 31st day of December in the year of our Lord nineteen hundred and forty-six and of the Independence of the United States the one hundred and seventy-first.

By the President:

HARRY S. TRUMAN

James F. Byrnes
The Secretary of State.



ANTI-AIRCRAFT SHELLS being dumped into the Gulf of Mexico at a depth of 3,000 ft. in April 1947, as part of the lengthy operations for disposal of surplus naval ammunition remaining after World War II

Through the medium of official and nonofficial private publications released after V-E and V-J days, the general public was informed of World War II facts not thoroughly comprehended previously. The keynote of written and spoken material dealing with World War II had been utmost frankness. Books like Ralph Ingersoll's *Top Secret,* Robert Merriam's *Dark December,* William Huie's *The Case against the Admirals,* R. S. Allen's *Lucky Forward* and James Byrnes's *Speaking Frankly,* written from the viewpoint of the individual author, spared no one.

Costs and Casualties.—In April the department of the army released World War II cost figures, in lives and dollars. These figures show that World War II was almost twice as expensive in U.S. lives—313,000 against 193,663—and 20 times as expensive in wealth as World War I. The money bill for World War I was $21,850,000,000 which was 20 times the prewar debt and enough to pay the entire expenses of the United States government from 1791 to 1917. The bill for World War II was $340,000,000,000. Viewed in another dimension, World War II cost approximately 87.5% of the entire national wealth with 15% of the 1940 population in the armed forces during the course of the conflict. A hundred years earlier, the Mexican War had involved 0.6% of the nation's population and had cost 0.26% of the national wealth at that time. Reduced to tabular form, comparative costs in lives and wealth were:

Wars	Dates	Total U.S. troops	Total dead	Total cost
Mexican	1846–48	104,284	12,946	$ 139,500,208
Spanish	1898–99	408,391	6,472	992,159,840
World War I	1917–21	3,665,000	193,663	21,850,000,000
World War II	1941–*	10,200,000	313,000	340,000,000,000

*War not officially terminated at end of 1947.

Furthermore, it is estimated that, by 1972, accruing costs directly connected with World War II will raise the $340,000,000,000 figure to $700,000,000,000.

Ship Losses in World War II.—The *Eastern Underwriter* (Eastern Underwriter Co., New York, N.Y.) released the following statistics on ship losses in World War II from Sept. 3, 1939, to May 5, 1945:

British empire	2,570
United States	538
All other Allies	1,172
Neutrals	490
Total	4,770

Available sources for enemy losses show:

Japan	318
Germany	1,266*
Italy	257†
Total	1,841

*204 of these were surrendered.
†49 of these were surrendered.

Operation "Torch."—In his book *Our Vichy Gamble,* William L. Langer, professor of history at Harvard university, brings out many interesting facts concerning U.S. relations with Vichy France. His discussion of U.S. operations in North Africa, Operation "Torch," sheds considerable light on the interplay of political and military factors operative in that area, factors outside the ken of the average reader at that time.

At the outset, Generals Dwight D. Eisenhower and Mark Clark found themselves enmeshed in a welter of political factionalism from which there seemed to be no clear path of escape. Under the German aegis, Pierre Laval held the reins in France, although Henri Pétain was nominally in command at Vichy; Adm. Jean Darlan was commander in chief under Pétain, of all French armed forces—land, sea and air; Gen. Henri Giraud, a hero of World Wars I and II, had to be reckoned with from a command and sentimental standpoint and, finally, Gen. Charles de Gaulle, leader of the Free French, could not understand why he should divide the spotlight with any other Frenchman. Faced with this situation which was present throughout all the planning and operational stages of Operation "Torch," Eisenhower named General Clark to the command of the U.S. 5th army, leaving the position of deputy commander purposely open.

As the operations were shaped, De Gaulle, difficult to get along with, was deliberately kept in ignorance of the exact plans. To Allied political and military leaders, it seemed that General Giraud might bring to bear the most weight in asking Frenchmen, under his leadership, to fight against Frenchmen in Africa in order that the Allied invasion might succeed. Generals Eisenhower and Clark met with Giraud at Gibraltar to formulate the final plans. They ran into trouble immediately. Deaf to all arguments, Giraud insisted that he must be commander in chief in North Africa and be without responsibility to the U.S. and British combined chiefs of staff. He said the U.S. could look after his reinforcements of personnel and supplies. Further, Giraud was determined upon an immediate invasion of southern France. On this point, he was told definitely that such move would be predicated entirely on initial success in North Africa. Finally, Giraud yielded to the extent of acknowledging U.S. military leadership for the operation in exchange for which Giraud would be commander in chief of all French forces in the North African region and governor of the French North African provinces. In the meantime, military operations had begun.

At 1:00 A.M., Nov. 8, 1942, the task force was in motion. On the German side, the U.S. invasion came as a surprise. They had expected some operation either against Dakar or Casablanca, but they had not expected the landings in Algeria.

On Nov. 8, Gen. Alphonse Juin, commanding land and air forces in French North and West Africa, was called upon by Robert D. Murphy, counsellor of the U.S. embassy at Vichy, to recognize the fact of U.S. invasion and was urged to throw his strength on the side of the Allies to liberate France. Juin,

faithful to Pétain, countered that it was not his responsibility to make such decision since Darlan was right then in Algiers. Darlan, summoned by phone, now made the argument a three-sided one with Murphy momentarily expecting to hear the sounds of invasion forces landing. Darlan, ever the opportunist, consented finally to throw in with the Americans, provided Pétain would approve. This news, when it reached Eisenhower at Gibraltar, created a tense problem. Giraud, after hours of urging, had just been won over to some form of agreement in return for which he had been made certain promises. What to do with him now? Could he and Darlan work together? Eisenhower immediately sent Giraud (Nov. 9) by plane to Algiers where his fellow French officers refused to have anything to do with him. General Clark even had to find him a hiding place where it would be safe to confer with Juin and Darlan. The latter, still apprehensive of Pétain's approval of his actions, was finally convinced enough to give a cease-firing order which undoubtedly saved hundreds of lives of the invasion forces. He also ordered the French fleet to be ready to move from Toulon should the Germans proceed to occupy all of France. In the meanwhile, he assumed command of all North Africa in the name of Pétain. When Darlan's message reached Pétain, he was urged to approve it, to order the French fleet to sea and to command French garrisons to take to the hills. To this he agreed, but the message he sent to Darlan to that effect was intercepted by the Germans, who called upon Laval to bring Pétain into line. This he did. Pétain reversed himself, named Gen. Auguste Noguès as commander in chief in North Africa but, at the same time, sent a secret message in code to Darlan telling him that he approved everything the latter had done. Receiving first the message concerning Noguès's appointment, Darlan told General Clark that he must rescind his previous cease-firing order. Clark's response was characteristic and immediate, "Damned if you do."

Darlan refused to budge; Giraud, lacking military recognition by his own uniformed people, was helpless. At this moment, the secret approval message of Pétain came through to Darlan, along with the news that the Germans were occupying all France.

Laval hastened to Munich only to learn from Hitler that, unless France allied itself with Germany, it would be occupied *in toto* and would lose its entire colonial empire. In North Africa, Clark and Eisenhower were moving the pieces on the chessboard somewhat feverishly. Summoned from Morocco, Noguès threw in his lot with Darlan; Pierre Boisson, governor general of West Africa, elected the Allied cause; Giraud accepted the post of military chief in the Darlan group; De Gaulle was out of the picture. Thus, by Nov. 22, the Allies, exploiting to the full Darlan's usefulness to them, had gained a measure of security in the rear and were assured of being able to open new and improved air supply lines across the Atlantic to U.S. troops. The French were immediately committed to helping the Allies to capture Tunisia, plus making every effort to get the fleet at Toulon. This latter failed when the French commander, Adm. Jean de la Borde, hating Darlan, scuttled the fleet in the harbour.

The invasion of North Africa, in point of time, was most fortunate. It came in conjunction with Gen. Bernard L. Montgomery's breaking of the German lines at El Alamein, the prelude to the British drive through Libya.

The dominating position to which Darlan had now succeeded roused a storm of protest; he was branded "Vichy traitor," "notorious quisling" and even "skunk." The possibility of uniting the De Gaulle and Giraud factions was, for the time, blasted. Darlan, opportunist to the end, now envisioned himself as the successor to Pétain. His supporters were all officers committed to Vichy. Thus, Eisenhower and Clark found themselves with a new problem on their hands. Darlan was told bluntly that he was acceptable so long as he collaborated to break the axis power and eventually thus to free France, but that he was not to indulge in building up a political organization which had no bearing on the military effort. He disavowed any such political intentions but his actions ran contrary to his words. It was finally decided that he must resign. However, on Christmas Eve, 1942, he was assassinated. The man was dead but not the problem.

Turkey in World War II.—The role of Turkey during World War II has been often commented upon unfavourably in the press. It declared war against Germany only at the last possible moment, in fact only when the Allies announced that only states which had declared war on Germany would be invited to the San Francisco conference. The blame for allowing Turkey to dangle so long as a dubious ally or uncertain neutral must be equally shared by the United States and Great Britain. They figured that Turkey was an ally and could be counted on to (1) hold the Anatolian line and (2) come into the war on the Allied side. The first gamble, a winning one as was the second, allowed Great Britain to consolidate its position in Iran, Syria and Iraq.

From 1940 to 1944, Turkish soil was a battlefield for economic warfare. Before the war, Germany was Turkey's best customer, buying more from it than all the other countries of the world put together. Great Britain and other countries, if they bought, did so at the fantastic prices Turkey elected to charge. But when the World War II sea blockade went into effect, things began to look different. Turkey, thinking it was doing the right thing, veered commercially to France and Great Britain. Of its own accord it refused to renew its treaty of commerce with Germany. But, when its surpluses began to pile up, Turkey signified that it was ready to pick up the previous commercial tie with Germany. This was a serious matter for the Allies. Since Great Britain looked upon Turkey as an ally, it felt that vital war commodities should not flow from Turkey to the axis powers. The Turks argued that they needed arms and equipment for their army—machinery, locomotives, rolling stock and other essentials for their interior economy. They preferred to get these things from Great Britain but, since this seemed impossible, they knew they could get them from Germany in exchange for raw materials and foodstuffs. Clearly, Turkey was straddling two horses at the same time.

The principal items at stake were Turkey's chrome, cotton, tobacco, oil seeds, copper, valonea and dried fruits. Allied mass



"BLESSED ARE THE PEACEMAKERS." Wry comment, by Crawford of the *Newark Evening News*, on the widespread references, in 1947, to a third world war

buying kept Germany from getting all the things it wanted but for a long time Turkey traded in both camps.

In April 1944, the governments of Great Britain and the United States finally cracked the whip. Turkey was told that if it continued to trade with Germany it could expect to be blockaded like other neutrals. Faced with this ultimatum, Turkey, after three years of straddling, admitted that chrome was being used in the manufacture of weapons which were being used against its allies; therefore, no more chrome must be sent to the axis countries. Four months later it completely severed economic and political relations with Germany.

Turkey came out of World War II undamaged and with all the basic elements of its economy unimpaired. In 1947 it possessed greater resources than it did in 1939.

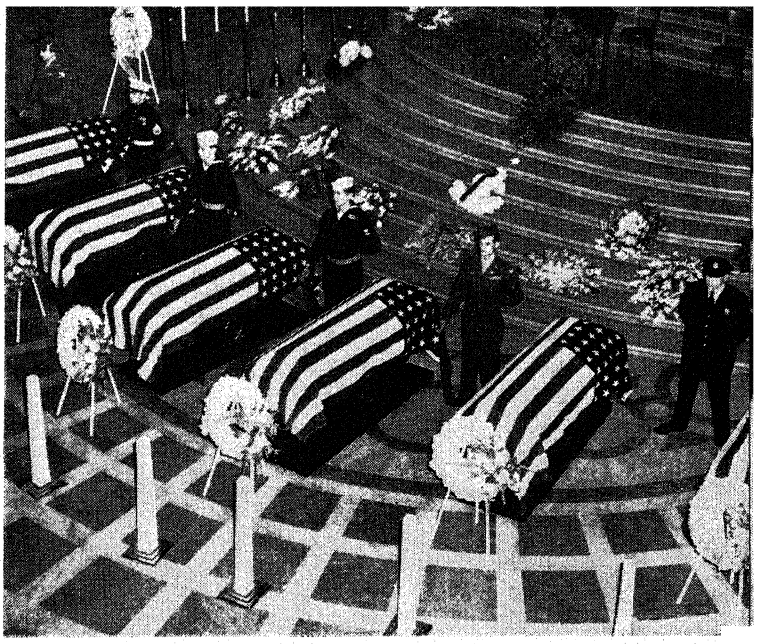
By the fortunes of war, Germany was eliminated as Great Britain's sharpest competitor for Turkey's commercial favour—but that place was taken by Russia.

War Crimes.—On May 30, 1924, the German courts rendered judgment that the whole nazi party was a criminal organization; when the German wehrmacht grovelled in defeat in 1945, that "criminal organization," from a position of brutal power, had written a horribly gory page in history. On this page was the record of crime and atrocity beyond civilized human belief.

On Aug. 8, 1945, the governments of the United States, Great Britain, Russia and France, along with 19 lesser governments of the United Nations, established the International Military tribunal to meet at Nuernberg, Germany, to try such war criminals whose offenses had no particular geographical location. Before this tribunal appeared 22 leaders of the infamous Hitler hierarchy to answer for their crimes. These were: Hermann Goering, Rudolf Hess, Joachim von Ribbentrop, Wilhelm Keitel, Ernst Kaltenbrunner, Alfred Rosenberg, Hans Frank, Wilhelm Frick, Julius Streicher, Walter Funk, Hjalmar Schacht, Karl Doenitz, Erich Raeder, Baldur von Shirach, Fritz Sauckel, Alfred Jodl, Martin Borman, Franz von Papen, Arthur Seyss-Inquart, Albert Speer, Constantin von Neurath, Hans Fritzsche. Of these, 3 were acquitted, 7 were given jail sentences ranging from 10 years to life and 12 were condemned to death by hanging.

Of this latter number, Goering cheated the gallows by committing suicide in jail. The principal charges were: (1) war crimes; (2) crimes against the peace and (3) crimes against humanity.

It was proved that war crimes were deliberately planned long in advance, as witness the invasion of soviet Russia wherein the program of plunder and cruelty to civilian populations had all been worked out beforehand. Similarly, the German government had carefully worked out a plan to exploit the inhabitants of all occupied countries for slave labour on a gigantic scale. This they considered an integral part of their war economy. Defying all principles of international law, prisoners of war and civilians in occupied territories were ill-treated, tortured and murdered. Whole populations were deported to Germany for purposes of slave labour upon defense works, armament production and other war-effort tasks. Civilian hostages seized in occupied countries were shot as it suited their German captors. Property, public, church or private, was plundered and pillaged to enlarge the resources of Germany. Cities, towns and villages were wantonly razed with no shred of military justification or necessity. Lidice, Czechoslovakia, must be remembered as one of these. Persecution of the Jews raged unchecked. Long before World War II, Goering had written, ". . . Vienna cannot rightly claim to be a German city. One cannot speak of a German City in which 300,000 Jews live. This City [Vienna] has an important German mission in the field of culture as well as



FLAG-DRAPED COFFINS of U.S. soldier, marine, sailor, coast guardsman, air corpsman and civilian who lost their lives in World War II are shown lying in state at the city hall in San Francisco, Calif., as the return of overseas war dead to the U.S. was begun in Oct. 1947

in economics. For neither of these can we make use of the Jews." Before the Nuernberg tribunal it was brought out that, under the nazi party program, "Only a member of the race can be a citizen. A member of the race can only be one who is of German blood, without consideration of creed. Consequently, no Jew can be a member of the race." That the Jew might be eliminated from the fabric of German life, at least 5,000,000 murders were committed. Heinrich Himmler and his satellite officers did the killings, ran the infamous camps where mass cremations snuffed out thousands of lives; where other thousands were beaten to death; where countless numbers went mad, starved to death or were shot down like animals. Himmler executed but Goering, in his own or in Hitler's name, gave the orders. Dachau, Buchenwald, Langwasser, Rowno, Dubno, Treblinka, Flossenburg, Auerbach, Auschwitz, Staumehle and Garmisch are a few of the place names where the manifestations of German *Kultur* sank to noisome depths of infamy.

The tribunal charged and proved guilty those nazi leaders who, under the heading of crimes against the peace, planned and carried into execution the territorial moves against Belgium, the Netherlands, Austria, Norway, Denmark, Czechoslovakia, Poland and Greece. On the high seas, German submarine warfare had preyed on neutral and enemy ships alike. The tribunal placed the blame on those nazi leaders who were guilty of unrestricted submarine warfare, including the sinking of unarmed merchant ships and of neutrals, and of the nonrescue and machine-gunning of survivors. (*See* WAR CRIMES.)

Atomic Bombing.—The first atomic bomb, the first weapon of its type to be used against an enemy target, burst over Hiroshima, Japan, at 8:15 A.M. on Aug. 6, 1945. Three days later, another such bomb was dropped on Nagasaki. The United States Strategic Bombing survey estimates the dead at Hiroshima to have been between 70,000 and 80,000, with an equal number injured; at Nagasaki, more than 35,000 dead and somewhat more than that injured. At Hiroshima the proportion of deaths from burns (flash or flame) was placed at 70%; from falling debris at 20% and from other injuries at 10%. Of those who died later, the greater proportion died from radiation effects. Of the traced survivors who were within 3,000 ft. of the immediate explosion, 95% suffered from radiation disease. Scientists have determined that the radiation effects upon survivors resulted from the gamma rays liberated by the fission process

rather than from induced radioactivity or the lingering radioactivity of deposits of primary fission products.

Hiroshima required complete rebuilding; the heart of the city, the main administrative and commercial, as well as residential, sections were all wiped out. Only 50 reinforced concrete buildings in that area remained standing and all of those suffered blast or fire damage. Japanese figures summed up building destruction at 62,000 out of a total of 90,000 buildings in the urban area.

At Nagasaki, the scale of destruction was greater than at Hiroshima, though the actual area destroyed was smaller. Parts of the city were protected by hills so that more than half of the residential units escaped serious damage. Of the 52,000 residential units, 14,146 were completely destroyed and 5,441 were half-burned or destroyed; but 90% of the industrial output of the city was seriously damaged.

The purpose of the bombing attacks, both of them all-Japan events, was to break the fighting spirit of the Japanese people and their leaders, not just of the residents of Hiroshima and Nagasaki. The reactions in the bombed cities tallied closely with those of the whole country—fear and terror, anger and hatred against the United States, grudging admiration for the scientific achievement. However, it cannot be said that the atomic bomb alone convinced the Japanese leaders of the necessity of surrender. Since 1944 a political group close to the emperor had been trying to end the war. But the army stood for a fight-to-the-end policy. The peace group now brought the emperor into the picture with his declaration for the acceptance of the Potsdam terms. Even in the face of the atomic bombings, the military party was not completely convinced that defense of the home islands was impossible. True to their "saving-face" tradition, the military had a way out by announcing that no army without the atom bomb could possibly resist an enemy who had it. Such a view reflected no disparagement on the competence of Japanese industrialists or the courage of the Japanese soldier.

Pres. Harry S. Truman had been reluctant to order the use of the atomic bomb. Every effort was made to urge upon Japan acceptance of the Potsdam terms for ending the war. However, the Japanese military party was in control and there was no other way.

On Aug. 6, President Truman's message to the Japanese was that if they did not accept the Potsdam terms they could "expect a rain of ruin from the air, the like of which has never been seen on this earth."

Conferences of the Great Powers.—The following brief statements cover the outstanding activities of the several conferences by the great powers. These conferences, starting while the war was in progress, extended over well into the peace-forming era:

Moscow.—Oct. 19–30, 1943. Present: Cordell Hull for the United States; Anthony Eden for Great Britain; Vyacheslav Molotov for Russia. An agreement was reached stating that the making of peace and the keeping of peace could be best achieved if the task were regarded not as one problem but two related problems. On Nov. 1, 1943, the three nations were joined by China in a declaration which stated that, ". . . they recognize the necessity of establishing at the earliest practicable date a general international organization, based on the principle of the sovereign equality of all peace-loving states, large and small, for the maintenance of international peace and security." Here was the germ of the United Nations idea.

Cairo.—Nov. 22–26, 1943 (first meeting). Present: President Roosevelt for the United States; Generalissimo Chiang Kai-shek for China; Prime Minister Churchill for Great Britain. Russia, not being at war with Japan, was not represented. The three Allies agreed to restrain and punish the aggression of Japan; to strip from Japan all the islands in the Pacific which it had seized or occupied after 1914 and to restore to China the stolen territories of Manchuria, Formosa and the Pescadores. Korea was to emerge free and independent.

Tehran.—Nov. 28–Dec. 1, 1943. Present: President Roosevelt for the United States; Prime Minister Churchill for Great Britain; Marshal Stalin for Russia. Principal item of business was the co-ordination of Allied and soviet military operations for a major assault upon Hitler's Europe. It was at the end of this conference that Roosevelt said, ". . . I got along fine with Marshal Stalin. . . . I believe we are going to get along well with him and the Russian people . . . very well indeed." Subsequent events did not substantiate this.

Cairo.—Dec. 4–6, 1943 (second meeting). Present: President Roosevelt for the United States; Prime Minister Churchill for Great Britain; Pres. Ismet Inönü for Turkey. This meeting was called to reassure Turkey as to the purpose and intentions of the Soviet Union. (Keeping in mind that at this time Turkey was reaping a rich dollar harvest from the axis and the Allies simultaneously, the solicitude for Turkey's welfare displayed at this conference must have been welcomed by Inönü.)

Bretton Woods (N.H.).—July 1–22, 1944. Present: delegates representing the United States and 43 countries invited to participate. Purpose of the conference was to establish an international monetary fund as the most practical method of ensuring international monetary co-operation. Out of this meeting came the establishment of the International Bank for Reconstruction and Development, more familiarly known as the World bank. The Soviet Union cast the only dissenting vote on the question of setting up this bank.

Dumbarton Oaks (Washington, D.C.).—Aug. 21–Oct. 7, 1944 (first phase). Present: Edward R. Stettinius, Jr., for the United States; Sir Alexander Cadogan for Great Britain; Andrei Gromyko for Russia. For the second phase of the conversations, Russia dropped out and its place was taken by Wellington Koo for China. Avoiding tangential problems created by the war, the conference concentrated on the means of establishing machinery to implement an international security organization. The most important of their agreements was the one stating, "There should be established an international organization to be known as the United Nations." A considerable part of the U.S. population watched the activities of this organization since its formation. A repeated and logical question has been: since the League of Nations did not prevent World War II, do the Dumbarton Oaks proposals represent any improvement on the League covenant?

Yalta.—Feb. 3–11, 1945. Present: President Roosevelt for the United States; Prime Minister Churchill for Great Britain; Marshal Stalin for Russia. This meeting was in reality a preliminary peace conference. Territorial and political agreements were reached to have tremendous impact later. European territorial agreements chiefly concerned Poland. Its eastern boundary was to become that of the Curzon line, drawn in 1919, and lying west of Poland's 1937 boundary with the Soviet Union. In compensation for the loss of territory involved, Poland was to receive land to be taken from Germany. Politically it was agreed that: (1) there must be unconditional surrender upon the part of the nazis; (2) there would be zone occupation, by nationalities, of German territory—France to participate if it so desired; (3) Germany would be disarmed and denazified.

At the time of this Yalta conference, Russia was not at war with Japan. Therefore, in order not to disrupt Allied military strategy, no announcements were made of the agreements reached regarding Japan. These came out in 1946 and included: (1) ceding the Kurile Islands to Russia; (2) restoring Russian



GEORGE C. MARSHALL, U.S. secretary of state, making a public address on his arrival at Moscow for the Conference of Foreign Ministers which met in March 1947 to discuss peace terms for Germany and Austria. He was greeted by soviet deputy Foreign Minister Andrei Vishinsky (right)

sovereignty over the southern part of Sakhalin Island; (3) preservation of the status quo in Outer Mongolia; (4) restoration of the Russian lease on Port Arthur as a naval base and (5) jointly with China, Russia to operate the Chinese and South Manchurian railroads. Russia had exacted a high price, in advance, for its promise eventually to declare war upon Japan.

Mexico City.—Feb. 21–March 8, 1945. Present: all members of the Pan American Union, except Argentina. Though not listed on the agenda, Argentina, suspected of pronazi leanings, was a principal subject of discussion. Three main documents were adopted: (1) the economic charter of the Americas; (2) the resolution on reorganization, consolidation and strengthening of the inter-American system and (3) the act of Chapultepec, a reaffirmation of certain fundamental principles striven for after 1890. Among these were: (1) proscription of territorial conquest and nonrecognition of acquisitions made by force; (2) condemnation of intervention by a state in the internal or external affairs of another; (3) recognition that every war or threat of war affects all civilized peoples and endangers the American ideals of liberty and justice; (4) the seeking of means for peaceful co-operation in the event of war or threat of war between American countries; (5) recognition of the fact that every act susceptible of disturbing the peace of America justifies initiation of consultation procedure; (6) settlements of differences or disputes by conciliation, free arbitration or through operation of international justice; (7) recognition of respect for personality, sovereignty and independence of each American state—the essence of international order sustained by continental solidarity; (8) respect for and observance of treaties as the indispensable rule for development of peaceful relations between states; (9) any threat against peace, security or territorial integrity of any American republic to be a matter of common concern; (10) the attempt by any non-American state to defile the integrity, sovereignty or political independence of an American state to be considered as an act of aggression against all the American states. This latter provision is similar in character to the Monroe doctrine of 1820.

San Francisco.—April 25–June 26, 1945. Present: delegates from 50 United Nations which had declared war on either Germany or Japan, or both. The conference had a twofold job: first, to frame a charter on the basis of the Dumbarton Oaks proposals and, second, to tackle the problems of the approaching peace settlements. At the outset, Russia was viewed with suspicion. What were its aspirations in Europe and Asia? Could the Yalta formula be applied? Roosevelt had announced to the United States that responsible unanimity must be maintained among the only powers that could possibly back up the decisions of the Security council with force. In other words, no action to preserve or restore peace could be successful unless the Big Five agreed to it unanimously. This formula, the U.S. now found out, had been agreed upon at Yalta. Stalin rode this idea in the conference until it seemed that all progress toward agreements was stalled. However, on June 7, 1945, he modified his stand and the Big Five on the following day announced an agreement clarifying the Yalta formula. This clarification required unanimity of permanent members of the Security council in all decisions relating to enforcement action and in all decisions for peaceful settlement.

The San Francisco charter, as finally adopted, kept the core of the Dumbarton Oaks proposals and set the United Nations organization up in business with the great-power coalition embedded in the structure of the Security council.

Potsdam (sometimes referred to as the Berlin conference).—July 17–Aug. 2, 1945. Present: President Truman and Secretary of State Byrnes for the United States; Prime Minister Churchill (succeeded by Prime Minister Clement Attlee) for Great Britain; Generalissimo Stalin and Minister Molotov for Russia. The conference was primarily concerned with the liquidation of Germany's military power and the limiting of its industrial potentialities to wage war in the future. Politically it was provided that: (1) so far as is possible there shall be uniformity of treatment of the German population throughout Germany; (2) the German political structure shall be decentralized

and emphasis placed, instead, upon local responsibility; (3) no central German government to be established for the present. Economically it was provided that: (1) German economy should be decentralized to destroy the power of cartels, syndicates and trusts; (2) primary emphasis to be given to the development of agriculture and peaceful domestic industries; (3) during the period of occupation, Germany to be treated as a single economic unit.

Reparations claims were to be met by removals of industrial plants and equipment and from Germany's external assets. Sufficient machinery and resources were to be left to enable the German people to reach a fairly decent standard of living.

Territorially, Germany was split into two areas: the area east of the Oder to be divided between Russia and Poland, and the area west of the Oder to be divided into four Allied zones of occupation—U.S., British, Russian and French.

No agreement was reached in the Potsdam conference on regulation of traffic on the Danube river, the Dardanelles, the Black Sea straits, the Rhine, the Kiel canal and the inland waterways which border two or more European nations.

Paris.—July 29–Oct. 15, 1946. Present: representatives of 21 nations that had waged war with substantial force against the European members of the axis. The conference met, primarily, to consider and make recommendations for the Security council's draft treaties for Italy, the Balkan states of Rumania, Bulgaria and Hungary and for Finland. Substantive issues, generated by consideration of the treaties, concerned: (1) boundary of Trieste and that between Italy and Yugoslavia; (2) the form and administration of a government of Trieste; (3) territorial adjustments between Russia and Poland of territory east of the Oder; (4) reparations; (5) compensations (finally based on a compromise formula of 75% proposed by France); (6) restitutions; *e.g.*, objects of artistic, historical or archaeological value and property seized during religious or racial persecution; (7) settlements of disputes arising from enforcing the draft treaties and (8) principles of foreign trade and navigation on the Danube.

Official Histories and Studies.—Both the army and the navy had under way in 1947 extensive history publication programs. In the navy, the division of naval history of the office of public relations was established as the office of naval history on July 31, 1944. The program of this office includes a *History of United States Naval Operations in World War II* and a *History of United States Naval Administration in World War II.* The first-named title was being written by Dr. Samuel Eliot Morison (Captain, U.S.N.R.), professor of American history at Harvard university; the second would be the work of Dr. R. G. Albion, professor of history at Princeton university. The first volume of the administrative series was to appear in 1948. Other volumes on logistics, procurement and personnel were contemplated.

In the army, the historical program was handled by the historical division of the special staff, headed by Brig. Gen. Harry J. Malony. The civilian chief historian was Dr. Kent R. Greenfield, a lieutenant colonel in the army ground forces during World War II and, prior to that, head of the history department of Johns Hopkins university. This office had already published and distributed 12 monographs in an *American Forces in Action* series. The titles are: "Volturno," "The Winter Line," "Papuan Campaign," "Salerno," "Merrill's Marauders," "Guam," "The Admiralties," "To Bizerte with the II Corps," "Makin," "Small Unit Action," "St. Lô" and "Omaha Beachhead." Two more were to be released in 1948, completing the series. They were to be entitled "Anzio Beachhead," and "Utah Beach to Cherbourg." However, the principal work of the historical division was the preparation of a 93-vol. history of World War II. This was designed to cover the organization and functioning of the army ground forces, the army service forces and the army air forces. Following these volumes was to be adequate coverage of all military engagements in every theatre of operations. The series was to be completed with individual treatment of the several services which functioned during World War II; *e.g.*, signal corps, women's army corps (WAC), ordnance department, medical corps, quartermaster corps and others. For this work there was assembled a corps of trained historians and writers drawn from many of the leading colleges and universities of the nation. The first volume of this project, *Organization of Ground Combat Troops,* was released in Oct. 1947. Seven volumes were scheduled for release in 1948.

The merger of army, navy and air forces into the department of national defense made necessary the preparation of many studies and manuals designed to modernize administrative, tactical and instructional procedures. In the tactical field, definite progress was being made in thorough planning for the successful employment of the many new weapons developed during and after World War II. In the personnel field, studies were under preparation to determine the best means of officer procurement and for providing career-service channels of advancement for men joining the armed forces.

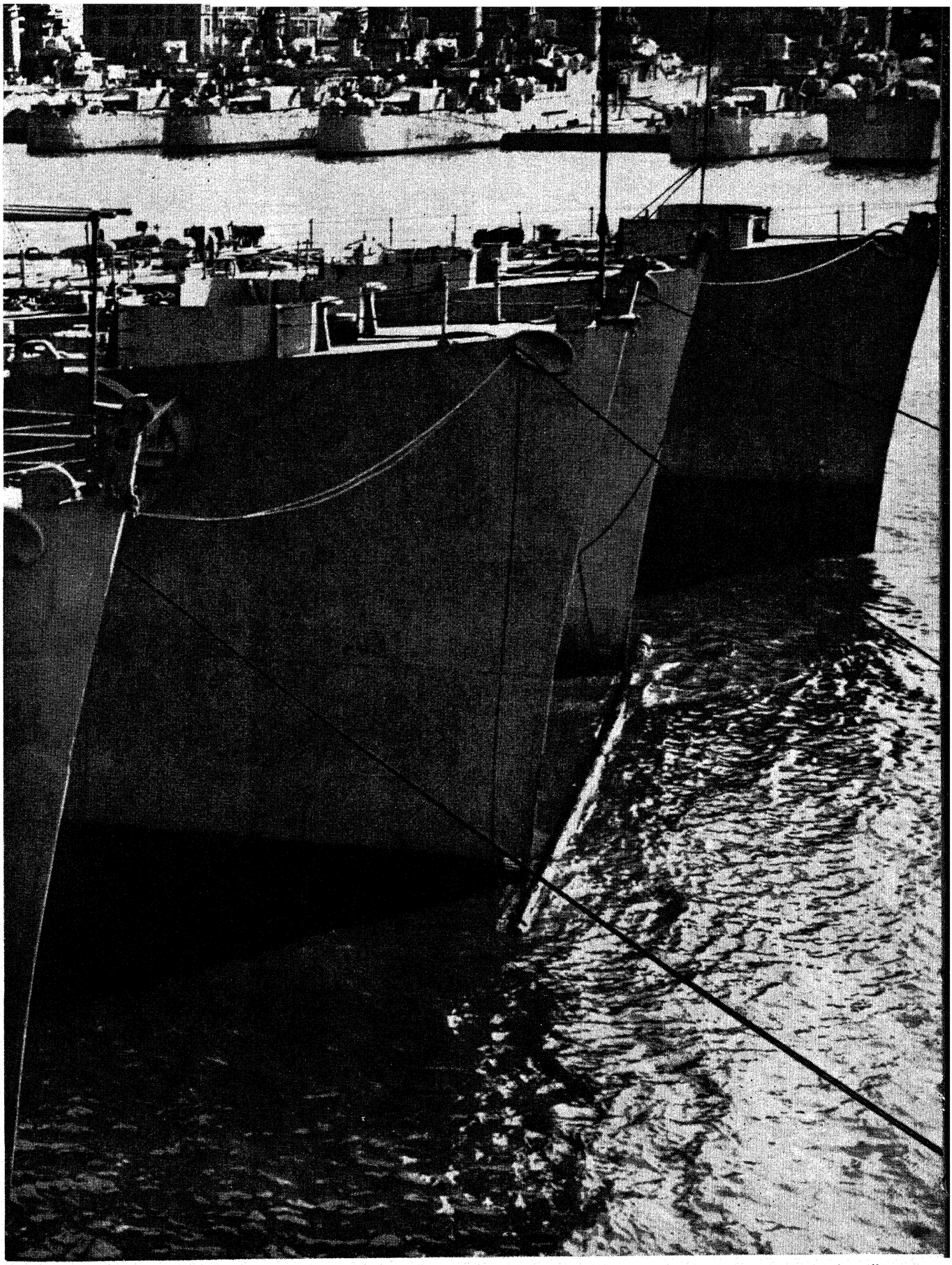
Paper Balloons.—One of Japan's major disappointments in the use of weapons was its failure to get results from its paper balloon terror weapons. Made of gray, white or greenish-blue paper, these balloons, 33 ft. in diameter, were set adrift toward the western coast of the United States. They carried either high-explosive demolition bombs or incendiaries. Many were sighted in western areas of Canada and the United States, one was located as far east as Pennsylvania. Competent aviation authority claimed that their chances of hitting a military target were "one in many millions." From a military standpoint, this terror weapon of the Japanese proved to be a complete dud.

Burials and War Memorials.—During October, there were returned to the United States the bodies of 10,000 World War II casualties. Three thousand of these, men and women who had lost their lives in the Pacific theatre of war, were returned to the United States through San Francisco; the remainder were returned through New York. An estimated 200,000 dead would be so returned at the request of the next-of-kin. Bodies returned to the United States would be interred in military or private cemeteries at the option of the next-of-kin. The first $75 expense of private burials would be defrayed by the government, while national cemetery interment would be entirely at government expense.

It would be impracticable here to attempt a listing of memorials erected to the dead, erected or planned by states or municipalities. The American Battle Monuments commission began the preliminary work necessary to carry out its functions of providing permanent improvements in U.S. overseas cemeteries for the dead of World War II and of erecting suitable memorials to the achievements of U.S. armed forces, as it did after World War I.

Three memorials were the subject of considerable press comment during the year. The heroic representation of U.S. heroes raising the U.S. flag on Mount Surabachi had been pretty well imprinted on the public mind. During the year, this dramatic memorial, commemorating a glorious feat of arms, was removed from its first location on Constitution avenue in Washington, D.C., to a more appropriate setting near the marine barracks at Quantico, Va.

William C. Westcott, U.S. sculptor, made a striking bust of Maj. Thomas D. Howie, Charleston, S.C., the "Major of St. Lô," who died as his troops broke through German defenses of St. Lô in 1944.



THE ATLANTIC RESERVE FLEET, including battleships and cruisers, anchored at the Philadelphia naval base in 1947, where it was prepared for any action on 30 days' notice. Potentially the most powerful U.S. task force, it had a local reserve complement of more than 1,000 men



"SIGNS OF THE TIMES," a 1947 cartoon by Manning of the *Arizona Republic* (Phoenix) based on communist opposition to what soviet spokesmen termed U.S. dollar imperialism

This bust was presented by Staunton Military academy, Va., where Major Howie had formerly coached football, to the city of St. Lô, France, where it was to be placed in the town square which was to be renamed Place Majeur Thomas D. Howie.

Perhaps one of the most poignant of World War II memorials is to be found at Rindge, N.H. It is known as the Cathedral of the Pines.

Sandy Sloane, U.S. bomber pilot, came from Rindge. A loved spot in his childhood memories had been a knoll on his father's farm where stood a splendid growth of giant pines. The hurricane which swept the New England states in 1938 flattened them, but it also opened up a heretofore unseen view of the whole Wachusett divide. When Sandy became a war casualty, his family and his neighbours began the work of love that today stands as the Cathedral of the Pines. Rocks from every state in the union were sent to be incorporated in the altar of the shrine; someone even sent a pebble from the grave of the marquis de La Fayette. Religious services are held at this simple, rustic shrine.

On Sept. 8, 1946, the Cathedral of the Pines was dedicated to the memory of 1st Lieut. Sanderson Sloane; the Altar of the Nation there erected was consecrated as a memorial to the men and women of New Hampshire who gave their lives in World War II; the field stone pulpit there was named as sacred to the men and women of Rindge who served their country in time of battle.

One interesting factor in World War II memorials is that the man on horseback disappeared from the scene. He and his steed were definitely relegated to a prior era. This too happened to the post-World War I cannon and machine-gun memorials. Instead, communities planned and executed World War II memorials of infinite variety—community centres and auditoriums; parks, playgrounds, athletic stadiums and swimming pools; hospitals; bridges; museums; scholarship funds in colleges; libraries; in one locality a bell tower, in another an airport; the planting of living trees such as the double lane of flowering trees bordering the approach avenue to Baxter General hospital in Spokane, Wash., and the 7,000 trees, one for each of its servicemen and women, at Hagerstown, Md., and a Salvation Army centre honouring the organization's dead.

The cold memorial disappeared.

In its place was one of warmth, radiating the humanity of the U.S. people.

Who Won World War II.—The last gun had scarcely ceased firing in World War II when certain sectors of the European press began a systematic crusade to belittle the part played by the United States in that conflict. The following statement by Stalin on Sept. 2, 1946, was somewhat typical: "Today we celebrate the day of victory over imperialist Japan. A year ago the Soviet people and its armed forces victoriously concluded the war against imperialist Japan. Japan signed the act of unconditional surrender. The Soviet people and their armed forces won the victory.

"By so doing, they made an enormous contribution toward world peace."

The campaign continued through 1947. Moscow radio broadcasts, monitored and reprinted in the U.S. press, carried the story along. One such broadcast in December stated that: "The strangulation of democracy, the annihilation of the national sovereignty of the independent European states, the change of these states into American colonies, the imposition on those colonies of a regime like the one in Greece, that is what is concealed behind the trumpeted schemes of American aid to Europe."

(*See* also ATOMIC ENERGY; AVIATION, MILITARY; INTERNATIONAL LAW; MUNITIONS OF WAR; NAVIES OF THE WORLD; PACIFISM; PRISONERS OF WAR; PSYCHIATRY; REFUGEES. *See* also various countries.)

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Wrestling. Little Cornell college of Mount Vernon, Ia., highlighted 1947 wrestling by capturing the National A.A.U. team title with 17 points, 5 more than Oklahoma A. and M. Cornell, with a male enrolment of approximately 370 students, also won the National Intercollegiate mat title.

Henry Wittenberg of the New York city police department topped individual competitors with his sixth National A.A.U. title, a record. He retained his 191-lb. championship with the only fall of the final matches. He was voted the outstanding wrestler of the meet.

National A.A.U. champions were: 115 lb.—Grady Peninger, Oklahoma A. and M.; 121 lb.—Charles Ridenour, New York A.C.; 126 lb.—Louis Kachiroubas, University of Illinois; 135 lb.—Lowell Lange, Cornell college; 145 lb.—James Miller, Ithaca, N.Y., Y.M.C.A.; 155 lb.—Orville Long, Southwestern Tech.; 165 lb.—Douglas Lee, Baltimore, Md., Y.M.C.A.; 175 lb.—Dale Thomas, Cornell college; 191 lb.—Henry Wittenberg, New York, N.Y.; heavyweight—Ray Gunkel, Purdue university. (M. P. W.)

Wyoming. A Rocky mountain state, admitted to the union July 10, 1890, as the 44th state. Leadership in the extension of rights to women gave it the name "Equality state." Land area 97,506 sq.mi.; water area 408 sq.mi.; pop. (1947 est.) 301,546. The 1940 census of 250,742 listed rural population 157,165; urban 93,577; 229,818 native white; 950 Negro; 17,107 foreign born. Capital, Cheyenne (1940: 22,474). Other cities of 10,000 or more: Casper (17,964); Laramie (10,627); Sheridan (10,529).

History.—State officials during 1947, elected in Nov. 1946, were: governor, Lester C. Hunt (D.), second term; secretary of state, A. G. Crane (R.); auditor, Everett T. Copenhaver (R.); treasurer, C. J. Rogers (R.); superintendent of public instruction, Edna B. Stolt (R.). Fred H. Blume was re-elected associate justice of the supreme court. Holdover justices were Ralph Kimball and William A. Riner. By rotation William A. Riner became chief justice. A Republican legislature was elected.

State officers are elected for terms of four years; justices six years; members of the senate four years; members of the house of representatives two years. The legislature meets in January of each odd-numbered year.

Education.—In 1946–47 there were 626 elementary schools with 1,722 teachers and an enrolment of 40,628. There were 123 high schools with 796 teachers and an enrolment of 13,170.

Social Insurance and Assistance, Public Welfare and Related Programs.—Funds allocated in 1947 included $427,509 for dependent children; $2,263,215 for old-age assistance; $329,790 for general welfare; $73,394 for aid to the blind; and $12,500 for child welfare.

There were 3 correctional institutions with inmates (average) and expenditures as follows: penitentiary at Rawlins (290 inmates) $263,000; girls' school at Sheridan (52 inmates) $66,000; and boys' industrial institute at Worland (51 inmates) $92,000.

Communications.—Wyoming had 4,312 mi. of oiled or paved roads in 1947. Highway construction contracts totalling more than $15,000,000 including 500 mi. of road were let in 1946 and 1947. The state railroad mileage in 1947 was 1,912.32.

Banking and Finance.—On June 30, 1947, there were 29 state banks with deposits of $64,984,638 and resources of $69,293,515. There were 26 national banks with deposits of $139,047,100 and resources of $147,825,918. There were ten savings and loan associations, all but one insured by the federal government.

Total state receipts for the fiscal year ending Sept. 30, 1947, were $26,281,644. Total disbursements were $23,988,674. The bonded debt Sept. 30, 1947, was $1,520,000.

Ranching and Agriculture.—Wyoming livestock products sold for approximately $100,000,000 in 1947. Cattle marketing decreased 4%; sheep marketing remained about the same. Other farm products were valued at an estimated $45,000,000. Crop production was above average.

Leading Agricultural Products of Wyoming, 1947 and 1946

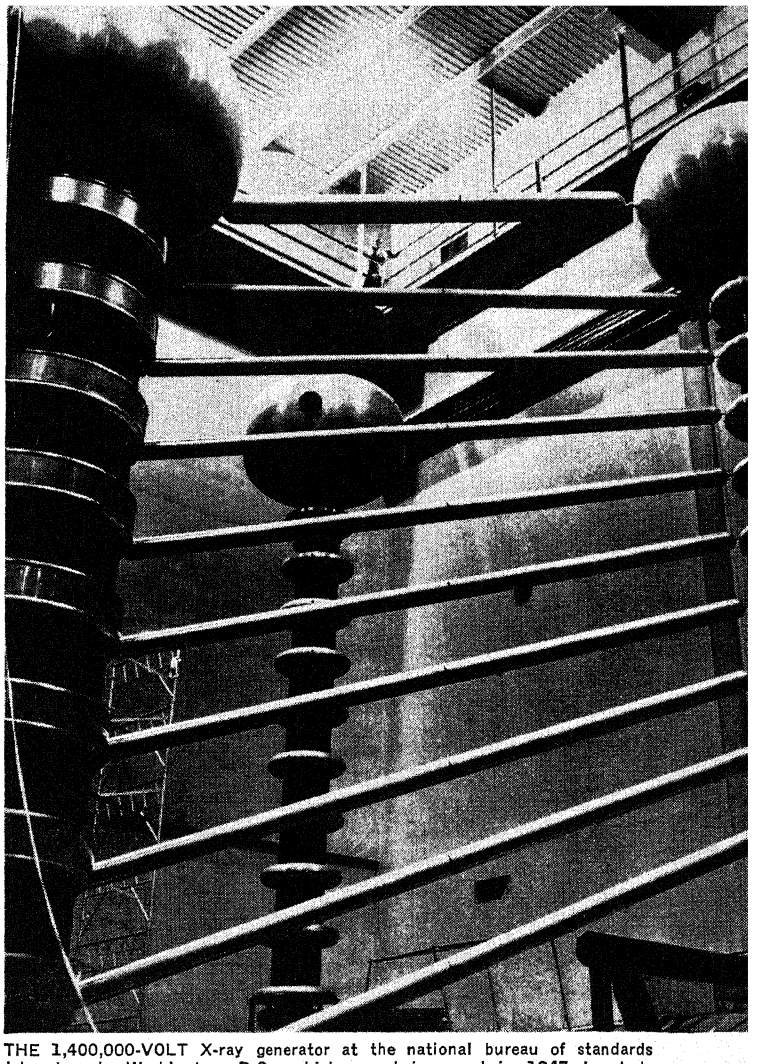
Crop	1947	1946
Corn, bu.	1,235,000	1,122,000
Winter wheat, bu.	4,687,000	4,902,000
Spring wheat, bu.	1,443,000	1,330,000
Oats, bu.	5,049,000	4,666,000
Barley, bu.	4,712,000	4,500,000
All hay, tons	1,325,000	1,243,000
Beans, cwt.	1,444,000	1,305,000
Sugar beets, tons	454,000	421,000
Potatoes, bu.	2,480,000	2,542,000

Manufacturing.—Employment in manufacturing (average, April, May and June 1947) 6,374; 8,485 were employed in mineral and oil production and 16,075 in trade. (L. C. H.)

Mineral Production.—The taxable valuation of Wyoming mineral products in 1947 on 1946 production was as follows: petroleum $40,406,248; bituminous coal $15,128,508; iron $1,761,833; bentonite $317,886; natural gas $1,537,109; other minerals $318,209.

X-Ray and Radiology.

The importance of standardization of X-ray apparatus, in order to ensure efficiency of operation and interchangeability of essential parts produced by different manufacturers, had been recognized for many years. A degree of success in standardization of some accessories had been attained by the American Standards association. A useful publication approved by this association is *American Standard Definitions of Electrical Terms* which contains sections on radiology. Not until 1947 did attempts to standardize apparatus for use in medical radiology meet with practical success. This achievement was the result of work of the department of medicine and surgery of the Veterans' administration of the U.S. government.



THE 1,400,000-VOLT X-ray generator at the national bureau of standards laboratory in Washington, D.C., which was being used in 1947 to study X-radiation hazards and proper safety measures for industrial workers using high-voltage X-ray machines

In April 1946 the chief medical director of the Veterans' administration appointed a director for radiology. The latter in turn appointed a branch director of radiology in each of the 13 branch areas into which the U.S. was divided. Surveys made by the branch directors indicated that most of the X-ray equipment in hospitals of the Veterans' administration was obsolete and should be replaced by modern apparatus. It was apparent that equipment available on the market at that time was designed prior to World War II and should be modernized.

During World War II the U.S. army had procured X-ray equipment under U.S. army specification number 1319-F. This specification was used by the director for radiology of the Veterans' administration as a foundation. Manufacturers of X-ray apparatus and the branch directors of radiology were requested to furnish information and criticism that would be helpful in developing a modern roentgenographic unit and establishment of standard specifications. This resulted in a tentative specification, VA-XM-20, which was submitted for study to the manufacturers and the branch directors for radiology. A meeting of the manufacturers and branch directors was held and each item of the specification was subjected to careful scrutiny and criticism. Following this the specifications were again rewritten and presented for criticism at a second joint meeting of manufacturers and branch directors. A final draft was then adopted as VA-XM-20A and became the official procurement specification of the Veterans' administration. In this the specifications were set forth in much detail but they provided for the following

essential components of a diagnostic roentgenological unit:

1. A 200 milliamperes full-wave rectified transformer arranged for two-tube operation.

2. A control cabinet containing 5 steps of fixed milliamperages; a roentgenographic-fluoroscopic change-over device; starting equipment for a rotating anode tube; and a kilovoltage selector of 2 kv. or less per step.

3. A quick and quiet-acting motor-driven tilt table of rigid construction, providing for 10-in. cross travel of the fluoroscopic tube, the focal spot of which is located 18 in. below the table top. A spot film device capable of taking four exposures on one film is a component part of the table.

4. A floor to ceiling tube stand equipped with a rotating anode tube.

Many requirements of VA-XM-20A represented improvements over apparatus available at the conclusion of World War II and indeed over that generally available when the new specifications became operative early in 1947. Improvements in the tilt table are illustrative of the general modernization of the entire diagnostic roentgenological unit. For example, it is required to have a shockproof fluoroscopic tube; the greater lateral excursion of the fluoroscopic tube enables the radiologist to cover the entire chest or abdomen of the patient without movement of the latter even though the illuminated screen area is small; the fluoroscopic image is clearer and definition sharper than on the old tables because of the 18-in. distance from focal spot to table top; the increased lateral excursion and target-table top distance result in reduced radiation for both patient and fluoroscopist.

The new specifications are important not only because of the improvements which they embody but acceptance of them by all large manufacturers of X-ray apparatus would lead to standardization and consequent elimination of waste and inefficiency.

Equipment of each manufacturer was being subjected to tests by the national bureau of standards to ensure compliance with VA-XM-20A. The data collected from the tests were to be used to perfect the specifications to the end that a federal specification might be published and used by all government agencies for procurement of roentgenological equipment.

Since the government is the largest single purchaser of X-ray equipment it is apparent that government specifications can determine what manufacturers produce. The government, properly advised by civilian radiologists and physicists, would thus provide the best type of equipment for its agencies and assure its availability for civilian hospitals and radiologists throughout the nation.

There were other developments in radiology during 1947 which are worthy of note.

Frank Windholz reported newly recognized roentgenological signs of retroperitoneal lipoma.

There were several reports by independent workers on venous catheterization of the heart. The method is of value as a diagnostic aid in congenital heart disease and in the study of the haemodynamics and the physiology of the cardiovascular system. The technique used by Sosman is as follows: A size 9 French radiopaque catheter, 100–125 cm. in length with opening at the tip, is threaded into the basilic vein and advanced under fluoroscopic control. Fluoroscopy is done on a horizontal table equipped with a spot-film device. The catheter is passed upward into the axillary vein and then into the superior vena cava and right auricle. From there it may be passed either into the inferior vena cava and the renal or hepatic vein or through the tricuspid valve into the right ventricle. From the right ventricle it may be introduced into the pulmonary artery and its branches. Saline perfusion prevents clotting in the catheter.

A book published during 1947 describes the results of treatment of the macrocytic anaemias by the remarkable new synthetic drug, folic acid. Sprue is one of the diseases in which beneficial and curative results had been obtained by administration of this drug. The results in this disease were well demonstrated by roentgenological studies of the small intestine in patients with tropical sprue which was accompanied by macrocytic hyperchromic anaemia. The roentgenographic manifestations of tropical sprue are due to mucosal oedema resulting in segmentation of the small intestine, with alternating spasm, dilatation and hypomotility. The restoration of the small intestine to a normal roentgenographic appearance in patients with tropical sprue under folic acid treatment was striking and conclusive.

Reports from numerous therapists during 1947 indicate that an agent for the effective control of irradiation sickness had at last been found. Sometimes the sickness produced by irradiation treatment is so severe as to necessitate discontinuance of the treatment. The agent used for alleviation of this distressing condition was vitamin B_6 (pyridoxine). It is not only an effective treatment for irradiation sickness but there is evidence that it has at least one additional beneficial action, namely, that it increases the leucocyte count and thus offsets the effect of the irradiation which tends to produce leucopenia. (*See* CANCER; PHOTOGRAPHY; TUBERCULOSIS.)

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Yachting. The 1947 yachting season was marked by a continued growth of popular interest and participation in sailing, particularly in boats of the smaller sizes. Among the outstanding events of international interest were the Los Angeles–Honolulu and the Fastnet races, in the deep-water branch of the sport, and the six-metre international events for the Seawanhaka and Scandinavian gold cups.

In the Transpacific race the 70-ft. schooner "Dolphin II," owned by Frank Morgan, U.S. motion picture and radio star, was the winner on corrected time in a fleet of 34 yachts. Class trophies went to W. L. Stewart, Jr.'s "Chubasco" and J. A. Johnson's "Suomi."

In the first postwar revival of the Fastnet, British deep-water classic, the winner among 25 starters was a much-discussed new small cutter, "Myth of Malham," owned by Capt. John H. Illingsworth, R.N., a yacht of many innovations in design and equipment. David Z. Bailey's sloop "Alar" won the Newport–Annapolis race, chief long-distance event on the U.S. Atlantic coast.

On the Great Lakes top honours in the Chicago–Mackinac race went to L. L. Karas' "Cara Mia" and J. B. Ford, Jr.'s "Royono III," while Port Huron–Mackinac winners were O. A. Johnson's "Spookie" and Robert Schleman's "Nyala."

Two U.S. six-metre sloops, "Djinn," owned by a Seawanhaka Corinthian Yacht club syndicate, and George Nichols' "Goose," both built in 1938, were the international winners in this class. "Djinn," sailed by Robert B. Meyer in a series on the Clyde in Scotland, wrested the Seawanhaka cup from the Royal Northern Y.C.'s defender "Johan," sailed by J. Howden Hume, which throughout the season proved the top British yacht in this class. In September six yachts, representing Finland, Great Britain, Italy, Norway, Sweden and the United States met off Oyster Bay, L.I., N.Y., in a series for the Scandinavian Gold cup. Although three of them were new postwar boats—Finland's "Violet," England's "Marletta" and Sweden's "Maybe VI"—"Goose," with Briggs S. Cunningham at its helm, had no trouble



SLOOPS preparing for the first of five ocean course races starting from Los Angeles harbour during the 1947 international championship series. Durwood Knowles of the Bahamas took the title on Sept. 1

in successfully defending the cup in three straight races in behalf of the Seawanhaka Corinthian Y.C.

In the number of boats participating, the fleets at the race week regattas of both Marblehead, Mass., and Larchmont, N.Y., leading U.S. east coast yachting ports, hit new all-time high marks during the season; 522 yachts took part in a single day's racing at Marblehead and 447 at Larchmont.

In spite of a prohibition on the use of timber for yacht building in Great Britain, some shortages of timber and other materials in the European and South American yachting countries, and inflated building costs in North America, a great number of new boats were built, some large yachts but the great majority small craft.

A home-and-home series between the International one-design classes of Bermuda and Long Island sound resulted in a victory for each team in its home waters.

Winners in the international championships series of some of the better-known classes during 1947 were: Star class, "Gem II," Durwood Knowles of Nassau, Bahamas; Snipe class (race held in Switzerland), T. A. Wells, U.S.; Comet class, "Barfly," Owen Merrill, Edgewater Park, N.J.; One-Ten class, Roger Willcox, Cambridge, Mass.

Among the winners of famous trophies was Joseph V. Santry's schooner "Pleione," winner of the King's cup; the yawl "Cotton Blossom III," under charter to W. Mahlon Dickerson, Astor cup; Lincoln Davis, Jr.'s 210 class sloop "Amourette," Manhasset cup; DeCoursey Fales's schooner "Nina," Vineyard trophy; the Buzzards' junior crew (Pocasset, Mass.), Sears cup (U.S. national junior championship); the American Y.C. crew (Rye, N.Y.), Mrs. C. F. Adams trophy (U.S. national women's championship); Indian Harbor (Conn.) Y.C., the Ocean-Great Lakes Challenge cup. (H. L. Sr.)

Yale University. With student and faculty populations reaching a record peak in numbers, 1947 marked the final return of Yale to a peacetime basis. The Yale community of students, faculty and employees amounted to 12,000 persons. Academic attainments also broke records.

Postwar reorganization of certain academic disciplines at the university reached fulfilment in establishment of the divisions of the humanities, the sciences, the arts, engineering and medical affairs under nationally prominent directors.

Alumni participation in Yale affairs was strengthened by creation of a new university council which provides for alumni assistance in examining the contributions of Yale to American life and in making recommendations for strengthening various areas of research and teaching.

Most dramatic event of the year was the formal celebration of the centennial of the Sheffield Scientific school in the fall, marked by awards of honorary degrees to distinguished Yale men in science and presentation of original reports on research by famous scientists. This celebration noted Yale's re-emphasis of its long-standing premise that there should be no artificial barriers separating science and the humanities.

The program of the liberal arts student is so designed that he gains a knowledge of nature through the appropriate sciences in addition to his concentrated work in the humanities. Simultaneously, the undergraduate whose interests are centred in the sciences is expected to have a knowledge of the humanities so his college education will be well rounded.

Scientific research advanced on all fronts in 1947. In botany, genetic studies showed that bacteria can possess sex characteristics. One of the most important U.S. science reports came from the department of psychology where studies indicated that the sense of smell is dependent on radiation and not on chemistry. Yale's cancer program was expanded with creation of a special chair to study the applications of existing research knowledge to treatment of patients. Funds from the navy were used to fi-

nance research in astronomy, physics and engineering. (For statistics of endowment, enrolment, faculty, library volumes, etc., *see* UNIVERSITIES AND COLLEGES.) (C. A. L.)

Yeast. Brewers' type yeast was shown in 1947 to have protein of higher biological value than torula yeast. A method was published for treating inactive dry yeast so that large amounts may be used in bread. On the basis of urinary excretion studies, the vitamins of active dry yeast were shown to be somewhat more available to human beings than those of compressed yeast. The rickets-producing effect of animal rations high in yeast was explained.

Sparging with carbon dioxide was shown to double fermentative ability of yeast. The mechanism of fermentation was explored by observations of the fact that yeast does not ferment the sugar *d*-fructopyranose. Extensive information on fermentation characteristics and bios requirements of brewers' yeasts was published.

Hexosediphosphoric acid was identified as a normal intermediate substance in the carbohydrate metabolism of yeasts, and existing theories of carbohydrate metabolism in yeast were confirmed through studies of acetate assimilation. The nature of the combined forms of pyridoxine in yeast was investigated. The structure of yeast ribonucleic acid was studied by observing action of the enzyme ribonucleinase.

White sugar was shown to contain substances capable of promoting yeast growth. Research on thermal death rates of yeast cells was published. Melibiose broth fermentation and bios factor response were recommended for use in classifying yeasts. The ability to produce extracellular starch was found to be limited to capsulated nonfermenting asporogenous yeasts. A nonrespiratory variant of the common yeast *Saccharomyces cerevisiae* was produced by exposure to ethylene oxide. Yeast autolyzate was used as a medium for growing the organism that causes a form of influenza. Fermentation by yeast was used to remove sugar from raw egg white before drying in order to improve keeping quality of the dried product.

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Yemen: *see* ARABIA.

Young Men's Christian Association.

The Young Men's Christian association is a world-wide fellowship seeking to improve the spiritual, social, recreational and physical life of young people, particularly young men and boys.

In the United States more than 1,500 students from Y.M.C.A.s, Young Womens Christian associations and Student Christian associations met at the University of Illinois during the 1947 Christmas holidays as the National Student assembly. The Y.M.C.A.s and Y.W.C.A.s co-operated in bringing together approximately 1,100 boys and girls in the first national high school youth conference. The 75th anniversary of Y.M.C.A. work with railroad men was celebrated at an international transportation conference in Cleveland, O.

North American Y.M.C.A.s reached the halfway point in their campaigns to raise an $8,650,000 World Youth fund for restoration of buildings and equipment and strengthening of Y.M.C.A.s in war-devastated countries of Europe and Asia. With the termination of U.S.O. at the end of 1947 the government and public looked to the Y.M.C.A. to take over a major part of the spiritual and recreational service to the armed forces. To do this adequately would mean continuation of the 23 army and navy Y.M.C.A.s which served the armed forces before World War II, large-scale service to men in uniform by civilian Y.M.C.A.s in the United States and new organization at strategic points overseas. The National Council of Y.M.C.A.s in June challenged local associations to find support in their communities for this national service.

The 1,540 Y.M.C.A.s in the United States continued to provide dormitory and food service; spiritual, recreational, social, educational and health programs; personal and vocational counselling for their 1,665,722 members and others. About 224,355 high school boys were enrolled in 7,766 Hi-Y clubs in schools across the country. An outstanding feature of Y.M.C.A. work with youth is the Youth and Government program, an effort to teach democracy by actual practice. Model legislatures met in 11 state capitals. Nine other states made final plans to start the program in 1948.

Expenditures by Y.M.C.A.s in the United States during the year totalled $84,685,300 while capital investments totalled $231,323,800. Officers were Kirtley F. Mather, president, and Eugene E. Barnett, general secretary. Headquarters of the National Council of the Y.M.C.A.s were at 347 Madison avenue, New York 17, N.Y. (O. E. P.)

Great Britain.—The 470 associations and Red Triangle clubs in Britain had 83,000 members in 1947, including more than 20,000 former servicemen. More than 300 Y.M.C.A. centres in Britain and 100 overseas served the men and women of the forces, providing not only facilities for rest and refreshment, but also a vast variety of cultural, social and religious activities. A hundred mobile canteens, music and entertainment vans, travelling libraries and cinema vans served isolated posts in 15 countries. A new development in Britain was the work done among thousands of European volunteer workers. Other community services continued.

Civilian Y.M.C.A. members under 30 contributed one-fifth of the British delegation to the World Conference of Christian Youth at Oslo, Norway, of which the Y.M.C.A. was a sponsor. At the plenary meeting of the World's Committee of the Y.M.C.A. at Edinburgh, Scotland, 250 delegates from 46 countries met to plan the reconstruction and extension of Y.M.C.A. work in needy and strategic areas. This meeting was followed by an international Y.M.C.A. conference in Sweden. The services among prisoners of war and displaced persons were to continue; new developments, especially in Africa, were to be initiated. (R. W. J. K.)

Young Womens Christian Association.

To aid women in 30 war-affected countries, the National Board of the Young Womens Christian Associations of the United States of America held a nation-wide Round-the-World Y.W.C.A. Reconstruction Fund campaign for $2,100,000 during 1947. The drive opened in January, and as early as May the Y.W.C.A. had begun sending its most expert fieldworkers abroad to train new young women leaders, make possible rest leaves for exhausted prewar personnel, assist in repair of bombed-out centres and meet emergency needs in other areas. In addition, students from other countries were brought to the United States for study and observation.

Another innovation during the year was the first joint interracial Y.W.C.A.-Y.M.C.A. youth conference held at Grinnell college, Grinnell, Ia., for 1,300 teen-agers and coeds. In a further effort to prepare young women for the responsibilities of the postwar world, the Y.W.C.A. held 20 Leadership Training institutes for volunteers and professional staff at focal points throughout the U.S. Its 435 community associations partici-

pated in National Y.W.C.A. day on Oct. 14 and the entire constituency of 3,000,000 observed World Fellowship week from Nov. 9 to 15 with appropriate services. The National board sent ten delegates to the conference of the World's Council of the Y.W.C.A. held in Hangchow, China, in October.

In 1947 Mrs. Arthur Forrest Anderson was president, and Mrs. Harrison S. Elliott, general secretary of the National Board of the Y.W.C.A., which had headquarters at 600 Lexington avenue, New York 22, N.Y. Continuing publications were: *The Woman's Press; The Bookshelf.* (M. E. S.)

Great Britain.—During 1947 the opening of more hostels for young workers and students was the most urgent concern of the Y.W.C.A. in Great Britain; among several opened in London, one provided accommodation for 350 workers. Centres were still being run for women serving overseas, and there were Y.W.C.A. representatives in the international teams working in displaced persons' camps.

Membership had increased by 25% during World War II, and more than 20,000 service women who had used Y.W.C.A. service centres in Britain and overseas wished to keep in touch with the association.

Delegates attended the Oslo World Conference of Christian Youth, and members in other countries shared their holiday camps with British members. Students of many nationalities came to train at the Y.W.C.A. college at Hampstead, London, while British students who had completed the two-year course were working in Lagos, Jerusalem and China.

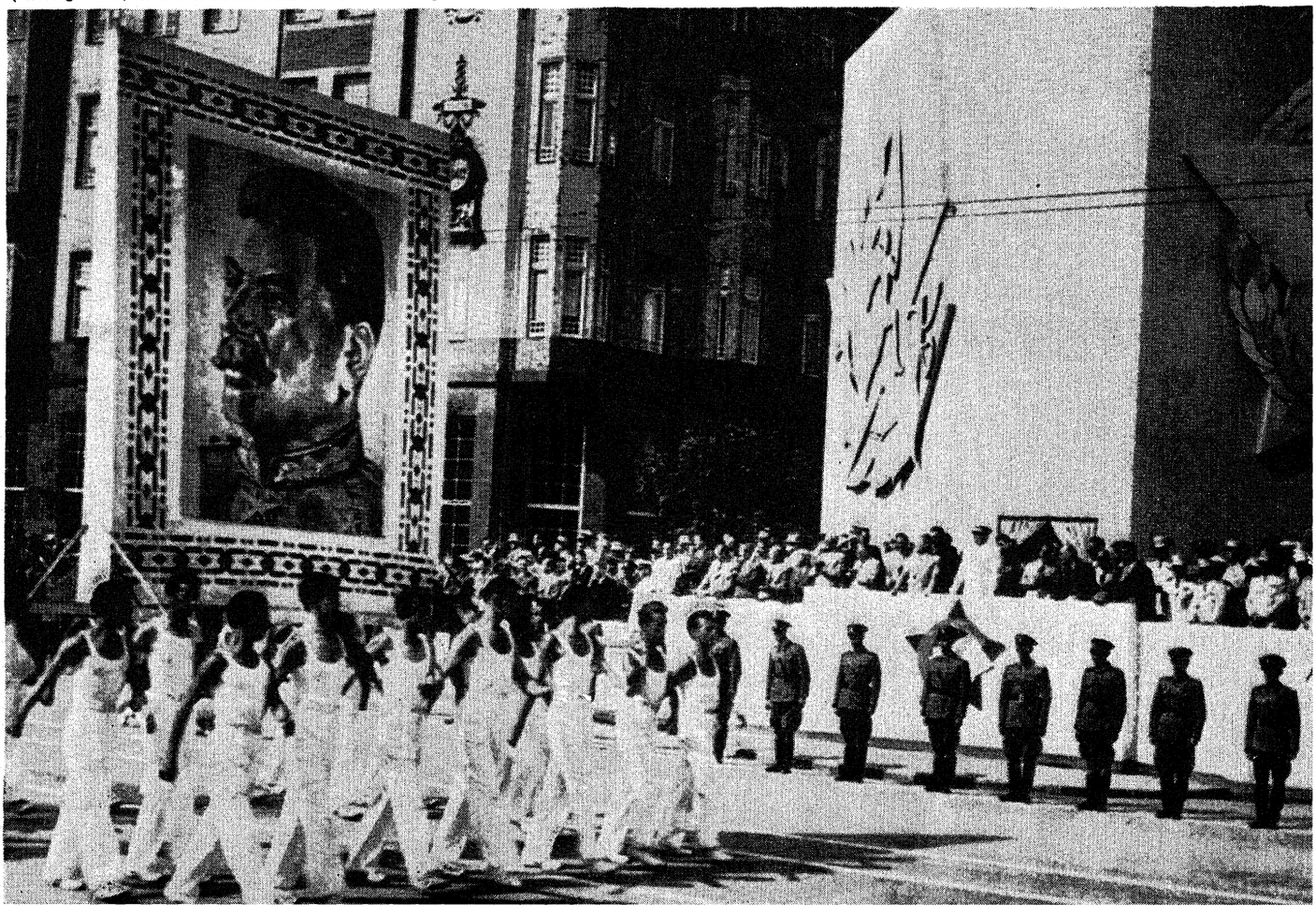
A conference attended by members from 14 countries was held at Windsor, and in October representatives attended the first postwar conference of the World's Council of the Y.W.C.A. in China. (M. KR.)

Yugoslavia. A federal republic of southeastern Europe, bounded on the north by Austria, on the northeast by Hungary and Rumania, on the east by Bulgaria, on the south by Greece, and on the west by Albania, the Adriatic sea and Italy. Area: approximately 96,200 sq.mi. (including newly acquired territory of Istria and the Julian march); pop. (est. 1947): 15,713,000. Federal units (pop. est. 1947): Serbia 6,566,000; Croatia 3,564,000; Slovenia 1,178,000; Bosnia and Hercegovina 2,414,000; Macedonia 1,120,000; Montenegro 371,000; (Istria and the Julian march 500,000). Chief towns (pop. census 1931): Belgrade (cap. 266,849); Zagreb (185,581); Sarajevo (78,173); Subotica (100,058); Ljubljana (79,056). Languages: Serbo-Croat, Slovene and Macedonian are the official languages; German, Hungarian and Albanian are also spoken by the minorities. Religion: 1931 census, Greek Orthodox 48.7%; Roman Catholics 37.5%; Moslem 11.2%. President of the republic: Dr. Ivan Ribar; prime minister, minister of national defense and commander in chief: Marshal Josip Brozovich or Broz (Tito) (*q.v.*).

History.—A five year plan was accepted by the Yugoslav parliament in April 1947. It aimed at the improvement of agriculture and a very large expansion of industry: by 1951 production of coal, coke and iron ore was to be double that of 1939; a strong domestic heavy industry was regarded as an essential basis for the general development of industry and for the raising of the people's standard of living. Output of electricity was to be four times that of 1939. The country's need of agricultural machinery was to be met by home production; artificial fertilizers were to be produced at five times the prewar level, industrial crops and fodder were to be encouraged, and large schemes of irrigation and drainage were to be undertaken in the coastal highlands and the big river valleys.

The plan was directed toward generally accepted ends, for the

CELEBRATION IN BELGRADE, Yugoslavia, on June 22, 1947, commemorating the sixth anniversary of Russia's entrance into World War II. Marshall Tito (wearing white) is shown at the centre of the reviewing stand



over-population and under-employment of the Yugoslav villages could only be relieved by industrialization, and vast public works were necessary before the country would be able even to make good the ravages of war and return to the far from prosperous level of 1939. The source of equipment for these ambitious projects, however, was a primary problem. Trade with Sweden and with Switzerland had brought some valuable machinery, and more was expected from those countries and from Czechoslovakia; but the new regime had made clear its hostility to western financial aid, by declining the invitation to the European Economic conference in July, and even ordinary trade with western countries was made difficult by the strained state of political relations. Trade negotiations had been carried on for some time with Britain, but results had so far been precluded, partly by failure to agree on compensation of expropriated British firms in Yugoslavia and partly by the inability of the British government to deal directly with Belgrade on behalf of individual British exporters.

Throughout the year there were a series of trials for espionage, sabotage and conspiracy. Some were concerned with armed bands of Slovene "White Guards," Croatian "Crusaders" and Serbian "Chetniks." These did undoubtedly exist, although their numbers seemed small and their activities not very dangerous. Other trials seemed intended simply to discourage Yugoslav subjects from having any contact with British or U.S. citizens. Heavy terms of imprisonment, and in some cases death sentences, were given for passing "state secrets" or "slanderous information" to "foreigners," but the evidence published at the trials seemed to show that the former were neither secrets nor dangerous to the state, while the latter were not more than general criticisms of the regime. The most eminent persons condemned in the year's trials were Milos Trifunovitch, former leader of the Serbian Radical party (eight years' imprisonment, January); Professor Boris Furlan, a Slovene scholar of advanced democratic views (death sentence, commuted to life imprisonment, August), and Dragoljub Yovanovitch, Serb left-wing Peasant party leader (nine years' imprisonment, October). By a decree of March 9, former king Peter II and the royal family were deprived of Yugoslav nationality.

Treaties of friendship, co-operation and mutual aid were made with Bulgaria on Nov. 29, with Hungary on Dec. 8 and with Rumania on Dec. 19. Agitation by Communist leaders of the Yugoslav Macedonians against alleged Greek oppression of Macedonian Slavs across the frontier continued and the Yugoslav chargé d'affaires in Athens was withdrawn on Aug. 15. The claims of Yugoslav propaganda with regard to Trieste and Carinthia were, as before, combined with bitter attacks on Britain and the United States. Relations with the authorities of the British zone in Austria were not improved by the existence in the zone of political refugees from Yugoslavia; a special commission was formed by the British government to investigate such cases, and during the year a certain number of Yugoslav "war criminals" were returned to Yugoslavia. There were numerous cases of arrests by the Yugoslav frontier troops of British or U.S. soldiers who had inadvertently strayed across the Yugoslav frontier. In some cases the arrests appeared to have taken place outside Yugoslav territory. The soldiers were sometimes held for weeks or months, and badly treated.

Diplomatic relations with Chile were broken off in October after the expulsion of Yugoslav diplomats there by the Chilean government, which claimed in an official communiqué of Oct. 8 that Yugoslavia was creating in South America "a vast Communist espionage and sabotage organization." (H. S.-W.)

Education.—(1946–47) Elementary schools 10,747, scholars 1,500,000; grammar schools 149, scholars 257,937; secondary schools 260, scholars 17,523; secondary technical schools 169, scholars 30,729; faculties at universities and technical colleges 30, students 38,192.

Finance.—General state budget (1947): revenue and expenditure amount to 85,854,000,000 dinars. The unit of currency is the dinar; in 1940, 1 dinar = 2.25 U.S. cents.

Communications.—Railways (1947) 6,717 mi.; main roads (1947) 20,646 mi.; radio stations 13; receiving sets licensed 210,000.

Agriculture.—Wheat (1946) 1,986,000 short tons; under the five-year plan (1946) acreages planted were expected to reach the following figures in 1951: wheat 5,680,000; maize 5,680,000; industrial crops 12,350,000; fruit trees 17,964,000.

Mineral Production.—No figures for current production were available in 1947; according to the five-year plan (1946), output in 1951 would attain the following figures (in short tons): coal 18,180,000; crude oil 496,000; iron ore 1,653,000; pig iron 606,000; copper 44,000; lead 71,000.

Yukon Territory.

Yukon, the most northwesterly political division of Canada, was created in 1898; it is bounded by Alaska, British Columbia, the Northwest Territories and the Arctic ocean. Area, 207,076 sq.mi., of which 1,730 are fresh water; pop. (1941) 4,914, (1947 est.) 8,000. Seat of government: Dawson City. The Yukon is administered by a three-member territorial legislative council elected triennially, and a controller, and is represented federally by one member of parliament.

History.—The biggest single economic event of the year 1947 was the sale in August by the U.S. Foreign Liquidation commission of the White Horse refinery to Imperial Oil Ltd. for $1,000,000. From April 1944 to March 1945, the refinery had processed 976,764 bbl. of crude oil brought to it by the Canol pipe line from wells 600 mi. away at Norman Wells, N.W.T. It had cost $6,000,000. Imperial Oil dismantled the refinery and moved it by special trucks over the Alaska highway to Edmonton for reassembly and use in cracking crude oil from the new Leduc, Alberta, fields.

Heavy traffic continued throughout the year on the Alaska highway, kept in good shape by Canadian army engineers. Two bus lines operated from Dawson Creek to Fairbanks, Alaska, via White Horse. Gas stations and stopping places for passengers were established at a few points along the highway.

The coldest Canadian official thermometer reading in history came on Feb. 6, at Fort Selkirk in the Yukon, when the mercury dropped to 86° below zero. This was also the coldest North American reading on record. Barking dogs could be heard 4 mi., an aeroplane engine motor 20 mi. Human breath left vapour trails 100 yd. long. Thousands of rabbits died, adversely affecting fox trapping.

Mining.—Placer gold, running up to $100 a pan, was discovered on the banks of the Firth river, 400 mi. north of Dawson City. A new silver-lead mine was opened at Keno Hill, in the famous Mayo district. Production averaged 100 tons of ore daily. An agreement was entered into between the dominion government and the Yukon Coal company for the development and operation of bituminous coal deposits at Tantalus Butte, near Carmacks, on the Lewes river about 100 air miles northwest of White Horse. The coal was for mining, steamship navigation and domestic use.

Production.—The gross value of production in 1945 was $5,152,544 (value of Northwest Territories included). The net value was $4,656,166, which was .07% of Canada's 1945 production. The per capita production was $273.89. (*See* also CANADA.) (C. CY.)

Zanzibar and Pemba: *see* BRITISH EAST AFRICA.

Zinc.

The data on world production of zinc, shown in Table I was revised by the addition of figures reported during 1947 giving the best picture of world output that had been available from before the war.

Of the various shifts in output resulting from World War II, those in Europe are, of course, the most striking, especially those in Germany, Belgium and Poland. The 1946 output of these countries was less than a third of the tonnage reported in 1939.

United States.—The salient features of the zinc industry in the United States are shown in Table II.

There was an improvement in mine production in the first half of 1947, with a slump in the third quarter. The total for the nine months was 478,563 tons. Production of slab zinc followed

Table I.—*World Production of Zinc, 1939–46*

(In thousands of short tons)

	1939	1941	1942	1943	1944	1945	1946
Australia	79.8	87.0	83.2	84.8	88.2	83.8	86.6
Belgium	205.1	42.6	31.7	30.6	9.6	12.9	95.0
Canada	175.6	213.6	215.8	206.5	168.5	183.3	185.7
France	67.3	28.6	25.2	22.6	9.7	9.0	33.5
Germany	254.6	350.1	346.2	343.9	286.2	?	31.3
Great Britain	58.3	75.7	79.8	77.5	80.7	69.5	73.1
Italy	39.0	42.8	36.9	17.0	—	1.7	17.2
Japan	56.5	68.5	61.4	67.1	69.0	20.4	?
Mexico	39.0	42.6	57.0	60.0	54.3	54.0	46.3
Netherlands	22.4	4.1	5.7	5.0	2.3	—	2.2
Northern Rhodesia	14.2	15.2	14.4	15.0	16.2	17.1	19.2
Norway	50.6	7.1	8.5	16.9	13.0	10.2	34.2
Poland	120.0	?	?	?	?	40.1	62.4
Spain	14.8	21.1	21.1	21.2	19.9	19.1	19.4
U.S.S.R.	93.7	?	?	?	?	?	?
United States	507.2	822.0	891.9	942.3	869.3	764.6	772.4
Total	1,820	1,950	2,000	2,000	1,800	1,500	1,580

Table II.—*Data of Zinc Industry in the U.S., 1939–46*

(In thousands of short tons)

	1939	1941	1942	1943	1944	1945	1946
Mine production	583.8	749.1	768.0	744.2	718.6	614.4	574.8
Smelter production	507.2	822.0	891.9	942.3	869.3	764.6	772.4
Domestic ores	491.1	652.6	630.0	594.2	574.5	467.1	459.2
Foreign ores	16.2	169.4	261.9	348.1	294.8	297.5	269.1
Imports	67.0	323.8	404.8	593.2	486.3	478.8	376.8
In ore	36.1	289.2	368.4	537.0	422.7	381.7	272.1
Metal	30.9	34.6	36.4	56.2	63.6	97.1	104.7
Secondary recovery	189.6	284.0	330.5	368.5	345.5	360.4	300.7
Consumption	626.0	827.4	728.2	816.8	888.6	852.3	801.2
Stocks	?	92.0	155.6	261.0	298.5	328.6	269.2
Producers'	86.3	25.1	84.4	170.6	233.7	256.2	176.2
Consumers'	?	66.9	71.2	90.4	64.8	72.4	93.0

the same pattern, with a total of 635,604 tons in the nine months.

Canada.—Primary zinc production dropped from 258,607 short tons in 1945 to 235,310 tons in 1946—185,683 tons of metal and 49,627 tons of recoverable zinc in ores exported. This decline extended into 1947, with a total of 207,390 tons for the year.

Mexico.—Mine production increased from 153,200 short tons in 1946 to 141,200 tons in the first seven months of 1947, almost equal to the peak war rate of 240,750 tons in 1944.

Australia.—Production showed little change in 1947, with 58,270 short tons in the first nine months.

Belgium.—The monthly production rate rose from 4,100 short tons in Jan. 1946 to 12,450 tons in Aug. 1947, and the 1947 total through August was 88,460 tons.

Poland.—Postwar recovery was not so far advanced as in Belgium. Metal output through Sept. 1947 totalled 58,250 short tons, against 128,955 tons in 1939. (G. A. Ro.)

Zirconium. The production of zirconium ores in the United States is not reported, but in 1946 the total shipments of domestic and imported concentrates to consumers exceeded imports by about 7,000 short tons, while at the same time stocks declined by 1,300 tons. The imports include baddeleyite from Brazil, and zircon concentrates and mixed zircon-rutile-ilmenite concentrates, mostly from Australia.

The following table shows such data as were available, in short tons:

Zircon	1941	1942	1943	1944	1945	1946
Imports	15,652	11,341	11,582	11,317	17,144	11,152
Shipments	?	5,766	8,954	14,484	15,988	20,555
Stocks						
Industry	6,549	6,705	8,197	4,867	6,313	5,059
Government	?	4,500	5,040	4,840	2,581	2,251
Baddeleyite						
Imports	5,002	15,283	8,891	2,332	792	2,432
Stocks, government	?	4,156	14,599	15,848	15,829	?

About two-thirds of the zircon consumption goes into ceramics and the other third is divided about equally among refractories and metals and alloys. Baddeleyite goes mainly to refractories and alloys. (G. A. Ro.)

Zoology. The Bikini Scientific Resurvey (Press Summary No. 27, Sept. 11, 1947) conducted by the U.S. navy and co-operating civilian scientists showed that one year after



WATER-OPOSSUM (yapock), a rare animal added to the Bronx zoo in New York city during 1947. The animal's 14-in. tail was 2 in. longer than its body

the explosion of two atomic bombs, fish, clams, lobsters, sea urchins, and other inhabitants of the lagoon continued to be slightly radioactive. Contrary to expectation, there were no notable effects on the reproductive cycles of the marine organisms exposed to radiation, nor was there any evidence of mutation in the thousands of plants and animals examined.

The American Society of Zoologists met jointly with the American Association for the Advancement of Science in Chicago, Ill., Dec. 29–31, 1947. A total of 286 papers were scheduled at this meeting compared with 197 in 1946, an increase of 45%.

Research and Publication.—From the welter of publications of zoological interest it is possible to consider only a small sample here.

Embryology and Anatomy.—Albert Tyler's review of developmental physiology reflects the shift of embryological interest away from morphological problems and toward an increasing preoccupation with the chemistry and physics of the embryo: fertilizin (a substance essential to fertilization in many marine invertebrates) and the fertilization reaction, immunological relations of developing organs and enzyme systems in development. Much work was devoted to the elucidation of the role of a newly-discovered enzyme, hyaluronidase, in fertilization. This enzyme, found in the testes and sperm of mammals, disperses the follicle cells that surround the freshly-ovulated egg, thus making the entry of the fertilizing spermatozoan possible. Lord Rothschild,

in a review of the problems of fertilization, suggested that the reason so large a number of spermatozoa are necessary for successful fertilization in mammals is that smaller numbers would fail to provide enough of the enzyme to disperse the coat of follicle cells.

Jane M. Oppenheimer summarized the results of her own and others' mapping of prospective embryonic regions in the eggs of bony fish and the transplantation experiments performed in this group. The basic results were similar to those found in amphibians.

C. H. Danforth, in an important contribution, showed how it is possible for correlated anatomical changes to occur as a consequence of a single gene mutation. He found that a single dominant gene is responsible for various grades of polydactyly (extra digits) in cats. The primary effect of the gene appears to be an increase in the amount of tissue in the embryonic limb, resulting in a change in the size or number of the digits; associated with this change, possibly induced by it, is the development of extra cartilages; these in turn attract extra tendon terminals; this leads to splitting of the muscles to which they lead; and finally nerves, blood vessels and structures of the skin adjust to the altered relations. The new limb with five or six toes is a completely harmonious structure.

Charles Singer and C. Rabin published a definitive study of the preliminary series of six illustrations issued by Andreas Vesalius in 1538, seven years before the publication of his great anatomy. This is an important document for understanding the transition from the anatomy of Galen to that of the renaissance and modern periods.

Radiobiology.—Many investigators turned their attention to the possibilities of using radioactive substances, which in 1947 were available in quantity, for physiological studies. M. D. Kamen considered radioactive tracers in biology in a valuable handbook. Miriam P. Finkel studied the transfer of plutonium and radioactive strontium across the placenta following their injection into pregnant mice. Young mice treated *in utero* with strontium and before weaning show retarded growth, defective bone formation and bone cancer (osteogenic sarcoma). Plutonium-treated young showed no immediate pathological changes.

Natural History, Biography and Taxonomy.—Edward A. Steinhaus gathered and integrated information bearing on the interrelationships of insects and micro-organisms (viruses, rickettsiae, bacteria, etc.)—a stupendous undertaking for one man. David Lack, in a book of interest to naturalists and students of speciation, restudied Darwin's finches, a group confined to the Galapagos Islands.

The Pacific World series of handbooks was continued by two volumes: one on the birds of the Philippines by Jean Delacour and Ernst Mayr, the other on the mammals of Asia by G. H. H. Tate. Both maintain the high level of the series and the latter would perhaps be of special interest to occidental naturalists for its accurate description of the ecology, habits and taxonomy of unfamiliar forms, among which might be mentioned moles, shrews, bats in great variety, pangolins, monkeys, gibbons, greater and lesser pandas and the civets and mongooses.

G. H. Parker's autobiography is an account of an active life as teacher, traveller and investigator, and contains much of interest about the intimate history of Harvard's biology department over a 60-year period. (*See* also ENDOCRINOLOGY; ENTOMOLOGY; GENETICS; MARINE BIOLOGY; PALAEONTOLOGY, VERTEBRATE; PHYSIOLOGY.)

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Zoological Parks.—*Australia.*—Laws of the commonwealth prohibiting the importation of all wild ruminants and primates continued in force in 1947; consequently no important collections could be secured from abroad.

Africa.—From a comparison of official records, Pretoria, the largest zoo in Africa, might be accredited for propagating more species of valuable mammals than any zoo in the world. The husbandry of the Pretoria collection, in every respect, was appraised the most careful in the world.

Europe.—The magnificent collection and country park at Cleres was opened to the public for the first time; the owner, Jean T. Delacour, made arrangements eventually to present the collection to the government of France. The London zoo catalogue indicated that the collection was substantially larger than any other in the world. The zoos of Europe, excepting those in Germany, appeared to be flourishing, particularly those in Antwerp and Copenhagen.

North and South America.—No costly or especially interesting physical improvement in any American zoo was undertaken during the year 1947. Instead of erecting new structures there was extensive remodelling of existing buildings and enclosures. These new devices were installed—darkened public space, glass cage fronts, fluorescent lighting, therapeutic lighting, contact heating and air conditioning. Attendance and income at all zoos exceeded that of 1946. The trend to place the building and management of zoological parks under nonprofit zoological societies continued to involve additional institutions, new and old. Commercial dealers imported meagre collections containing only the most familiar species. It was thought that the management of parks probably would find it necessary to employ their own collectors and to arrange exchange of collections with zoos and game departments in other countries. The New York Zoological society secured animals from Africa, Central America and Australia by this means. Several new and interesting species were secured. The acquisition made by New York included platypus and Pere David deer. Charles Wharton secured and brought the first large collection from the Philippines. His collection included: flying lemur, tarsier, tree shrew, cloud rat and monkey-eating eagle. The American Association of Zoological Parks and Aquariums elected Lee S. Crandall, general curator of the New York Zoological park, president of the association for the year 1948. Functions and transactions of the association increased in benefit and scope throughout the year. (Ro. B.)

INDEX

The black type entries are article headings and cross references. These black type article entries do not show page notations because they are to be found in their alphabetical position in the body of the book, but they show the dates of the issues of the *Book of the Year* **in which the articles appear.** For example **"Austria 48, 47, 46, 45"** indicates that the entry "Austria" is to be found in the *1948 Book of the Year*, the *1947 Book of the Year*, the *1946 Book of the Year* and the *1945 Book of the Year*. The reference **"Air Forces of the World: *see* Aviation, Military 48, 47, 46, 45.** *See* **Air Forces of the World 44,"** indicates that the entry "Air Forces of the World" is to be found in the article "Aviation, Military" in the *1948 Book of the Year*, the *1947 Book of the Year*, the *1946 Book of the Year* and the *1945 Book of the Year* and under the heading "Air Forces of the World" in the *1944 Book of the Year*. **All black type entries without dates indicate that the same entries appear in all previous issues. Examples,** not **Advertising 48, 47, 46, 45, 44,** but **Advertising;** not **Abyssinia:** *see* **Ethiopia 48, 47, 46, 45, 44,** but **Abyssinia:** *see* **Ethiopia.**

The light type headings which are indented under black type article headings and cross references refer to articles elsewhere in the text (of this issue only) related to the entry listed in black type. The light type headings which are not indented refer to information in the text (of this issue only) not given a special article. All the light type headings show page references.

All headings whether consisting of a single word or more are treated for the purpose of alphabetization as single complete headings. Names beginning with "Mc" and "Mac" are alphabetized as "Mac"; "St." is treated as "Saint." All references below show the exact quarter of the page by means of the letters *a*, *b*, *c*, and *d*, signifying respectively the upper and lower halves of the first column and the upper and lower halves of the second column.

Abbas II 45
Abd-el-Aziz IV 44
Aberhart, William 44
Abrasives
International Trade 404d; Sand and Gravel 660a
Abyssinia: *see* **Ethiopia**
Academic Freedom: *see* **Education 46, 45, 44**
Education 266d
Academy of Artsand Letters, American: *see* **Societies and Associations 48, 47, 46.** *See* **American Academy of Arts and Letters 45, 44**
Academy of Arts and Sciences, American: *see* **Societies and Associations 46.** *See* **American Academy of Arts and Sciences 45, 44**
Academy of Political and Social Science, American: *see* **Societies and Associations 48, 47, 46.** *See* **American Academy of Political and Social Science 45, 44**
Accident Insurance: *see* **Insurance**
Accidents
Aviation, Civil 94b; Death Statistics 240a; Disasters 253b; FWA 305c; Insurance 391b; Motor Transportation 499a; Police 597d; Red Cross 638b
Acheson, Dean Gooderham
Act of Chapultepec: *see* **Inter-American Conference on Problems of War and Peace; Pan American Union 46**
Inter-American Defense Conference 393c
Actors and Acting: *see* **Theatre**
Adams, Herbert 46
Ade, George 45
Aden
Adjusted Compensation: *see* **Veterans' Administration**
Adoption 194a
Adult Education: *see* **Education**
Advertising
Newspapers and Magazines 528a; Radio 624d; Television 721d
Aerial Photography: *see* **Photography**
Aeronautics: *see* **Aviation, Military 48, 47, 46, 45.** *See* **Aviation, Civil 48, 47, 46, 45, 44**
Illinois, University of, 379a
Aero-otitis and Aerosinusitis: *see* **Ear, Nose and Throat, Diseases of, 44**
Aerosporin 186a
Afghanistan
Archaeology 63d; Armies of the World 76c; Cartography 171a; International Law 400a; U.N. 746c
A.F. of L.: *see* **American Federation of Labor**
Africa: *see* **British East Africa; British South African Protectorates; British West Africa; French Overseas Territories; Italian Colonial Empire; Portuguese Colonial Empire; South Africa, The Union of: Spanish Colonial Empire; Trustee Territories; etc.**
American Citizens Abroad 44a; Anthropology 54b; Baptist Church 108d; Wildlife Conservation 800d; Zoology 822c
Agagianian, Gregorio Pietro XV 46
Agricultural and Industrial Chemistry, Bureau of: *see* **Agricultural Research Administration**
Agricultural Machinery: *see* **Agriculture**
Agricultural Research Administration
Agriculture
Accidents 19d; ARA 23d; Aliens 39d; Aviation, Civil 95a; Book Publishing 126d; Budget, National 145d; Building and Construction Industry 147d; Business Review 154c; Census Data 178d; Chemurgy 186c; Co-operative Movement 224d; Entomology 283a; Famines 296b; Farmers Home Administration 297a; Food Supply of the World 315c; Four-H Clubs 325c; Girl Scouts 346b; Immigration and Emigration 379d; Income and Product, U.S. 382b; Irrigation 412b; Law 429d; Liquors, Alcoholic 444c; Meteorology 473b; Prices 606a; Rural Electrification 656a; Soil Erosion 685b; TVA 723b; U.N.R.R.A. 753b; U.S. Investments Abroad 762b; Veterans' Administration 779d; Wages and Hours 787c. *See* also various products, states, provinces and countries
Agriculture, U.S. Department of: *see* **Government Departments and Bureaus**
ARA 23d; Farmers Home Administration 297a; Flour 313c; Four-H Clubs 325c; Horticulture 367b; Lard 428a; Leather 437b; War Debts 790c
Air Conditioning
Aircraft Carriers: *see* **Aviation, Military 48, 47, 46, 45.** *See* **Navies of the World 48, 47, 46, 45, 44.** *See* **Air Forces of the World 44**
Aircraft Manufacture 48
Atomic Energy 83a; Aviation, Military 98b; CAA 201b; Jet Propulsion 419c; Los Angeles 449c; Munitions 503a; Surplus Property Disposal 707b; Words and Meanings, New 804d
Air force, U.S.: Aircraft Manufacture 33a; Air Races and Records 35a; Armies of the World 74d; Aviation, Military 98a; Decorations, Medals and Badges 243c; Jet Propulsion 420d; Meteorology 474d; Munitions 505a; Spaatz, C.A. 691a; Sullivan, J.L. 703d; Symington, W.S. 710b; U.S. 758c
Air Forces of the World: *see* **Aviation, Military 48, 47, 46, 45.** *See* **Air Forces of the World 44**
Air Mail: *see* **Post Office**
Aviation, Civil 93d; Words and Meanings, New 804d
Airports and Flying Fields
Aviation, Civil 96a; CAA 201a; Meteorology 472c; Michigan, University of, 482b; Municipal Government 501a; Radio 628d; Telegraphy 719a. *See* also various cities, states, provinces and countries
Air Races and Records 48, 47
Aviation, Military 98c; Jet Propulsion 419d
Air Transport Command 47, 46, 45, 44
A.L.A.: *see* **American Library Association**
Ala, Hussein 47
Alabama
Alaska
Alaska Highway: *see* **Roads and Highways**
British Columbia 138d; Yukon Territory 820c
Albania
Armies of the World 76c; Bulgaria 151a; European Recovery Program 288a; Greece 354b; International Court of Justice 397d; International Law 400a; U.N. 746d; U.N.R.R.A. 753b
Alberta
Alcohol, Industrial
OPA 605c
Alcoholic Intoxication: *see* **Intoxication, Alcoholic**
Alcoholic Liquor: *see* **Brewing and Beer; Liquors, Alcoholic; Wines**
"Alcoholics Anonymous"; *see* **Intoxication, Alcoholic 45, 44**
Alekhine, Alexander 47
Alemán, Miguel 48, 47
Mexico 478a
Aleutian Islands: *see* **Alaska 47, 46, 45, 44.** *See* **World War II 44**
Alexander, Albert Victor 47
Alexander of Tunis, H.R.L.G.A.
Alexei 46
Eastern Orthodox Churches 260c
Alfalfa
Hay 361d; Soil Erosion 686b
Alfin catalyst 184c
Algeria: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Iron and Steel 410b; Mineral and Metal Production 484a; Phosphates 584a; Wines 802a
Alien Property Custodian, Office of: *see* **Foreign Investments in the U.S.**
Aliens
Census Data 175a; Immigration and Emigration 379d; Law 430a
Alimentary System, Disorders of
Intoxication, Alcoholic 407b; Medicine 470a; Surgery 704d
All-American Canal: *see* **Aqueducts; Irrigation 46, 45, 44**
Allen, Sir Hugh Percy 47
Allen, Terry de la Mesa 44
Allergy
Dermatology 249d; Ear, Nose and Throat, Diseases of, 259d; Medicine 469a; Psychosomatic Medicine 616d
Allied Commission on Reparations: *see* **Reparations 47.** *See* **Allied Commission on Reparations 46**
Allied Control Commission: *see* **Allied Military Government 45**
Allied Control Council: *see* **Allied Military Government 47, 46**
Allied Council for Japan: *see* **Japan 48, 47.** *See* **Allied Military Government 46**
Allied Military Government: *see* **Occupied Areas, Administration of, 48.** *See* **Allied Military Government 47, 46, 45, 44**
Allocations and Allotments: *see* **Priorities and Allocations**
Alloys: *see* **Beryllium; Magnesium; Metallurgy; Molybdenum; Monazite; Nickel; Titanium; Vanadium**
Secondary Metals 663a; Words and Meanings, New 805a
Almonds: *see* **Nuts**
Aluminum
Bridges 138a; Building and Construction Industry 148b; Metallurgy 472b; Mineral and Metal Production 483b; Secondary Metals 663a
Ambassadors and Envoys
American Academy of Arts and Letters: *see* **Societies and Associations 48, 47, 46.** *See* **American Academy of Arts and Letters 45, 44**
American Academy of Arts and Sciences: *see* **Societies and Associations 46.** *See* **American Academy of Arts and Sciences 45, 44**
American Academy of Political and Social Science: *see* **Societies and Associations 48, 47, 46.** *See* **American Academy of Political and Social Science 45, 44**
American Association for the Advancement of Science: *see* **Societies and Associations 48, 47, 46.** *See* **American Association for the Advancement of Science 45, 44**
Botany 128b
American Association of Law Libraries: *see* **Societies and Associations 48, 47, 46.** *See* **American Association of Law Libraries 45, 44**
American Bankers Association : *see* **Societies and Associations 48, 47, 46.** *See* **American Bankers Association 45, 44**
American Bar Association: *see* **Societies and Associations 48, 47, 46.** *See* **American Bar Association 45, 44**
Accidents 18d; Taxation 713c
American Bible Society: *see* **Societies and Associations 48, 47, 46.** *See* **American Bible Society 45, 44**
American Chemical Society: *see* **Societies and Associations 48, 47, 46.** *See* **American Chemical Society 45, 44**
American Citizens Abroad 48, 47, 46, 45
American College of Dentists: *see* **Societies and Associations 48**
American College of Life Underwriters: *see* **Societies and Associations 48, 47, 46.** *See* **American College of Life Underwriters 45**
American College of Surgeons: *see* **Societies and Associations 48, 47, 46.** *See* **American College of Surgeons 45, 44**
American Dental Association
American Economic Association: *see* **Societies and Associations 48, 47, 46.** *See* **American Economic Association 45, 44**
Economics 261a
American Federation of Labor
Architecture 66a; Argentina 70b; Co-operative Movement 225a; Green, W. 356c; Labour Unions 426d; Lewis, J. L. 439c; NLRB 513c; Negroes, American 519b; U.S. 758a
American Geographical Society: *see* **Societies and Associations 48, 47, 46.** *See* **American Geographical Society 45, 44**
Cartography 170d; Geography 339a
American Historical Association: *see* **Societies and Associations 48, 47**

American Indians: *see* **Indians, American**
American Institute for Property and Liability Underwriters, Inc.: *see* **Societies and Associations 48, 47, 46.** *See* **American Institute for Property and Liability Underwriters, Inc. 45**
American Institute of Accountants: *see* **Societies and Associations 48, 47, 46**
American Institute of Chemical Engineers: *see* **Societies and Associations 48, 47, 46**
American Institute of Electrical Engineers: *see* **Societies and Associations 48, 47, 46**
American Institute of Mining and Metallurgical Engineers: *see* **Societies and Associations 48, 47, 46**
American International College 652c
American Iron and Steel Institute: *see* **Societies and Associations 48, 47, 46.** *See* **American Iron and Steel Institute 45, 44**
American Law Institute: *see* **Societies and Associations 48, 47, 46.** *See* **American Law Institute 45, 44**
American Legion
American Citizens Abroad 43c; Housing 372a; Veterans' Organizations 781a
American Library Association
Libraries 440b
American Literature
Book Publishing 126c; Literary Prizes 446b; Pulitzer Prizes 622b
American Mathematical Society: *see* **Societies and Associations 48, 47**
American Medical Association
Heart and Heart Diseases 362b
American National Red Cross: *see* **Red Cross**
American Samoa: *see* **Samoa, American**
American Society of Civil Engineers: *see* **Societies and Associations 48, 47, 46**
American Society of Composers, Authors and Publishers: *see* **Societies and Associations 48, 47, 46.** *See* **Performing Right Societies 45, 44**
American Society of Mechanical Engineers: *see* **Societies and Associations 48, 47, 46**
American Society of Tool Engineers: *see* **Societies and Associations 48, 47**
American Veterans Committee 48
Veterans' Organizations 781a
American Veterans of World War II (Amvets) 48, 47, 46
Veterans' Organizations 781a
American Volunteer Group (Flying Tigers): *see* **Chennault, Claire L. 45, 44**
Ames, Joseph Sweetman 44
Amidone: Medicine 469d; Narcotics and Narcotic Traffic 510d; Words and Meanings, New 804d
Amino acids: Anaemia 52a; Chemistry 184d; Chemotherapy 186b; Food Research 314d; Genetics 337b; Medicine 469a
Amvets: *see* **American Veterans of World War II 48, 47, 46**
Amyl nitrite 186b
Anaemia
Atomic Energy 83c; Veterinary Medicine 782b; X-Ray and Radiology 816b
Anaesthesiology
Medicine 469b
Ananda Mahidol 47
Anderson, Clinton Presba 48, 47, 46
Anderson, Sir John 44
Anderson, Sir Kenneth A. N. 45, 44
Anderson, William Franklin 45
Andrews, Charles McLean 44
Andrews, Frank Maxwell 44
Angling
Anglo-Egyptian Sudan
Egypt 268a; Exchange Control 290b
Angola: *see* **Portuguese Colonial Empire**
Diamonds 252a; Mineral and Metal Production 484a
Animal Fats: *see* **Vegetable Oils and Animal Fats**
Animal Industry, Bureau of: *see* **Agricultural Research Administration**
Veterinary Medicine 782a
Anise 694d
Annam: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Anniversaries and Centennials: *see* **Calendar** (page xxii)
Antarctica: *see* **Exploration and Discovery 48, 47**
Antergan 469a
Anthropology
Smithsonian Institution 675a; Sociology 683b
Anti-Aircraft Guns: *see* **Munitions of War**
Antibiotics: ARA 24d; Arthritis 79a; Chemotherapy 186a; Chemurgy 187b; Ear, Nose and Throat, Diseases of, 259d; Gynaecology and Obstetrics 359a; Institutum Divi Thomae 391a; Medicine 468b; Urology 770d; Words and Meanings, New 805b
Antigua: *see* **Leeward Islands 48, 47.** *See* **West Indies, British 46, 45, 44**
Antihistamine drugs: Allergy 41b; Dermatology 250a; Medicine 469a
Antilles, Greater and Lesser: *see* **West Indies**
Antimony
Mineral and Metal Production 483b; Priorities and Allocations 611c; Secondary Metals 663a
Anti-Saloon League of America: *see* **Societies and Associations 48, 47, 46.** *See* **Anti-Saloon League of America 45, 44**
Anti-Semitism
Jewish Religious Life 420d; Motion Pictures 492d
Antitank Guns: *see* **Munitions of War 47, 46, 45, 44**
Antitrust Law: *see* **Law**
Antoine, André 44
Antonescu, Ion 47, 45, 44
Anzelevitz, Benjamin: *see* **Bernie, Ben 44**
Apples: *see* **Fruit 48, 47, 46, 45.** *See* **Apples 44**
Appleton, Sir Edward Victor 48
Nobel Prizes 533d
Appleyard, Rollo 44
Appropriations and Expenditures: *see* **Budget, National**
Apricots: *see* **Fruit 48, 47**
Aquariums
Aqueducts
Tunnels 739c
ARA: *see* **Agricultural Research Administration**
Arabia
Coinage 210b; Petroleum 579c; Trans-Jordan 733b; U.N. 746d; War Debts 790d
Arab League: *see* **Arabia; Egypt; Iraq; Palestine; Syria and Lebanon; Trans-Jordan 48.** *See* **Arab League 47**
Anti-Semitism 57c; Italian Colonial Empire 414a
Aranha, Oswaldo 48
Arce y Ochotorena, Emanuel 46
Archaeology
Museums 506d; National Parks and Monuments 515a; Smithsonian Institution 675b
Archery
Architecture
Sculpture 662b
Archives, National
Areas and Populations of the Countries of the World
Argentina
Agriculture 28a; Armies of the World 76c; Aviation, Military 103b; Bolivia 126a; Cattle 174c; Chile 195b; Cotton 228d; Dance 237b; Debt, National 242d; Ecuador 262a; Education 266d; Employment 280c; Exchange Control 289d; Fascism 297d; Food Supply of the World 316b; Great Britain 351b; Hogs 363d; Inter-American Defense Conference 393c; International Trade 404a; Jet Propulsion 420b; Lead 435c; Leather 436b; Leprosy 438c; Linen and Flax 443d; Marriage and Divorce 463b; Meat 467b; Mica 480c; Motion Pictures 496d; Narcotics and Narcotic Traffic 510d; Navies of the World 518a; Paints and Varnishes 565c; Paraguay 570c; Peace Treaties 574a; Peanuts 576c; Poland 597b; Poultry 604a; Railroads 634a; Refugees 640a; Sheep 667a; Shipbuilding 668d; Shipping, Merchant Marine 670a; Shoe Industry 670c; Shows, Animal 671d; Spain 691b; Spanish-American Literature 692c; Sulphur 703d; Sweden 708a; Switzerland 709b; Tariffs 712c; Taxation 718a; Tennis 724b; Tuberculosis 737c; U.N. 746c; War Debts 790c; Wheat 798a; Wines 802a; Wool 803c
Argentinita 46
Argonne National Laboratory: Atomic Energy 83a; Chicago, University of, 189b
Argüello, Leonardo: Nicaragua 532d; Obituaries 539d
Arizona
Arkansas
Arliss, George 47
Armies of the World
Armitage, Albert Borlase 44
Armstrong, Margaret Neilson 45
Army, U.S.: *see* **Selective Service, U.S.; United States 44**
Armies of the World 74b; Atomic Energy 84a; Cartography 170c; Decorations, Medals and Badges 243a; Libraries 442a; Marine Corps 462a; Military Academy, U.S. 482c; Munitions 503a; National Geographic Society 512a; National Guard 512d; Negroes, American 519a; Occupied Areas, Administration of, 555a; Prisons 612b; Surplus Property Disposal 706c; U.S. 758b
Army Specialized Training Program: *see* **Education 46, 45**
Arnim, Dietloff Juergen von 44
Arnold, Henry H. 46, 45, 44
Aronson, Naoum 44
Arsenic
Mineral and Metal Production 483b
Art: *see* **American Literature; Architecture; Painting; Sculpture; etc.**
Arteaga y Betancourt, Manuel 46
Art Exhibitions
Etching 286a; Museums 506c; Painting 563d; Sculpture 661d
Art Galleries and Art Museums 47, 46, 45, 44
Museums 506c
Arthritis
Artificial Weather: *see* **Meteorology 48**
Floods 312c
Artillery: *see* **Munitions of War 48, 47, 46, 45, 44.** *See* **World War II 46, 45, 44**
Art Institute of Chicago: Art Exhibitions 77d; Museums 507a; Painting 563d
Art Sales
Arts and Sciences, American Academy of: *see* **Societies and Associations 46.** *See* **American Academy of Arts and Sciences 45, 44**
Aruba: *see* **Curaçao**
Asbestos
Mineral and Metal Production 484a
ASCAP (American Society of Composers, Authors and Publishers): *see* **Societies and Associations 48, 47, 46.** *See* **Performing Rights Societies 45, 44**
Ascension: *see* **British Empire 48.** *See* **British West Africa 47, 46, 45, 44**
Asia: *see* **Afghanistan; China; India; etc.**
Asphalt
Assassinations
Associated Universities, Inc. 83a
Association for the Advancement of Science, American: *see* **Societies and Associations 48, 47, 46.** *See* **American Association for the Advancement of Science 45, 44**
Association of Research Libraries: *see* **Societies and Associations 48, 47, 46.** *See* **Research Libraries, Association of, 45.** *See* **Association of Research Libraries 44**
Libraries 440d
Astatine 804d
Aston, Francis William 46
ASTP (Army Specialized Training Program): *see* **Education 46, 45**
Astronomy
California, University of, 159b; Electronics 277a; National Geographic Society 512a; Words and Meanings, New 805c
ATC: *see* **Air Transport Command 47, 46, 45, 44**
Atcheson, George, Jr. 539d
Athletics: *see* **Track and Field Sports; etc.**
Athlone, 1st Earl of, 46, 45, 44
Atomic Bomb 46
Anaemia 52b; Armies of the World 74b; Atomic Energy 84a; Marine Biology 460a; Zoology 821d
Atomic Energy 48, 47
A.V.C. 51a; Botany 128c; California, University of, 159b; Canada 161d; Catholic University of America 172d; Chemotherapy 185b; Chicago, University of, 189a; FBI 299d; Genetics 337d; Gromyko, A.A. 357c; International Law 401b; Iowa State College 408c; Law 435a; Medicine 469b; Metallurgy 472a; Meteorology 475a; Munitions 505b; Photography 586b; Physics 587a; Physiology 589c; Public Health Engineering 618a; Socialism 676b; Standards, National Bureau of, 695c; Textile Industry 725c; U.S.S.R. 744a; U.N. 749d; U.S. 758d; Uranium 770c; V.F.W. 780d; Words and Meanings, New 804d; Zoology 821d
Atomic Energy Commission: Atomic Energy 81c; Budget, National 146a; Chicago, University of, 189b; International Law 401b; Lilienthal, D.E. 443b; U.N. 747c; U.S. 758d
Atom-Smashers: *see* **Atomic Energy 48**
Attlee, Clement Richard 48, 47, 46
Great Britain 351d
Attu: *see* **Alaska; World War II 44**
Auchinleck, Sir Claude J. E. 44
Aung San, U. 540a
Auriol, Vincent 48, 47
France 326a
Austin, Warren Robinson 48, 47
Atomic Energy 81d
Australia, Commonwealth of
Aircraft Manufacture 32d; American Citizens Abroad 44a; Armies of the World 76c; Arsenic 77c; Aviation, Civil 93b; Baptist Church 108d; Birth Statistics 123c; Bridges 137d; Business Review 156a; Cadmium 157d; Cattle 174b; Child Welfare 192c; Christian Unity 198d; Civil Liberties 202c; Clothing Industry 205b; Coal 205d; Cricket 229a; Cycling 233a; Dams 236a; Debt, National 242d; Employment 280c; Exchange Control 291a; Exploration and Discovery 295b; Floods 312c; Food Supply of the World 316b; Football 320c; Foreign Ministers' Conferences 322b; Fruit 333b; Furs 335d; Gold 347d; Greece 354b; Hogs 364a; Immigration and Emigration 380b; Infant Mortality 389d; International Law 399d; International Monetary Fund 402b; International Trade 404d; Iron and Steel 411b; Jet Propulsion 420b; Kyanite Minerals 426a; Law 435b; Lead 435c; Lend-Lease 438b; Linen and Flax 443d; Marriage and Divorce 462d; Medicine 471b; Mineral and Metal Production 484a; Munitions 505d; Music 507d; Netherlands Indies 522a; Norway 537c; Pacific Islands, British 562a; Pacific Islands under Trusteeship 563a; Peace Treaties 574d; Philately 581b; Plastics Industry 593d; Poultry 604a; Railroads 633d; Rationing 635a; Rayon and Other Synthetic Fibres 636a; Refugees 640a; Relief 641b; Roads and Highways 650a; Sheep 667a; Shipbuilding 669a; Shipping, Merchant Marine 670a; Silk 672d; Silver 673c; Socialism 676b; Soil Erosion 686d; Tariffs 712c; Taxation 716d; Tennis 724a; Tin 728d; Town and Regional Planning 732a; Trustee Territories 736b; Tungsten 739a; U.N. 746c; U.S. Investments Abroad 761d; War Crimes 788d; War Debts 790d; Wealth and Income, Distribution of, 795a; Wheat 798a; Wines 802a; Wool 803c; World Federation of Trade Unions 806b; Zinc 821a; Zirconium 821b; Zoology 822c
Australia, South: *see* **South Australia 47, 46, 45, 44**
Austria 48, 47, 46, 45
Aluminum 42a; American Citizens Abroad 43d; Architecture 68d; Armies of the World 74a; Birth Statistics 124a; Child Welfare 191c; Civil Liberties 202c; Electric Transportation 276b; European Recovery Program 288a; Exchange Control 289b; Foreign Investments in the U.S. 321a; Foreign Ministers' Conferences 322b; Friends, Religious Society of, 332c; Fruit 332d; Infantile Paralysis 388c; I.L.O. 398b; International Law 400a: International Trade 405a; Iron and Steel 410b; Kidnapping 424a; Lard 428a; Mormons 491c; Motion Pictures 498a; Music 508a; Occupied Areas, Administration of, 555a; Peace Treaties 574b; Petroleum 580a; Poland 597b; Police 597c; Potatoes 603c; Rationing 635c; Refugees 640a; Reparations 643d; Roads and Highways 649d; Socialism 677b; Table Tennis 711b; Tariffs 712d; Tennis 724a; Unitarian Church 746a; U.N. 746d; U.N.R.R.A. 753b; U.S. 756a; Venereal Diseases 776c; War Debts 790d; Wines 802a; Yugoslavia 820b
Autobiography: *see* **American Literature; etc.**
Automobile: *see* **Automobile Industry; Motor Transportation**
Automobile Accidents: *see* **Accidents; Insurance**
Automobile Industry
Black Markets 125a; Detroit 250c; Employment 280a; Glass 346c; Law 429b; Machinery and Machine Tools 454b; Radio 624b; Rubber 653b; U.S. Investments Abroad 762b; Wages and Hours 787a
Automobile Insurance: *see* **Insurance**
Automobile Racing 48, 47
Avery, Sewell Lee 45
Aviation, Civil
ARA 24d; Aircraft Manufacture 32a; Airports 33d; Air Races and Records 35b; CAA 201a; Coast and Geodetic Survey, U.S. 208a; Consumer Credit 223b; Disasters 253b; Education 264c; Electronics 277b; International Law 401b; NMB 514b; Post Office 601d; Radio 624c; Words and Meaning, New 804d. *See* also various countries
Aviation, Military 48, 47, 46, 45. *See* **Air Forces of the World; Gliding; Munitions of War; Psychology; World War II 44**
Aircraft Manufacture 32a; Airports 34a; Air Races and Records 35a; Armies of the World 74b; Coast and Geodetic Survey, U.S. 208a; Disasters 253c; Exploration and Discovery 294b; Jet Propulsion 419c; Munitions 505a. *See* also various countries
Avila Camacho, Manuel 44
Avocados: *see* **Fruit 48, 47, 46**
Azores, The: *see* **Portugal**
BABS (beam approach beacon system) 96c
Baby sitters 192d

Bacher, Robert Fox 47
Bacitracin 186a
Bacon
Rationing 635a
Bacteriology
Photography 586b; pneumonia 594b
Badminton
Badoglio, Pietro 45, 44
Baekeland, Leo Hendrik 45
Bagley, William Chandler 47
Bagramyan, Ivan C. 45
Bahamas
Agriculture 30c; American Citizens Abroad 44a
Bahrein Islands: *see* **British Empire**
Bainbridge, William Seaman 540a
Baird, John Logie 47
Baker, Ray Stannard 47
Baker, Sara Josephine 46
Baker Island: *see* **Pacific Islands, U.S. 47, 46, 45, 44**
BAL: Arthritis 79a; Chemotherapy 186b; Diabetes 251c; Venereal Diseases 776d
Balch, Emily Green 47
Baldwin of Bewdley, Stanley Baldwin 540b
Ballet: *see* **Dance**
Ballroom Dancing: *see* **Dance**
Baltic States: *see* **Estonia; Latvia; Lithuania**
Baltimore
Bananas: *see* **Fruit 48, 47, 46, 45.** *See* **Bananas 44**
Bankers Association, American: *see* **Societies and Associations 48, 47, 46.** *See* **American Bankers Association 45, 44**
Bank for International Settlements
Exchange Control 292b
Bankhead, John Hollis, Jr. 47
Banking
Bank of England 108a; Business Review 155b; Consumer Credit 223a; Debt, National 242a; Export-Import Bank 295c; F.D.I.C. 301c; Federal Reserve System 302d; Law 429c; RFC 636d; Socialism 676b; Societies 680b. *See* also various cities, states, provinces and countries
Bank of England
Curaçao 232d
Bankruptcy: *see* **Securities and Exchange Commission 48, 47, 46, 45, 44.** *See* **Business Review 46, 45, 44.** *See* **Federal Bureau of Investigation 45, 44**
Business Review 154c
Banks: *see* **Banking**
Bannerman, Helen 47
Bantock, Sir Granville 47
Baptist Church
Christian Unity 198d; Church Membership 199d; Religion 642c; Vatican City State 773c
Bar Association, American: *see* **Societies and Associations 48, 47, 46.** *See* **American Bar Association 45, 44**
Barbados 48, 47. *see* **West Indies, British 46, 45, 44**
American Citizens Abroad 44a
Barbier, George 46
Barbour, Ralph Henry 45
Barbour, W. Warren 44
Barclay, McClelland 44
Barcroft, Sir Joseph 540b
Barium Minerals
Barker, Lewellys Franklin 44
Barkley, Alben William 46
Barley
ARA 25a; Agriculture 25d; Alcohol, Industrial 38a; Botany 128c; Brewing and Beer 134c; Food Research 315b. *See* also various states and countries
Barr, Norman Burton 44
Barros Camara, João de 46
Bartlett, Robert Abram 47
Bartók, Béla 46
Baruch, Bernard Mannes 47, 44
Atomic Energy 81c; Sculpture 661d
Basalt: *see* **Stone**
Bascom, Florence 46
Baseball
Betting and Gambling 120a; Negroes, American 520a; Newspapers and Magazines 525c
Basic English 44
Basilone, John 46
Basketball
AMVETS 51c; Betting and Gambling 119d; Words and Meanings, New 805b
Basutoland: *see* **British South African Protectorates**
Batocki, Max J. O. A. T. von 45
Battleships: *see* **Navies of the World**
Bauer, Gustav 45
Baur, Harry 44
Bauxite
Mineral and Metal Production 484a
BCG: Medicine 470b; Public Health Services 618c; Tuberculosis 738b
Beach, Amy Marcy Cheney 45
Beans, Dry
Beatty, Sir Edward Wentworth 44
Bechuanaland Protectorate; *see* **British South African Protectorates**
Beck, Josef 45
Beck, Ludwig 45
Beef: *see* **Meat**
Beekeeping
ARA 24d; Entomology 283b
Beer: *see* **Brewing and Beer**
Beer-Hofmann, Richard 46
Beers, Clifford Whittingham 44
Beery, Noah, Sr. 47
Belgian Colonial Empire
British West Africa 143a
Belgian Congo: *see* **Belgian Colonial Empire**
Cadmium 157d; Copper 225b; Diamonds 252a; Gold 347d; Mineral and Metal Production 484a; Peanuts 576c; Silver 673c; Soil Erosion 687a; Tin 728d; Tungsten 739a
Belgium
American Citizens Abroad 43c; Anthropology 54b; Architecture 68d; Armies of the World 76c; Aviation, Civil 93b; Aviation, Military 103b; Belgian Colonial Empire 116a; Birth Statistics 124a; Book Publishing 127d; Business Review 156b; Butter 157c; Cadmium 157d; Candy 169c; Cattle 174c; Charles 181b; Chess 187d; Coal 205d; Coke 210c; Cycling 233b; Debt, National 242d; Diamonds 252a; Electrical Industries 274c; Electric Transportation 276b; European Recovery Program 288a; Exchange Control 291c; Food Supply of the World 317b; Foreign Investments in the U.S. 321a; Foreign Ministers' Conferences 322b; Fruit 332d; Fuel Briquettes 334d; Furniture Industry 335c; Germany 343d; Glass 346c; Greece 354b; Horticulture 367c; International Bank 396d; International Monetary Fund 402a; International Trade 405a; Iron and Steel 411b; Lead 435c; Linen and Flax 443d; Lumber 451d; Luxembourg 452c; Marriage and Divorce 462d; Mineral and Metal Production 484a; Mormons 491c; Music 508c; Netherlands 520d; Netherlands Indies 522a; Norway 537c; Philately 581b; Potatoes 603c; Prisoners of War 611d; Railroads 633a; Rayon and Other Synthetic Fibres 636a; Refugees 640a; Shipbuilding 668d; Socialism 676d; Sweden 707d; Tariffs 712d; Trustee Territories 736b; U.N. 746c; U.S. Investments Abroad 762b; War Debts 790a; Wool 803c; Zinc 821a
Bellamann, Henry 46
Below, Otto von 45
Benadryl: Allergy 41b; Medicine 469a
Benavides, Oscar R. 46
Benchley, Robert Charles 46
Bendix, Vincent 46
Benefactions: *see* **Donations and Bequests**
Benelux: *see* **Belgium; Luxembourg; Netherlands; Tariffs 48**
Denmark 248a; Words and Meanings, New 804d
Benét, Stephen Vincent 44
Bennett, Richard 45
Bennett, Richard Bedford Bennett 540c
Benton, William
Information and Educational Exchange, Office of, 390c
Bentonite
Benzene hexachloride: ARA 24d; Chemistry 182d; Entomology 283b
Bequests, Philanthropic: *see* **Donations and Bequests**
Berlin
Berlin Conference 46
Bermuda
American Citizens Abroad 44a
Bernard, Tristan 540c
Bernie, Ben 44
Berreta, Tomas: Obituaries 540d; Uruguay 771b
Beryllium
Industrial Health 387c; Mineral and Metal Production 483b
Berzarin, Nikolai Y. 46
Bessarabia: *see* **Union of Soviet Socialist Republics 48.** *See* **Rumania 47, 46, 45, 44**
Bestor, Arthur Eugene 45
Best Sellers: *see* **Book Publishing 48, 47, 46.** *See* **Publishing (Book) 45, 44**
Betatron: *see* **Radiology 44**
Illinois, University of, 379a; Physics 587a
Betting and Gambling 48, 47
Horse Racing 365c; Nevada 522c
Bevan, Arthur Dean 44
Bevatron: California, University of, 159b; Words and Meanings, New 804d
Beveridge Report: *see* **Relief 48.** *See* **Social Security 48, 47, 46, 45, 44**
Bevin, Ernest 48, 47, 46, 45
Cambridge University 159c; European Recovery Program 288a; Foreign Ministers' Conferences 322d; Reparations 643d
BEW (Board of Economic Warfare): *see* **Foreign Economic Administration 46, 45, 44**
Bibesco, Princess Elizabeth 46
Bible Society, American: *see* **Societies and Associations 48, 47, 46.** *See* **American Bible Society 45, 44**
Bicycling: *see* **Cycling**
Bidault, Georges 48, 47
European Recovery Program 288a
Biddle, Francis 46, 45
"Big Inch" Line: *see* **Petroleum 46, 45, 44**
FPC 302b
Bikini Island: *see* **Atomic Energy 48.** *See* **Bikini Island 47**
Marine Biology 460a; Smithsonian Institution 675a; Zoology 821b
Bilbo, Theodore Gilmore 540d
Billiards
Binyon, Laurence 44
Biochemistry
Vitamins 785a
Biography: *see* **American Literature; English Literature**
Biology: *see* **Botany; Genetics; Marine Biology; Physiology; Zoology**
Birch, Reginald Bathurst 44
Birth Control
Birth Statistics 123d; Marriage and Divorce 463b
Birth Statistics
Agriculture 30b; Census Data 174d; Death Statistics 240a; Law 435b; Marriage and Divorce 462b; Public Health Services 619b
Bismuth
Mineral and Metal Production 483b
Bistrimate 250a
Black Markets
Business Review 156c; Exchange Control 292b; Germany 345a; Gold 347a; Japan 418d; Law 429b; U.S. 758c; Words and Meanings, New 805c
Blamey, Sir Thomas Albert 46, 44
Blandy, William Henry Purnell 47
Bledsoe, Julius (Jules) C. 44
Blindness: Seeing Eye, The 664d; Vocational Rehabilitation, Office of, 786b. *See* also various states
Blockade: *see* **Submarine Warfare 46, 45, 44**
Blood Plasma: *see* **Physiology 48, 47, 46, 45.** *See* **Medicine, Surgery 47, 46, 45**
Red Cross 638a
Blood Pressure: *see* **Medicine 46, 45, 44**
Ear, Nose and Throat, Diseases of, 259d; Heart and Heart Diseases 362d
Blue babies 470c
Blue Cross: *see* **Insurance 48, 47, 46, 45**
Blum, Léon 47
France 326a; Socialism 676c
Board of Economic Warfare: *see* **Foreign Economic Administration 46, 45, 44**
Boetto, Pietro 47
Bogomolets, Alexander A. 47
Bohemia and Moravia 45, 44
Boisson, Pierre François 44
Bolivia
Antimony 56c; Argentina 72a; Armies of the World 76c; Bismuth 124b; Exchange Control 289d; Inter-American Affairs, The Institute of, 392d; Inter-American Defense Conference 393c; Marriage and Divorce 463b; Mineral and Metal Production 484a; Narcotics and Narcotic Traffic 510d; Railroads 634a; Silver 673c; Tin 728d; Tungsten 739a; U.N. 746c; U.S. Investments Abroad 761d; War Debts 790c
Bombing: *see* **Atomic Energy 48, 47.** *See* **Munitions of War 48, 47, 46, 45, 44.** *See* **Atomic Bomb 46**
Bonaire: *see* **Curaçao**
Bonds: *see* **Stocks and Bonds**
Bonds, War: *see* **War Bonds 46, 45, 44**
Bong, Richard Ira 46
Bonnard, Pierre 541a
Bonnet, Henri 47
Bono, Emilio G. G. G. de 45
Bonomi, Ivanoe 45
Book-Collecting and Book Prices
Art Sales 79c
Book Publishing 48, 47, 46. *See* **Publishing (Book) 45, 44**
Business Review 153b; Children's Books 190c; Motion Pictures 494d; Occupied Areas, Administration of, 556c
Books: *see* **Book Publishing 48, 47, 46.** *See* **Children's Books; Libraries 48, 47, 46, 45, 44.** *See* also under **American Literature; English Literature; French Literature; etc.**
Literary Prizes 446b
Book Sales: *see* **Book Publishing 48, 47, 46.** *See* **Book-Collecting and Book Prices 48, 47, 46, 45, 44.** *See* **Publishing (Book) 45, 44**
Boothe, Clare: *see* **Luce, Clare Boothe 46, 45, 44**
Bor, General: *see* **Komorowski, T. 45**
Borates 46, 45, 44
Boris III 44
Bormann, Martin 47
Borneo: *see* **North Borneo 48.** *See* **Netherlands Indies 48, 45, 44.** *See* **Borneo 47, 46.** *See* **British Empire; Netherlands Colonial Empire 45, 44**
Boron Minerals 48, 47
Fertilizers 306d
Bose, Subhas Chandra 46
Boston
Boston University 652c
Bosworth, Hobart van Zandt 44
Botanical Gardens: *see* **Botany**
Botany
Bougainville: *see* **Solomon Islands 46, 45, 44**
Boutens, Peter Cornelis 44
Bovard, Oliver Kirby 46
Bowes, Edward 47
Bowles, Chester
Bowling
Boxing
Betting and Gambling 120a
Boyington, Gregory 46, 45
Boynton, Percy Holmes 47
Boy Scouts
American Citizens Abroad 43c
Bracco, Roberto 44
Bracken, John 46, 45, 44
Braden, Spruille 47
Bradley, Omar Nelson
Bragdon, Claude 47
Brandeis, Alice Goldmark 46
Brandy 445a
Brazil
Architecture 66b; Argentina 70d; Armies of the World 76c; Arsenic 77c; Aviation, Military 103b; Chile 195b; Cocoa 209d; Coffee 210a; Communism 215b; Contract Bridge 224b; Cotton 228d; Debt, National 242d; Diamonds 252a; Electric Transportation 276a; Exchange Control 289d; Great Britain 351b; Greece 354b; Hogs 363d; Illiteracy 379c; Inter-American Affairs, The Institute of, 392d; Inter-American Defense Conference 393c; International Monetary Fund 402b: International Trade 404a; Iron and Steel 410b; Leather 436b; Literary Prizes 446c; Manganese 459a; Marriage and Divorce 463b; Mathematics 466c; Mica 480c. Mineral and Metal Production 484a; Monazite 489a; Motion Pictures 496d; Navies of the World 518b; Norway 537c; Paints and Varnishes 565c; Philately 581b; Railroads 634a; Refugees 640a; Roads and Highways 649b; Soil Erosion 686d; Sugar 703a; Tariffs 712c; Tobacco 730a; Tungsten 739a; Tunnels 740a; U.N. 746c; U.S. Investments Abroad 762a; Uruguay 771d; War Debts 790c; Wines 802a; Zirconium 821b
Bread and Bakery Products
Rationing 635a
Breadner, Lloyd Samuel 46, 45, 44
Breitscheid, Rudolph 45
Brereton, Lewis Hyde 46, 45, 44
Bresnahan, Roger 45
Bretton Woods: *see* **International Monetary Fund 48, 47.** *See* **International Bank for Reconstruction and Development 47.** *See* **Banking 47, 46, 45.** *See* **United Nations Monetary and Financial Program 46.** *See* **Exchange Stabilization Funds; International Law 46, 45**
Brewing and Beer
Liquors, Alcoholic 445b
Bricker, John William 45, 44
Bridge, Contract: *see* **Contract Bridge**
Bridges
Architecture 65d
Bridgman, George B. 44
Bridgman, Percy Williams 47
Briquettes, Fuel: *see* **Fuel Briquettes**
Bristow, Joseph Little 45
British Borneo: *see* **North Borneo 48.** *See* **Borneo 47, 46.** *See* **British Empire 45, 44**
British Columbia
British East Africa
British Empire
See also various countries
British Guiana
American Citizens Abroad 44a; Bauxite 115b; Leprosy 438c; Mineral and Metal Production 484a
British Honduras
British Guiana 141b; Guatemala 358a; International Law 401c; War Debts 790d
British Isles: *see* **Great Britain and Northern Ireland, United Kingdom of**
British Legion
Veterans' Organizations 781c
British Malaya: *see* **Malayan Union and Singapore 48, 47.** *See* **Federated Malay States; Straits Settlements; Unfederated Malay States 46, 45, 44.** *See* **World War II 44**
British Pacific Islands: *see* **Pacific Islands, British**
British Possessions in the Mediterranean: *see* **Cyprus; Gibraltar;**

Malta 48. *See* **Mediterranean, British Possessions in the 47, 46, 45, 44**
British Somaliland: *see* **British East Africa**
British South African Protectorates
Immigration and Emigration 380b
British-U.S. War Boards, 46, 45, 44
British West Africa
British East Africa 139c; Cocoa 209d
British West Indies: *see* **Bahamas; Barbados; Jamaica; Leeward Islands; Trinidad; Windward Islands 48, 47.** *See* **West Indies, British 46, 45, 44**
Community Chest 217b
Broadcasting: *see* **Radio; Television**
Bromine
Brooke, Sir Alan Francis 45, 44
Brooke, Sir Basil 45, 44
Brookhart, Smith Wildman 45
Brookhaven National Laboratory 83a
Brookings Institution: *see* **Societies and Associations 48, 47, 46.** *See* **Brookings Institution 45, 44**
Economics 261a
Broomcorn 48, 47, 46
Brown, Prentiss Marsh 44
Brozovich or **Broz, Josip (Tito)**
Communism 217a
Bruce, William Cabell 47
Brucellosis: Bacteriology 103c; Chemotherapy 186a; Veterinary Medicine 782a
Brunei: *see* **North Borneo 48.** *See* **Borneo 47, 46.** *See* **British Empire 45, 44**
Bruno, Giuseppe 46
Bryan, John Stewart 45
Bryn Mawr College
Bubonic Plague: *see* **Plague, Bubonic and Pneumonic**
Buckner, Simon Bolivar, Jr. 46
Buckwheat
Chemurgy 187a .
Budget, National
Debt, National 241a; Income and Product, U.S. 382b; Republican Party 644d; Taxation 713b. *See* also various countries
Buell, Raymond Leslie 47
Buhl Foundation: *see* **Societies and Associations 48**
Building and Construction Industry
Architecture 65a; Black Markets 124c; Bridges 135c; Business Review 152d; Canals and Inland Waterways 167b; Cement 174c; Dams 235d; Employment 280a; FWA 304c; Glass 346c; Hospitals 368b; Housing 370b; Prices 606b; Rivers and Harbours 647c; Roads and Highways 648d; Sand and Gravel 660a; Strikes 700d; Wages and Hours 787c
Bulganin, Nikolai Alexandrovich 48
Bulgaria
American Citizens Abroad 43c; Armies of the World 76c; Birth Statistics 124a; Child Welfare 191c; Civil Liberties 202c; Communism 215c; Debt, National 242d; European Recovery Program 288a; Exchange Control 292b; Foreign Investments in the U.S. 321d; Greece 354b; Infant Mortality 390a; International Law 400a; Law 435c; Libraries 442d; Music 507d; Newspapers and Magazines 529c; Patents 573d; Peace Treaties 574a; Red Cross 638d; Tariffs 712d; U.N. 746d; U.S. 756a; Veterans' Organizations 781d; Wines 802a; Yugoslavia 820b
Bullard, Robert Lee 541b
Bumpus, Hermon Carey 44
Bureau of Standards, National: *see* **Standards, National Bureau of**
Burma
Australia 88a; Baptist Church 108d; Exchange Control 292d; Food Supply of the World 316d; Law 435b; Mineral and Metal Production 484a; Missions, Foreign 486c; Railroads 633c; Refugees 641a; Rice 647b, Tobacco 730a; War Debts 790d
Burma Road: *see* **Roads and Highways 46, 45, 44**
Burns, John 44
Burton, Harold Hitz 46
Busch, Ernst 46
Buses: *see* **Automobile Industry; Electric Transportation; Motor Transportation**
Business Review
Consumer Credit 222d; Income and Product, U.S. 380d; International Trade 403a; Prices 606a; Stocks and Bonds 697a; Taxation 713b. *See* also various industries, cities, states and countries
Butler, Nicholas Murray 541b
Butter
Agriculture 28c; Cheese 181c; Dairying 235d; Food Supply of the World 317b; Margarine 459d; Milk 483a; Rationing 635a; Vegetable Oils 774a
Byelorussia 46
U.N. 746c; U.N.R.R.A. 753b
Byrnes, James F. 47, 46, 45, 44
American Literature 47d
Byron, Arthur William 44
Cabinet Members
Cabot, Hugh 46
Cacao: *see* **Cocoa**
Caccia Dominioni, Camillo 47
Cadmium
Mineral and Metal Production 483b
Cadogan, Sir A. G. M. 48, 47
Cady, Hamilton Perkins 44
Caggiano, Antonio 46
Caillaux, Joseph Marie A. 45
Caldecote, Thomas Walker H. I. 541b
Calder, Alexander Stirling 46
Calendar (page xxii)
Calendar of Events: *see* pages **1-16**
California
California, University of
Anthropology 55d; Archaeology 60d; Football 319b; Libraries 441d; Physics 587b; Rowing 652b; Standards, National Bureau of, 695d
Calles, Plutarco Elías 46
Camacho, Manuel Avila: *see* **Avila Camacho, Manuel 44**
Camara, João de Barros: *see* **Barros Camara, João de 46**
Cambodia: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Cambridge University
Cricket 229b; Football 320c; Rowing 652a
Cameron, Sir David Young 46
Cameroons: *see* **French Overseas Territories; Trustee Territories 48.** *See* **British West Africa 48, 47, 46, 45, 44.** *See* **French Colonial Empire; Mandates 47, 46, 45, 44**
Camouflage 46, 45, 44
Camp Fire Girls
Canada, Dominion of
Abrasives 17d; Accidents 19d; Agriculture 28a; Aircraft Manufacture 32d; Aluminum 42a; American Citizens Abroad 44a; A.L.A. 46b; Antimony 56c; Archaeology 60b; Archery 64c; Armies of the World 76c; Arsenic 77c; Asbestos 79d; Atomic Energy 82a; Automobile Industry 91d; Aviation, Civil 93a; Aviation, Military 103b; Badminton 105a; Baptist Church 108d; Barium Minerals 109b; Birth Statistics 123b; Bismuth 124b; Bridges 138a; Business Review 156a; Cadmium 157d; Camp Fire Girls 159d; Canadian Literature 166a; Canals and Inland Waterways 167c; Cattle 174c; Chambers of Commerce 180d; Child Welfare 192c; Christian Science 198a; Christian Unity 199a; Clothing Industry 204c; Coal 205d; Coast Guard, U.S. 208c; Coke 210c; Communism 215b; Community Chest 217b; Community Trusts 217c; Consumer Credit 224a; Copper 225b; Cuba 231d; Death Statistics 240a; Debt, National 242d; Disciples of Christ 255c; Dominican Republic 257a; Electrical Industries 274b; Electric Transportation 276c; Employment 280c; Etching 287a; Exchange Control 289b; Feldspar 305c; Fertilizers 306c; Fisheries 310c; Food Supply of the World 316b; Football 320b; Foreign Investments in the U.S. 321a; Foreign Ministers' Conferences 322b; Friends, Religious Society of, 332a; Furniture Industry 335c; Furs 335d; Gas, Natural 336d; Geography 339b; George VI 340c; Gold 347a; Golf 348b; Gypsum 359c; Hogs 364a; Horse Racing 366a; Horticulture 367c; Housing 373a; Ice Hockey 376b; Ice Skating 377b; Immigration and Emigration 380a; Industrial Health 388a; Infantile Paralysis 388c; Infant Mortality 389d; Insurance 391a; International Monetary Fund 402c; International Trade 403d; Iron and Steel 410b; Jet Propulsion 420b; Jewish Religious Life 421a; Law 435b; Lead 435c; Lend-Lease 438b; Liquors, Alcoholic 445b; Literary Prizes 447a; Lumber 451d; Marriage and Divorce 462d; Mathematics 466a; Meat 467b; Meteorology 473d; Mica 480c; Mineral and Metal Production 484a; Mormons 491b; Motion Pictures 496d; Motor Transportation 499c; Music 508c; Newfoundland and Labrador 523c; Newspapers and Magazines 528d; Nickel 533b; Norway 537c; Paper and Pulp Industry 570a; Peace Treaties 574d; Permanent Joint Board on Defense 577d; Philately 581b; Plague 591b; Plastics Industry 593d; Platinum Group Metals 593d; Poland 597b; Police 598b; Portugal 600a; Post Office 602b; Poultry 604a; Public Utilities 621b; Radio 628c; Railroads 634a; Rationing 635b; Rayon and Other Synthetic Fibres 636a; Refugees 640a; Relief 641d; Religion 642b; Rivers and Harbours 648b; Roads and Highways 649a; Rowing 652c; Rubber 654b; Rural Electrification 656b; Rye 657c; Salt 658d; Sand and Gravel 660a; Selenium 666b; Seventh-day Adventists 666c; Sheep 667a; Shipbuilding 669a; Shipping, Merchant Marine 670a; Shows, Animal 671d; Silver 673c; Skiing 674a; Socialism 677d; Social Security 679b; Sodium Carbonate 685a; Sodium Sulphate 685a; Soil Erosion 686a; Squash Racquets 695a; Stone 700a; Strikes 701d; Suicide Statistics 703b; Sunday Schools 704a; Talc 711d; Tariffs 712c; Taxation 716c; Tellurium 722b; Tennis 724a; Theatre 727c; Titanium 729b; Town and Regional Planning 732a; Tuberculosis 738b; Tungsten 739b; United Church of Canada 746b; U.N. 746c; U.N.R.R.A. 753b; U.S. Investments Abroad 761c; Veterans' Organizations 781b; War Debts 790d; Wheat 798a; Wildlife Conservation 800b; Zinc 821a. *See* also various provinces and territories
Canadian Literature
Canadian-U.S. War Committees: *see* **Permanent Joint Board on Defense 48, 47.** *See* **Canadian-U.S. War Committees 46, 45, 44**
Canaigre 437b
Canals and Inland Waterways
Aqueducts 58c; Rivers and Harbours 647c
Cancer
Atomic Energy 83b; Biochemistry 121c; California, University of, 159b; Chemotherapy 185b; Chicago, University of, 189b; Death Statistics 240a; Dermatology 249c; Donations and Bequests 257c; Institutum Divi Thomae 390d; Medicine 469c; Narcotics and Narcotic Traffic 511b; Public Health Services 618b; Surgery 704c; Yale University 817d
Candy
Cane Sugar: *see* **Sugar**
Canning Industry
ARA 25a; Fisheries 309d; Vegetables 775b
Cannon, James, Jr. 45
Canol Oil Project: *see* **Northwest Territories 46, 45, 44.** *See* **Petroleum 44**
Canterbury, Archbishop of: *see* **Fisher, Geoffrey Francis 48, 47, 46.** *See* **Temple, William 45**
Canton Island: *see* **Pacific Islands, U.S. 47, 46, 45, 44**
Cape Verde Islands: *see* **Portuguese Colonial Empire**
Capone, Alphonse 541c
Caraway 694d
Carbon Black 48, 47, 46
Gas, Natural 336d; Rubber 654c
Carbon 14: Archaeology 62c; Atomic Energy 86b; Physics 589a
CARE (Cooperative for American Remittances to Europe, Inc.): Child Welfare 191d; Christian Science 198a; Flour 313d
Carey, Eben James 541d
Carey, Harry 541d
Caribbean Commission: *see* **West Indies 48, 47**
French Overseas Territories 331d
Carlson, Evans Fordyce 44
Obituaries 541d
Carnegie Trusts: *see* **Societies and Associations 48, 47, 46.** *See* **Carnegie Trusts 45, 44**
A.L.A. 47a; Anthropology 54d; Art Exhibitions 77d; Libraries 441d; Pennsylvania, University of, 577d
Caroline Islands: *see* **Trustee Territories 48.** *See* **Mandates 47.** *See* **Caroline Islands 46, 45.** *See* **Pacific Islands 44**
Anthropology 55b; Pacific Islands under Trusteeship 563a
Caronamide 805a
Caro Rodriguez, Jose Maria: *see* **Rodriguez, Jose Maria Caro 46**
Carpatho-Ukraine 46
Carrel, Alexis 45
Carter, Boake 45
Carter, William Spencer 45
Cartier de Marchienne, Emile de 47
Cartography 48
Coast and Geodetic Survey, U.S. 208a; Exploration and Discovery 293c; Geography 339a; Mathematics 466a; National Geographic Society 512b; Societies 680d
Carver, George Washington 44
Casey, Richard Gardiner 44
Cassel, Gustav 46
Cassirer, Ernst 46
Castelnau, Edouard de C. de 45
Castillo, Ramón S. 45
Castillo Najera, Francisco 47
Castor beans 186d
Catastrophes: *see* **Disasters**
Cather, Willa Sibert 542a
Catholic Church: *see* **Roman Catholic Church**
Catholic Community Service, National: *see* **Societies and Associations 48, 47, 46.** *See* **Catholic Community Service, National 45, 44**
Catholic Library Association: *see* **Societies and Associations 48, 47, 46.** *See* **Catholic Library Association 45, 44**
Catholic Organizations for Youth
Marriage and Divorce 462c
Catholic Rural Life Conference, National
Catholic University of America 48, 47
Catholic Welfare Conference, National
Roman Catholic Church 651b
Catholic Youth Organization: *see* **Catholic Organizations for Youth**
Catroux, Georges 44
Catt, Carrie Chapman 542a
Cattani, Federico 44
Cattell, James McKeen 45
Cattle
ARA 24b; Agriculture 25d; Dairying 235d; Leather 436c; Livestock 448a; Meat 466d; Pneumonia 594d; Veterinary Medicine 782a. *See* also various states, provinces and countries
Cavalieri, Lina 45
Cavan, Frederic Rudolph L. 47
Cazalet, Victor Alexander 44
C.E.D.: *see* **Committee for Economic Development**
Celebes Islands: *see* **Netherlands Indies**
Cellulose Products: *see* **Plastics Industry; Rayon and other Synthetic Fibers 48, 47, 46, 45, 44.** *See* **Paper and Pulp Industry 47, 46, 45, 44**
Cement
Coal 206a; Gas, Natural 336d. *See* also various states and countries
Censorship 46, 45, 44
Words and Meanings, New 805c
Census Data (U.S.)
Agriculture 30b; Birth Statistics 123b; FSA 303c; Housing 370c; Immigration and Emigration 379d; Marriage and Divorce 462b
Centennials: *see* **Calendar** (page xxii)
Central America 47, 46, 45, 44
American Citizens Abroad 44a; Fruit 333b; Gold 347d. *See* also various countries
Cereals: *see* **Barley; Corn; Oats; Rice; Rye; Wheat**
Ceylon
Aviation, Civil 93a; Christian Unity 198d; Graphite 350c; Law 435b; Missions, Foreign 486d; Tea 718a
Chain Stores: *see* **Business Review 46, 45, 44**
Business Review 154d
Chambers of Commerce
Town and Regional Planning 732a
Chaminade, Cécile 45
Champetier de Ribes, Auguste 542b
Chandler, Albert Benjamin 46
Baseball 109d
Channel Islands: *see* **British Empire**
Chapultepec Conference: *see* **Inter-American Conference on Problems of War and Peace; Pan American Union 46**
Charles 48, 47, 46
Belgium 116b
Charter of the United Nations: *see* **United Nations Conference on International Organization 46**
Chase, Harold (Hal) 542b
Chauvel, Sir Henry George 46
Cheese
ARA 24b; Dairying 235d; Food Supply of the World 317b; Milk 483a
Chemical Therapy: *see* **Chemotherapy**
Chemistry
Business Review 153b; Electronics 278a; Munitions 503c; Nobel Prizes 533d; Societies 680b; Words and Meanings, New 804d
Chemotherapy
Chemurgy
Ch'en, Eugene 45
Chennault, Clair L. 46, 45, 44
Chernyakhovsky, Ivan D. 46, 45
Cherries: *see* **Fruit 48, 47, 46**
Chess
Chiang Kai-shek
China 196a; Wedemeyer, A.C. 795b
Chiang Kai-shek, Madame 44
Chicago
Chicago, University of
Archaeology 60b; Atomic Energy 83a; Gymnastics 358c; Hutchins, R. M. 375c; Medicine 469c; Meteorology 473c; Public Opinion Surveys 620a
Chiefs of Staff, The Combined: *see* **Combined Chiefs of Staff, The 47, 46, 45, 44**
Child Labour 48, 47. *See* **Child Welfare 46, 45, 44**
Children's Books
A.L.A. 46c; Canadian Literature 167a; Libraries 441b; Literary Prizes 446d
Children's Bureau, United States: *see* **Child Welfare 47, 46, 45, 44**
Child Welfare
Child Labour 190a; FSA 303c; Juvenile Deliquency 422d; Social Security 678d. *See* also various states
Chile
Argentina 72a; Armies of the World 76c; Birth Statistics 123c; Communism 215b; Copper 225b; Debt, National 242d; Employment 280c; Exchange Control 289d; Infant Mor-

tality 390a; Inter-American Affairs, The Institute of, 392d; Inter-American Defense Conference 393c; International Monetary Fund 402a; International Trade 404a; Iron and Steel 410b; Manganese 459a; Marriage and Divorce 463b; Mercury 471d; Mineral and Metal Production 484a; Narcotics and Narcotic Traffic 510d; Navies of the World 518b; Nitrogen, Chemical 533d; Norway 537c; Refugees 640a; Silver 673c; Soil Erosion 686c; Spanish-American Literature 692c; Spices 694c; Tariffs 712c; U.N. 746c; U.S. Investments Abroad 762b; War Debts 790c; Wines 802a; Yugoslavia 820b

China
Agriculture 28d; Armies of the World 74a; Aviation, Civil 93b; Baptist Church 108d; Barley 109d; Bismuth 124b; Child Welfare 191c; Communism 215a; Congregational Christian Churches 217d; Cotton 228d; Democracy 245d; European Recovery Program 288c; Exchange Control 292d; Famines 296b; Floods 312c; Food Supply of the World 315d; Formosa 325a; Friends, Religious Society of, 332c; Furs 335d; Greece 354b; Illiteracy 379c; Immigration and Emigration 380a; Infantile Paralysis 388c; International Law 401d; International Monetary Fund 402b; International Trade 406a; Iron and Steel 411b; Japan 417c; Kidnapping 424b; Manchuria 458c; Marine Corps 462a; Mercury 471d; Mineral and Metal Production 484a; Missions, Foreign 486c; Mongolia 489b; Navies of the World 516c; Norway 537c; Paints and Varnishes 565c; Peace Treaties 574d; Peanuts 576c; Public Health Engineering 618a; Refugees 640b; Rice 647b; Roads and Highways 650a; Roman Catholic Church 651a; Seventh-day Adventists 666d; Shipping, Merchant Marine 669d; Silk 672d; Sinkiang 673d; Spices 694c; Tariffs 712c; Tobacco 729d; Trustee Territories 736b; Tungsten 739a; U.N. 746c; U.N.R.R.A. 753b; U.S. 756b; War Crimes 789d; War Debts 790d; Wheat 798b; World Federation of Trade Unions 806b

Chinese-Japanese War: *see* **World War II 46, 45, 44**

Chinese Turkestan: *see* **Sinkiang**

Chittenden, Russell Henry 44
Chlordane: ARA 24d; Words and Meanings, New 805a
Chloroform 52c
Chloromycetin: Medicine 468b; Words and Meanings, New 805a
Chloroquine 468d

Cholera: *see* **Epidemics 48**
U.N. 750d

Chosen: *see* **Korea 48, 47, 46.** *See* **Chosen 45, 44**

Chou En-Lai 47

Christian X 47, 46, 45, 44
Denmark 247c; Obituaries 542c

Christian Mission on World Order 44

Christian Science
Church Membership 200a

Christian Unity
Lutherans 452b; Presbyterian Church 604c; Religion 642c

Christie, John Walter 45

Chromite
Mineral and Metal Production 483b

Chronology: *see* **Calendar of Events** (pages 1-16)

Church, Samuel Harden 44

Churches, World Council of: *see* **Christian Unity**
Churchill, Winston 542c

Churchill, Winston Leonard S.
Newspapers and Magazines 528d; Parliament, Houses of, 572c; Sculpture 662b

Church Membership
See also various churches

Church of England
Christian Unity 199a; Church Membership 200c; Law 435b; Religion 642b

Church Reunion: *see* **Christian Unity 48, 47, 46, 45, 44.** *See* **Religion 44**

Ciano, Galeazzo 45

Cigars and Cigarettes: *see* **Tobacco**

Cinema Industry: *see* **Motion Pictures**

Cinnamon: *see* **Spices**

C.I.O.: *see* **Congress of Industrial Organizations**
Citizens Food Committee 445d

Citrine, Sir Walter McLennan 44

Citrus Fruits: *see* **Fruit 48, 47, 46, 45.** *See* **Grapefruit; Lemons and Limes; Oranges 44**
Chemurgy 187a

City and Town Planning: *see* **Town and Regional Planning**

City Government: *see* **Municipal Government**

City Manager Plan: *see* **Municipal Government**

Civil Aeronautics Administration 48, 47, 46, 45. *See* **Airports and Flying Fields 44**
Aircraft Manufacture 33c; Airports 33d; Aviation, Civil 94c; Budget, National 146c

Civil Air Patrol: *see* **Civilian Defense 44**

Civilian Defense 46, 45, 44

Civilian Production Administration 47. *See* **Priorities and Allocations; War Production Board 46**
Rubber 653b

Civilian Requirements, Office of: *see* **War Production, U.S. 45, 44**

Civil Liberties 48, 47, 46, 45. *See* **Aliens; Anti-Semitism; Birth Control; Education; Law; Lynchings; Negroes (American); Newspapers and Magazines; Radio 44**
Civil Service 203a; Clark, T. C. 203c; Communism 215c; Law 431a; Negroes, American 519a; Sociology 684a

Civil Service
Communism 215c; Employment 280a; Law 433d

Clair, Matthew Wesley 44

Clapham, Sir John H. 47

Clapper, Raymond 45

Clark, Mark Wayne 47, 46, 45, 44

Clark, Thomas Campbell 48, 47, 46
Republican Party 645a

Clarke, John Hessin 46

Clawson, Rudger 44

Clay, Lucius DuBignon 48, 47, 46

Clays
Business Review 153b; Employment 280b; Wages and Hours 787a

Clayton, William Lockhart 48, 47
U.S. 757b

Clendening, Logan 46

Cleveland

Climate: *see* **Meteorology**

Clothing Industry
Business Review 152c; Cotton 227d; Employment 280b; Prices 607c; Rationing 635a; Strikes 700d; U.N.R.R.A. 753b; Wages and Hours 787a

Cloves: *see* **Spices 47, 46, 45, 44**

Coal
Business Review 153b; Employment 280b; Industrial Health 387d; International Trade 404d; Labour Unions 427d; Mineral and Metal Production 484a; Public Utilities 621b; Socialism 676b; Strikes 700d; Wages and Hours 787a. *See* also various states and countries

Coast and Geodetic Survey, U.S.
Cartography 171b

Coast Guard, U.S.
Coast Guard academy, U.S. 209b

Coates, Joseph Gordon 44

Cobalt
Mineral and Metal Production 483b

Cobb, Irvin Shrewsbury 45
Coca 510d

Cochin-China: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**

Cocoa
Candy 169a. *See* also various countries

Coconuts
International Trade 406b. *See* also various countries

Coffee
See also various countries
Cohen, Morris Raphael 542d

Coinage

Coke
Mineral and Metal Production 484a. *See* also various states

Cold, Common
Pneumonia 594c
Cold War: Newspapers and Magazines 525c; Truman, H.S. 735b; Words and Meanings, New 805a

Colijn, Hendrick 45

Colleges and Universities: *see* **Universities and Colleges**

Colles, Henry Cope 44

Colombia
Archaeology 62a; Armies of the World 76c; Bridges 138a; Coffee 210a; Coinage 210b; Dams 236a; Debt, National 242d; Ecuador 262a; Exchange Control 289d; Greece 354b; Inter-American Affairs, The Institute of, 392d; Inter-American Defense Conference 393c; International Trade 404a; Mineral and Metal Production 484a; Narcotics and Narcotic Traffic 510d; Navies of the World 518b; Platinum Group Metals 593d; Smithsonian Institution 675a; Tariffs 712c; U.N. 746c; War Debts 790c

Colorado

Colorado, University of, 48, 47

Colour Photography: *see* **Motion Pictures; Photography**

Columbia, District of: *see* **Washington, D.C.**

Columbia University
Basketball 114d; Food Research 315a; Football 318d; Juvenile Delinquency 423a; Marriage and Divorce 462c; Music 508d; National Geographic Society 512b; Physics 587d; Pulitzer Prizes 622c; Rowing 652a

Columbium

Combined Chiefs of Staff, The 47, 46, 45, 44

Combined War Boards, British-U.S.: *see* **British-U.S. War Boards 46, 45, 44**

Comets: *see* **Astronomy**

Cominform: *see* **Communism; U.S.S.R. 48**

Comintern: *see* **U.S.S.R. 44**

Commerce: *see* **Business Review; International Trade**

Commerce, U.S. Department of: *see* **Government Departments and Bureaus**
Canning Industry 170a; Priorities and Allocations 611c; Taxation 713d

Commerce Commission, Interstate: *see* **Interstate Commerce Commission**

Commission on a Just and Durable Peace 47, 46, 45
Federal Council of the Churches of Christ 301a
Commission on Freedom of the Press: Hutchins, R. M. 375d; Newspapers and Magazines 528c

Committee for Economic Development
Economics 261a; Taxation 713c
Committee of European Economic Cooperation 288b

Committee of National Liberation, French: *see* **France 45, 44**
Committee to Frame a World Constitution: Chicago, University of, 189d; Hutchins, R.M. 375d

Commodity Prices: *see* **Business Review; Prices**

Commons, Members of House of: *see* **Parliament, Houses of**

Commonwealth Fund, The: *see* **Societies and Associations 48, 47, 46.** *See* **Commonwealth Fund, The 45, 44**

Communications Commission, Federal: *see* **Federal Communications Commission**

Communism
American Legion 45d; Chambers of Commerce 180b; Civil Liberties 202b; Democracy 244c; Dutra, E.G. 259a; Education 266c; Elections 271b; Kidnapping 424a; Labour Unions 427a; Law 433d; Motion Pictures 492a; Police 597c; Political Parties, British 599b; Republican Party 645a; Roman Catholic Church 650d; Russian Literature 657a; Schwellenbach, L.B. 661c; Socialism 676b; V.F.W. 780d; Veterans' Organizations 781b; Words and Meanings, New 805a. *See* also various countries

Community Chest
Donations and Bequests 257c

Community Trusts

Composers, Authors and Publishers, American Society of: *see* **Societies and Associations 48, 47, 46.** *See* **Performing Right Societies 45, 44**

Confectionery: *see* **Candy**

Conferences: *see* **Berlin Conference; Inter-American Conference on Problems of War and Peace; Moscow Conference of Foreign Ministers; United Nations Conference on International Organization; United Nations Monetary and Financial Program; Yalta Conference 46**
Accidents 18a; A.L.A. 46b; Anthropology 54b; Architecture 66c; Australia 87d; Birth Control 123a; British East Africa 139c; British West Africa 143b; Cartography 171a; Christian Unity 198b; FCC 300c; Food Supply of the World 315d; Foreign Ministers Conferences 322b; Forests 324c; Friends, Religious Society of, 332b; Inter-American Defense Conference 393c; I.L.O. 398a; Libraries 440c; Lumber 451d; Marriage and Divorce 462c; Meteorology 472d; Methodist Church 477b; Pan American Union 569c; Peace Treaties 574d; Police 598b; Presbyterian Church 604c; Public Opinion Surveys 620a; Radio 628b; Red Cross 638c; Religion 643a; Town and Regional Planning 731d; Veterinary Medicine 781d; Wildlife Conservation 800a

Congo, Belgian: *see* **Belgian Colonial Empire**

Congregational Christian Churches
Christian Unity 198d; Church Membership 200a; Disciples of Christ 255d; Presbyterian Church 604c

Congress, United States
Budget, National 144d; Building and Construction Industry 148d; Business Review 152b; Civil Liberties 202a; Elections 269d; European Recovery Program 288b; Exchange Control 289b; Housing 370d; Indians, American 387a; Labour Unions 426b; Law 428d; Motion Pictures 492a; Prices 608d; Relief 641b; Republican Party 644d; Selective Service 665a; Taxation 713b; U.S. 754c; Washington, D.C. 792c

Congress of Industrial Organizations
Co-operative Movement 225a; Labour Unions 426d; Murray, P. 506b; NLRB 513c; Negroes, American 519c; U.S. 757d; World Federation of Trade Unions 806b

Coningham, Sir Arthur 45, 44

Connally, Tom (Thomas T.) 48, 47

Connecticut

Conscientious Objectors: *see* **Pacifism 48, 47, 46, 45, 44.** *See* **Friends, Religious Society of, 47, 46, 45, 44**

Conscription: *see* **Selective Service**

Conservation, Soil: *see* **Soil Erosion and Soil Conservation**

Conservative Party, Great Britain: *see* **Political Parties, British 48.** *See* **Conservative Party, Great Britain 47, 46, 45, 44**

Consumer Credit
Automobile Industry 91c; Banking 106d; Business Review 153b; Federal Reserve System 303b

Contract Bridge
Betting and Gambling 120a

Contract Renegotiation: *see* **Business Review 46, 45, 44**

Contract Settlement, Office of: *see* **Law; War Mobilization and Reconversion, Office of, 46, 45**

Contract Terminations 47, 46, 45

Controlled Materials Plan: *see* **Priorities and Allocations 47, 46, 45, 44.** *See* **War Production, U.S. 45, 44**

Convoys: *see* **Submarine Warfare 46, 45, 44**
Cook, Sir Joseph 542d

Cook, Will Marion 45
Cooperative for American Remittances to Europe, Inc.: *see* CARE

Co-operative Movement 48, 47, 46, 45
Law 429d; Taxation 714b

Copper
Employment 280b; Mineral and Metal Production 483b; OPA 605c; Secondary Metals 663a; Stocks and Bonds 697d; U.S. Investments Abroad 762b. *See* also various states and countries

Copra: *see* **Coconuts**

Copyright
Corfu Channel incident: Albania 37b; International Court of Justice 397d; International Law 401c; U.N. 747c

Cori, Carl Ferdinand 48
Diabetes 251c; Nobel Prizes 533d

Cori, Gerty Theresa 48
Diabetes 251c; Nobel Prizes 533d

Corn
ARA 25a; Agriculture 25d; Alcohol, Industrial 38a; Brewing and Beer 134c; Chemurgy 186c; Food Research 315b; Food Supply of the World 316b; Liquors, Alcoholic 444d; Purdue University 622d; Soil Erosion 685c; Vegetables 774c. *See* also various states and countries

Cornell University
Anthropology 54d; National Geographic Society 512b; Rowing 652a

Cornhusking 47, 46, 45, 44

Corporation Income Tax: *see* **Taxation**

Corundum: *see* **Abrasives**

Cosmetics: *see* **Soap, Perfumery and Cosmetics**

Cosmic Rays: *see* **Physics**
Colorado, University of, 213d

Costa Rica
American Citizens Abroad 44a; Archaeology 61d; Exchange Control 290a; Inter-American Affairs, The Institute of, 392c; Inter-American Defense Conference 393c; Peace Treaties 574a; U.N. 746c; War Debts 790c

Cost of Living: *see* **Business Review; Price Administration, Office of; Prices**
Newspapers and Magazines 525c. *See* also various countries

Cotton
ARA 25a; Agriculture 25d; Clothing Industry 204c; International Trade 404b; Rationing 635a; Textile Industry 726a; War Debts 790c. *See* also various states and countries

Cottonseed Oil: *see* **Vegetable Oils and Animal Fats**

Council of Foreign Ministers: *see* **Foreign Ministers' Conferences 48.** *See* **Council of Foreign Ministers 47**
Counterfeiting 663c

Countries of the World, Areas and Populations of the: *see* **Areas and Populations of the Countries of the World**
Courtauld, Samuel 543a

Courts, Civil: *see* **Law**

Courts, Military: *see* **Law 47, 46, 45, 44**

Cowles, Gardner 47

CPA: *see* **Civilian Production Administration 47.** *See* **Priorities**

and Allocations; War Production Board 46
Craig, Malin 46
Cranberries: *see* **Fruit 48, 47, 46, 45**
Craven, Frank 46
Credit, Consumer: *see* **Consumer Credit**
Cremonesi, Carlo 44
Crerar, Henry Duncan G. 46, 45
Crewe, Robert Offley, A. C.-M. 46
Cricket
Crile, George Washington 44
Crime
FBI 299d; Kidnapping 424a; Law 431a; Motion Pictures 492d; Police 597d; Prisons 612b; Secret Service, U.S. 663c
Crimea Conference: *see* **Yalta Conference 46**
Cripps, Sir (R.) Stafford, 48, 47
Great Britain 351d; Parliament, Houses of, 572d
Croatia: *see* **Yugoslavia 48, 47, 46.** *See* **Croatia 45, 44**
Crop Insurance: *see* **Agriculture 46, 45, 44**
Agriculture 31a
Crosman, Henrietta 45
Crowley, Leo Thomas 44
Crude Oil: *see* **Petroleum**
Cruisers: *see* **Navies of the World**
Crumit, Frank 44
Crushed Stone: *see* **Stone**
Cryolite
Cuba
American Citizens Abroad 44a; Armies of the World 76c; Beekeeping 115d; Chess 187d; Chromite 199a; Communism 215b; Diamonds 252a; Dominican Republic 256c; Ecuador 262a; Exchange Control 289d; Fencing 306a; Food Supply of the World 317a; Inter-American Defense Conference 393c; International Trade 404a; Manganese 459a; Navies of the World 518b; Nickel 533b; Norway 537c; Poultry 604a; Radio 628c; Sugar 702a; U.N. 746c; War Debts 790c; West Indies 796a
Cudahy, John 44
Cumin 694d
Cunningham, Sir Andrew B. 45, 44
Curaçao
West Indies 796a
Curare: Anaesthesiology 52c; Medicine 469a
Curling
Currency: *see* **Coinage; Exchange Control and Exchange Rates.** *See* also various countries
Curry, John Steuart 47
Curtin, John 46, 45, 44
Cutler, Elliott Carr 543b
Cycling
Cyclotron: *see* **Atomic Energy 48, 47.** *See* **Physics 48, 47, 46.** *See* **Atomic Bomb; Chemistry 46**
California, University of, 159b; Columbia University 214a; Medicine 469c; Washington, University of (Seattle) 792d
C.Y.O.: *see* **Catholic Organizations for Youth**
Cyprus 48. *See* **Mediterranean, British Possessions in the 47, 46, 45, 44**
Archaeology 64b; Asbestos 79d; Aviation, Civil 93a; Eastern Orthodox Churches 260c; Jewish Religious Life 421a; Law 435b
Czechoslovakia
Architecture 68d; Armies of the World 76c; Aviation, Civil 93b; Book Publishing 127d; Business Review 156a; Chess 187d; Child Welfare 191c; Chile 195a; Coal 205d; Communism 215b; Dance 239a; Debt, National 242d; Democracy 245a; Eastern Orthodox Churches 260c; Education 266c; European Recovery Program 288a; Exchange Control 290b; Foreign Ministers' Conferences 322b; Germany 343d; Ice Hockey 376d; Iron and Steel 411b; Linen and Flax 444a; Mineral and Metal Production 484a; Motion Pictures 496c; Poland 597a; Prices 609d; Prisoners of War 612a; Refugees 640d; Socialism 677b; Sunday Schools 704a; Table Tennis 711b; Tariffs 712d; Tennis 724a; Unitarian Church 746a; U.N. 746c; U.N.R.R.A. 753b; Venezuela 777d; Veterans' Organizations 781d; War Crimes 788d; War Debts 790a; Wines 802a; Yugoslavia 820a
Dafoe, Allan Roy 44
Dafoe, John Wesley 45
Dahomey: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Dairy Industry, Bureau of: *see* **Agricultural Research Administration**
Dairying
ARA 24b; Agriculture 25d; Butter 157b; Cattle 173d; Cheese 181c; Food Supply of the World 317b; International Trade 404b; Milk 482d; Public Health Engineering 618a
Dallin, Cyrus Edwin 45
Dalmatia 44
Dalton, (E.) Hugh J. N. 48, 47, 46
Great Britain 351b; Parliament, Houses of, 572d
Dalyde 260a
Dams
Architecture 66d; Canals and Inland Waterways 167b; Floods 311a; Irrigation 412b; Rivers and Harbours 647c; Soil Erosion 686a; TVA 723a; Wilderness Preservation 798d
Dance
Danchenko, Vladimir N. 44
Danzig 46
Darby, William Orlando 46
Dartmouth College
Ice Hockey 376d; Rowing 652c
Darwin, Leonard 44
Dashwood, Mrs. Elizabeth M.: *see* **Delafield, E. M. 44**
Dates: *see* **Fruit 48, 47, 46**
Daughters of the American Revolution, National Society of: *see* **Societies and Associations 48, 47, 46.** *See* **Daughters of the American Revolution, National Society of, 45, 44**
Davenport, Charles Benedict 45
Davies, David Davies 45
Davies, Joseph Edward 44
Davis, Chester Charles 45, 44
Davis, Elmer 46, 45, 44
Davis, Henry Hague 45
Davis, Norman Hezekiah 45
Dawson, Bertrand Dawson 46
Dawson, George Geoffrey 45
DDT: *see* **Entomology 48, 47, 46.** *See* **Medicine; Wildlife Conservation 46.** *See* **DDT 45**
Horticulture 367d; Public Health Services 619c
Deafness
Urology 770d
Deaths (of prominent persons): *see* **Obituaries**
Death Statistics
Accidents 17d; Census Data 175a; Diabetes 251a; Famines 296b; Infant Mortality 389c; Insurance 391b; Public Health Services 619b; Suicide Statistics 703b; Venereal Diseases 775d
Debt, National 48, 47, 46, 45. *See* **National Debt 44**
Banking 106b; Budget, National 146d. *See* also various countries
Debts, Government: *see* **Debt, National 48, 47, 46, 45.** *See* **National Debt 44**
Decorations, Medals and Badges—Military, Naval and Civil 48, 47, 46, 45. *See* **Decorations, Military and Naval 44**
Coinage 210c
Defense, Civilian: *see* **Civilian Defense 46, 45, 44**
Defense, National (U.S.): *see* **Aviation, Military 45.** *See* **National Guard; Navies of the World; War Production, U.S. 45, 44.** *See* **Air Forces of the World 44**
Atomic Energy 84b
Defense Board, Economic: *see* **Foreign Economic Administration 46, 45, 44**
Defense Communications Board: *see* **Federal Communications Commission 47.** *See* **War Communications, Board of, 46, 45, 44**
Defense Research Committee, National: *see* **Scientific Research and Development, Office of, 46, 45, 44**
Defense Transportation, Office of, 47, 46, 45, 44
De Gasperi, Alcide: *see* **Gasperi, Alcide de 48**
De Gaulle, Charles: *see* **Gaulle, Charles de**
De Geer, Gerard (Jakob) 44
Delafield, E. M. 44
Deland, Margaretta W. (C.) 46
Delaware
De Marigny, Alfred: *see* **Oakes, Sir Harry 44**
Democracy
Civil Liberties 202a; Communism 215b; Education 264c; Occupied Areas, Administration of, 556a
Democratic Party
Elections 269d; McGrath, J. H. 454a; Truman, H. S. 735d; U.S. 754c. *See* also various states
Dempsey, Sir Miles C. 46, 45
Denfeld, Louis Emil 48
Denham, Robert N. 48
De Nicola, E.: *see* **Nicola, E. de 48, 47**
Denmark
American Citizens Abroad 43d; Architecture 68b; Armies of the World 76c; Baptist Church 108d; Barley 109d; Birth Statistics 124a; Business Review 156a; Candy 169c; Cattle 174c; Debt, National 242d; Decorations, Medals and Badges 243d; Democracy 245d; Diabetes 251b; Elections 271b; European Recovery Program 288a; Exchange Control 289b; Fisheries 308c; Food Supply of the World 317b; Foreign Investments in the U.S. 321a; Foreign Ministers' Conferences 322b; Greenland 357a; Horticulture 367c; Iceland 377a; International Bank 396d; International Law 401d; International Monetary Fund 402a; International Trade 405a; Lumber 451d; Motion Pictures 497d; Music 508c; Navies of the World 517d; Railroads 633b; Red Cross 638d; Refugees 640d; Rural Electrification 656d; Sculpture 662c; Shipbuilding 668d; Socialism 676c; Swimming 708c; Switzerland 710a; Tariffs 712d; Taxation 714d; U.N. 746d; U.S. Investments Abroad 762c; War Debts 790d
Dennett, Mary Ware 543b
Dennis, Charles Henry 44
Denny, Harold Norman 46
Dental Association, American: *see* **American Dental Association**
Dentistry
A.D.A. 44b; Public Health Engineering 617c; Societies 680c
Deposit Insurance Corporation, Federal: *see* **Federal Deposit Insurance Corporation**
Dermatology
Public Health Engineering 618b; Words and Meanings, New 804d
Desk-Fax 718d
Destroyers: *see* **Navies of the World**
Detroit
Detroit Institute of Arts: Art Exhibitions 78b; Museums 507a
Devers, Jacob Loucks 46, 45, 44
Dewey, Thomas Edmund 48, 45
New York 529d; Republican Party 645b
DFP 468d
Diabetes
Death Statistics 240a; Dentistry 248d
Diamonds
Abrasives 17b; Mineral and Metal Production 484c; Mineralogy 485b. *See* also various countries
Diatomite
Dibenamine 186b
Dickinson, Luren Dudley 44
Dickinson, Willoughby Hyett D. 44
Dictatorships: *see* **Communism; Fascism; Spain; U.S.S.R. 48, 47, 46, 45.** *See* **Germany 47, 46, 45.** *See* **Japan; Rumania 45, 44**
Diesel Engines: *see* **Power Engineering 46**
Dietetics: *see* **Food Research 48.** *See* **Dietetics 47, 46, 45, 44**
Gynaecology and Obstetrics 358d
Dietl, Eduard 45
Dill, Sir John Greer 45
Dimension Stone: *see* **Stone**
Dimitrov, Georgi 48
Dinnyes, Lajos 48
Diphtheria: Bacteriology 103c; Epidemics 284c; Public Health Services 619a
Diplomatic Services: *see* **Ambassadors and Envoys**
Disabled American Veterans 48, 47
Veterans' Organizations 781a
Disasters
Death Statistics 240d; Fertilizers 306c; Fires and Fire Losses 308b; Floods 311d; FWA 304d; Meteorology 475d; National Guard 513a; Newspapers and Magazines 525c; Red Cross 638a; Seismology 664d
Disciples of Christ
Christian Unity 198d; Church Membership 200a
Displaced Persons: *see* **Prisoners of War; Refugees**
American Legion 46a; Anti-Semitism 57b; Catholic Welfare Conference, National 173b; Immigration and Emigration 380a; Palestine 567d; Poland 597b; Roman Catholic Church 651c; Surinam 705d; U.N.R.R.A. 753d
District of Columbia: *see* **Washington, D.C.**
Ditter, J. William 44
Divorce: *see* **Marriage and Divorce**
Dixon, Thomas 47
Dodecanese 48, 47, 46. *See* **Italian Colonial Empire 45, 44**
Greece 356b; Rivers and Harbours 648c; U.N.R.R.A. 753b
Doenitz, Karl 47, 46, 44
Dog Racing
Dog Shows: *see* **Shows, Animal**
Dollmann, Friedrich 45
Dominica: *see* **Windward Islands 48, 47.** *See* **West Indies 46, 45, 44**
Dominican Republic
Argentina 71a; Child Welfare 192c; Coinage 210b; Cuba 231b; Exchange Control 289d; Guatemala 358a; Inter-American Affairs, The Institute of, 392d; Inter-American Defense Conference 393c; International Monetary Fund 402b; Navies of the World 518b; Radio 628c; Refugees 640b; Tariffs 712d; U.N. 746d; U.S. Investments Abroad 762d; Venezuela 777c; War Debts 790c
Donaldson, Jesse M. 48
Donations and Bequests
Community Trusts 217d; Detroit 250c; Libraries 441d; Societies 681c
Doolittle, James 47, 46, 45, 44
Douglas, Lord Alfred (Bruce) 46
Douglas, Lewis Williams 48
Draft: *see* **Selective Service**
Drama: *see* **Radio; Theatre**
Dreiser, Theodore 46
American Literature 49c
Dress: *see* **Fashion and Dress**
Drew, George Alexander 44
Drought: *see* **Meteorology 48, 47, 46, 45.** *See* **Drought 44**
Drug Administration, U.S. 48
Drugs: *see* **Agricultural Research Administration; Alimentary System, Disorders of; Allergy; Anaesthesiology; Bacteriology; Biochemistry; Botany; Chemistry; Chemotherapy; Chemurgy; Dentistry; Dermatology; Drug Administration, U.S.; Endocrinology; Entomology; Eye, Diseases of; Gynaecology and Obstetrics; Medicine; Narcotics and Narcotic Traffic; Physiology; Public Health Services; Surgery; Urology; Veterinary Medicine; Vitamins.** *See* also articles on specific diseases, such as **Anaemia; Diabetes; Leprosy; etc.**
Atomic Energy 83b; Priorities and Allocations 611c; Psychiatry 613d; U.N. 750b; Words and Meanings, New 804d
Drug Traffic: *see* **Narcotics and Narcotic Traffic 48.** *See* **Drugs and Drug Traffic 47, 46, 45, 44**
Drunkenness: *see* **Intoxication, Alcoholic**
Dry ice: Floods 312c; Meteorology 472c
Duke University 48, 47
Dulles, John Foster 48
Dumbarton Oaks: *see* **United Nations Conference on International Organization 46.** *See* **International Law 46, 45**
Duncan, Sir Patrick 44
Dunhill, Thomas Frederick 47
Du Pont, Richard Chichester 44
Durant, William Crapo 543c
Dust Storms: *see* **Drought 44**
Dutch Possessions: *see* **Curaçao; Netherlands Indies; Surinam 48, 47, 46, 45, 44.** *See* **Borneo 47, 46.** *See* **Netherlands Colonial Empire 47, 46, 45, 44**
Dutra, Eurico Gaspar 48, 47
Communism 216b
Dyestuffs
EAC: *see* **European Advisory Commission 46, 45, 44**
Eaker, Ira C. 46, 45, 44
Ear, Nose and Throat, Diseases of
Deafness 239d
Earnings, Company: *see* **Business Review**
Stocks and Bonds 697b
Earthquakes: *see* **Seismology 48, 47, 46, 45, 44.** *See* **Disasters 48, 47, 45, 44**
Easley, Claudius Miller 46
East Africa, British: *see* **British East Africa**
Eastern Orthodox Churches 48
Christian Unity 198c; Church Membership 200a; Religion 642a
Eastern spotted fever 249d
East Indies, Dutch: *see* **Netherlands Indies**
Eastman, Joseph Bartlett 45, 44
East Prussia 47, 46
Eclipses of the Sun and Moon: *see* **Calendar** (page xxii). *See* **Astronomy 47, 46, 45, 44**
National Geographic Society 512a
Economic Association, American: *see* **Societies and Associations 48, 47, 46.** *See* **American Economic Association 45, 44**
Economic Defense Board: *see* **Foreign Economic Administration 46, 45, 44**
Economic Development, Committee for: *see* **Committee for Economic Development**
Economics
Book Publishing 126d; Business Review 152a; Income and Product, U.S. 381a; Societies 680c
Economic Stabilization, Office of: *see* **Civilian Production Administration; War Mobilization and Reconversion, Office of, 47.** *See* **Stabilization Administrator, Office of, 46.** *See* **Economic Stabilization, Office of, 45, 44**
Economic Warfare, Office of: *see* **Foreign Economic Administration 46, 45, 44**
Ecuador
Argentina 71a; Armies of the World 76c; Coinage 210b; Debt, National 242d; Exchange Control 289d; Inter-American Affairs, The Institute of, 392d; Inter-American Defense Conference 393c; Navies of the World 518b; Peace Treaties 574a; Peru 578d; Plague 591b; Tariffs 712c; U.N. 746d; War Debts 790c
Eddington, Sir Arthur Stanley 45

Eden, (Robert) Anthony 46, 45, 44
Edinburgh, Prince Philip 48
Elizabeth 279c; Great Britain 351a; London 448c; Parliament, Houses of, 572d
Edison, Mina 543d
Education
Accidents 18d; American Citizens Abroad 43c; A.F. of L. 44d; Book Publishing 126d; Budget, National 145d; Census Data 176c; Child Welfare 191d; CAA 201c; C.E.D. 214d; Deafness 239c; Ethical Culture Movement 287a; Federal Council of the Churches of Christ 301a; FSA 303d; FWA 304c; Four-H Clubs 325c; Hutchins, R.M. 375d; Illiteracy 379b; Information and Educational Exchange, Office of, 390a; Inter-American Affairs, The Institute of, 393a; Jewish Religious Life 421a; Law 431c; Libraries 441a; Marriage and Divorce 463a; Medical Rehabilitation of Disabled Veterans 468b; Motion Pictures 493b; N.E.A. 511d; Negroes, American 519c; Occupied Areas, Administration of, 556a; Parents and Teachers, National Congress of, 571a; Prisons 612b; Psychiatry 613d; Religion 642d; Socialism 676b; U.N. 750c; Veterans' Administration 779a. *See* also individual colleges and universities and various cities, states, provinces and countries
Education, U.S. Office of: *see* **Education; Federal Security Agency**
Education Association, National: *see* **National Education Association**
Edwards, Gus 46
Eggs
Agriculture 26a; Food Research 314d; Food Supply of the World 317b; Poultry 604a; Yeast 818b
Egypt
Anglo-Egyptian Sudan 53d; Archaeology 62c; Architecture 66b; Armies of the World 74a; Cartography 171a; Contract Bridge 224c; Cotton 228d; Debt, National 242d; Epidemics 284c; Exchange Control 290b; Food Supply of the World 316d; Great Britain 351b; International Monetary Fund 402c; Italian Colonial Empire 414a; Lend-Lease 438b; Linen and Flax 444a; Medicine 470d; Missions, Foreign 486d; Navies of the World 518b; Peace Treaties 574c; Public Health Engineering 617b; Public Health Services 619c; Shipbuilding 668d; Silk 672d; Syria and Lebanon 710c; U.N. 746d; U.S. Investments Abroad 762a; War Debts 790d
Eichelberger, Robert L. 46, 45, 44
Eire
Airports 34d; Armies of the World 76c; Aviation, Civil 93a; Birth Statistics 124a; European Recovery Program 288a; Exchange Control 291b; Foreign Investments in the U.S. 321a; Immigration and Emigration 380a; International Law 400a; International Trade 405a; Linen and Flax 443d; Medicine 471b; Prices 609c; Public Utilities 621d; Rationing 635c; Rural Electrification 656d; Taxation 717a; U.N. 746d; Wealth and Income, Distribution of, 794c; Wheat 798a
Eisenhower, Dwight D.
Cambridge University 159c; Inverchapel. A.J.K.C.K. 407c
Elections
Democracy 245b; Law 433d; Municipal Government 502a; Political Parties, British 598c; Socialism 676c. *See* also various cities, states, provinces and countries
Electrical Industries
Building and Construction Industry 148c; Census Data 178a; Employment 280a; FPC 302c; International Trade 404d; Machinery and Machine Tools 454d; Motion Pictures 496c; Public Utilities 620d; Rural Electrification 656a; Socialism 676b; Societies 681a; TVA 723a; Wages and Hours 787a
Electric Lighting: *see* **Electrical Industries**
Electric Transmission and Distribution: *see* **Electrical Industries**
Electric Transportation
Employment 280b; Tunnels 739c; Wages and Hours 787a
Electrification, Rural: *see* **Rural Electrification**
Electronic discrete variable computer (E.D.V.A.C.) 577c
Electronics 48, 47
Anaesthesiology 52c; Architecture 65d; Astronomy 80c; Coast and Geodetic Survey, U.S. 208a; Machinery and Machine Tools 454d; Metallurgy 472a; Motion Pictures 496b; Photography 585b; Printing 610c; Radio 624d; Seismology 665a; Standards, National Bureau of, 695c; Surplus Property Disposal 707b
Electron Microscope: *see* **Photography 44**
Botany 128c; Photography 585d
Elementary Education: *see* **Education**
Elgiloy 805a
Elizabeth, Princess 48
Edinburgh, Prince P. 262b; Great Britain 351a; London 448c; Newspapers and Magazines 525c; Parliament, Houses of, 572d; Philately 581b; Radio 626c
Elks, Benevolent and Protective Order of: *see* **Societies and Associations 48, 47, 46.** *See* **Elks, Benevolent and Protective Order of, 45, 44**
Ellice Islands: *see* **Pacific Islands, British**
El Salvador: *see* **Salvador, El**
Ely, Richard Theodore 44
Embassies, Great Britain and the United States: *see* **Ambassadors and Envoys**
Emeralds 337c
Emergency Management, Office for, 45, 44
Emery: *see* **Abrasives**
Emigration: *see* **Immigration and Emigration**
Employment
Business Review 154d; Census Data 178c; Child Labour 189d; Civil Liberties 202a; Civil Service 202d; C.E.D. 214b; Income and Product, U.S. 382a; Labour Unions 426d; Municipal Government 501a; Social Security 678b; Strikes 701d; Veterans' Administration 779d; Vocational Rehabilitation, Office of, 785d; Wages and Hours 786d. *See* also separate industries and various cities, states, provinces and countries
Encyclopaedia Britannica, Inc.: Benton, W. 118c; Hutchins, R. M. 375d; Libraries 442d; Newspapers and Magazines 528c
Encyclopaedia Britannica Films Inc.: Benton, W. 118c; Motion Pictures 493b
Enderbury Island: *see* **Pacific Islands, U.S. 47, 46, 45, 44**
Endocrinology
England: *see* **Great Britain and Northern Ireland, United Kingdom of**
English Literature
Eniwetok Atoll 83a
Entomology
ARA 24d; Aviation, Civil 95a; Dermatology 249b; Horticulture 367d; Public Health Engineering 618b; Veterinary Medicine 782c; Wildlife Conservation 800d
Entomology and Plant Quarantine, Bureau of: *see* **Agricultural Research Administration**
Enzymes: *see* **Biochemistry**
Zoology 821d
Epidemics
Egypt 268d; Medicine 470d; Plague 591a; Pneumonia 594c; Public Health Engineering 617b; Public Health Services 619a
Epilepsy: Medicine 468d; Nervous System 520c
Episcopal Church: *see* **Protestant Episcopal Church**
Eritrea: *see* **Italian Colonial Empire**
Espionage: *see* **Federal Bureau of Investigation 47, 46, 45, 44**
Estonia
Baptist Church 108c; Lithuania 447d; War Debts 790a
Etching
Ethical Culture Movement
Ethiopia
Coinage 210b; Exchange Control 290b; Italian Colonial Empire 414a; U.N. 746d; U.N.R.R.A. 753b; U.S. Investments Abroad 761d; War Debts 790d
Eugen, Prince 543d
European Advisory Commission 46, 45, 44
European Recovery Program 48
Agriculture 27b; Albania 37b; American Legion 45d; A.L.A. 47b; A.V.C. 51a; Belgium 117b; Bidault, G. 120c; Budget, National 144d; Business Review 152b; Chambers of Commerce 180c; Democracy 245b; Democratic Party 246a; Fertilizers 306d; International Bank 397a; International Law 401c; Marshall, G.C. 463d; Molotov, V.M. 488c; Petroleum 580a; Poland 596c; Republican Party 645b; Truman, H.S. 735b; U.S. 757b
Evangelicals, National Association of: *see* **National Association of Evangelicals 48, 47, 46**
Evatt, Herbert Vere 48, 47
Events of the Year: *see* **Calendar of Events** (pages 1–16)
Evers, John J. 544a
Ewing, James 44
Exchange Control and Exchange Rates
International Monetary Fund 402a; International Trade 403a; Law 434d; Tariffs 712a. *See* also various countries
Exchange Rates: *see* **Exchange Control and Exchange Rates**
Exchange Stabilization Funds 47, 46, 45, 44
Exchange Control 292d
Exhibitions, Livestock: *see* **Shows, Animal**
Existentialism: *see* **Philosophy 48**
Expenditure, Government: *see* **Budget, National**
Exploration and Discovery 48, 47
Argentina 70d; Boy Scouts 131b; Canada 164d; Coast and Geodetic Survey, U.S. 208a; Geography 339a; Marine Biology 460b; Meteorology 474d; Norway 538a; Seismology 665a
Explosions: *see* **Disasters**
Export Controls: *see* **International Trade 48.** *See* **Lend-Lease 47.** *See* **Foreign Economic Administration 46, 45**
Export-Import Bank of Washington
Cotton 228c; Exchange Control 289b; U.S. Investments Abroad 761b; War Debts 790c
Exports: *see* **Agriculture; International Trade; Tariffs.** *See* also various industries, products and countries
Eye, Diseases of
Medicine 468d
Facsimile: *see* **Radio; Telegraphy**
Advertising 22a; FCC 300d
Fair Employment Practice, Committee on, 46, 45
Negroes, American 519a
Falange: *see* **Fascism 45, 44**
Falk Foundation. The Maurice and Laura: *see* **Societies and Associations 48, 47, 46.** *See* **Falk Foundation, The Maurice and Laura 45, 44**
Falkland Islands: *see* **British Empire**
Fall, Albert Bacon 45
Famines
Rumania 655b
Far Eastern Commission: *see* **Reparations 48.** *See* **Japan 48, 47.** *See* **Allied Military Government 46**
Occupied Areas, Administration of, 555a; Peace Treaties 574d
Farm Co-operatives: *see* **Farm Credit Administration**
Law 429d
Farm Credit Administration
Farm Debt: *see* **Agriculture 48**
Farmers Home Administration 48, 47
Budget, National 146a
Farm Income: *see* **Income and Product, U.S. 48, 47, 46, 45.** *See* **Agriculture 48, 47, 46, 45, 44.** *See* **National Income and National Product 44**
Farm Machinery: *see* **Agriculture**
Farm Population: *see* **Agriculture; Census Data**
Farm Security Administration: *see* **Farmers Home Administration 48, 47.** *See* **Farm Security Administration 46, 45**
Farouk I 47
Fascism
Italian Literature 414c; Political Parties, British 599c; Veterans' Organizations 781b
Fashion and Dress
Clothing Industry 205a; Furs 335d; Shoe Industry 670c; Words and Meanings, New 805c
Faust, Frederick 45
FBI: *see* **Federal Bureau of Investigation**
FCA: *see* **Farm Credit Administration**
FCC: *see* **Federal Communications Commission**
FDIC: *see* **Federal Deposit Insurance Corporation**
Federal Bureau of Investigation
Police 598a
Federal Communications Commission
Radio 624c; Television 721b
Federal Council of the Churches of Christ in America
Christian Unity 198c; Democracy 244d
Federal Deposit Insurance Corporation
Federal Home Loan Bank: *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
Federal Housing Administration: *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
Federal Income Tax: *see* **Taxation**
Federal Land Banks: *see* **Farm Credit Administration**
Federal Mediation and Conciliation Service 48
Law 433d
Federal Power Commission
Law 429c
Federal Public Housing Authority: *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
Federal Reserve System
Banking 106d; Debt, National 242a; Law 429c
Federal Savings and Loan Insurance Corporation: *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
Federal Security Agency
Drug Administration 258a
Federal Trade Commission
Federal Works Agency
Accidents 19a; Surplus Property Disposal 707a; Town and Regional Planning 731d
Federated Malay States: *see* **Malayan Union and Singapore 48, 47.** *See* **Federated Malay States 46, 45, 44**
Federation of Labor, American: *see* **American Federation of Labor**
Feldspar
Fencing
Ferguson, James Edward 45
Ferrero, Gina Lombroso 45
Fertilizers
ARA 25b; Agriculture 30d; Cotton 228a; Food Supply of the World 316d; Nitrogen, Chemical 533d; Public Health Engineering 617d; TVA 723b
FHA (Federal Housing Administration): *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
FHLB (Federal Home Loan Bank): *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
Fiction: *see* **Book Publishing 48, 47, 46.** *See* **American Literature; Canadian Literature; English Literature; French Literature; German Literature; Italian Literature; Russian Literature; Spanish-American Literature; Spanish Literature 48, 47, 46, 45, 44.** *See* **Literary Prizes, 48, 44.** *See* **Prizes 47, 46, 45.** *See* **Publishing (Book) 45, 44**
Fido (fog, intensive, dispersal of): Airports 34c; Aviation, Civil 96c
Fields, W. C. 47
Field Sports: *see* **Track and Field Sports**
Fighting France (Free France): *see* **France; French Colonial Empire 45, 44.** *See* **World War II 44**
Figl, Leopold 48
Figs: *see* **Fruit 48, 47, 46, 45**
Fiji: *see* **Pacific Islands, British**
American Citizens Abroad 44a
Filberts: *see* **Nuts**
Financial Review: *see* **Business Review**
Fine Arts: *see* **Music; Painting; Sculpture; etc.**
Finland
Armies of the World 76c; Aviation, Civil 93b; Baptist Church 108d; Barley 109d; Birth Statistics 124a; Canada 165b; Child Welfare 191c; Debt, National 242d; Democracy 245a; Denmark 248c; European Recovery Program 288a; Exchange Control 290b; Friends, Religious Society of, 332c; Furniture Industry 335c; Ice Skating 377b; International Law 400a; International Monetary Fund 402b; Law 435c; Marriage and Divorce 463b; Mormons 491c; Navies of the World 517d; Norway 537c; Peace Treaties 574a; Rayon and Other Synthetic Fibres 636a; Sunday Schools 704a; Sweden 708a; Tariffs 712d; Tennis 724a; Track and Field Sports 732b; U.N. 746d; U.N.R.R.A. 753b; War Debts 790a; Yachting 816d
Finlay, William Finlay 46
Fire Insurance: *see* **Insurance**
Fires and Fire Losses
Disasters 254a; Insurance 392a; Maine 456c; National Parks and Monuments 515b; TVA 723b
Fischer, Hans 46
Fish, Bert 44
Fish and Wildlife Service: *see* **Fisheries 48, 47, 46.** *See* **Wildlife Conservation 48, 47, 46, 45, 44**
Veterinary Medicine 782a
Fisher, Geoffrey Francis 48, 47, 46
Fisher, Irving 544a
Fisheries
Canning Industry 169c; Exploration and Discovery 295c; Indians, American 387a; Marine Biology 460d; Oceanography 557d; Strikes 700d. *See* also various states, provinces and countries
Fishing: *see* **Angling**
Fishing tackle 53c
Fitzalan of Derwent, E. B. E.-H. 544b
Fitzroy, Edward Algernon 44
Fiume: *see* **Trieste 47, 46.** *see* **Yugoslavia 46**
Flax: *see* **Linen and Flax**
Fleming, Sir John Ambrose 46
Flexner, Bernard 46

Flint: *see* **Abrasives 45, 44**
Floods and Flood Control
Agriculture 26a; Budget, National 146a; Dams 235d; Disasters 254d; Irrigation 412c; Meteorology 475b; Soil Erosion 686a; TVA 723a
Florida
Flour
Bread and Bakery Products 133d; Food Research 315b; Food Supply of the World 315d; International Trade 404b; Physiology 589d
Fluorine: Chemistryl 181c; Dentistry 249a; Public Health Engineering 617c
Fluorspar
Flying Bombs: *see* **Rockets 45**
Flying saucer 805a
"Flying Tigers": *see* **Chennault, Claire L. 45, 44**
Folic acid: Anaemia 51c; X-Ray and Radiology 816b
Food and Agriculture Organization: *see* **Food Supply of the World 48**
Fertilizers 306b; Fisheries 308d; Forests 324c; U.N.R.R.A. 753d
Food and Drug Administration: *see* **Drug Administration, U.S.; Narcotics and Narcotic Traffic 48.** *See* **Drugs and Drug Traffic; Federal Security Agency 47, 46, 45, 44**
Food Research
ARA 25a; Bread and Bakery Products 133d; Chemurgy 187a; Home Economics 364b; Physiology 589d; Public Health Engineering 618a
Food Supply of the World 48, 47
Agriculture 25c; Famines 296b; Flour 313c; Inter-American Affairs, The Institute of, 392c; Occupied Areas, Administration of, 556a; Rationing 634b; U.N.R.R.A. 753b. *See* also various states, provinces and countries
Foot-and-mouth disease: Cattle 174c; Meat 467b; Mexico 478b; Veterinary Medicine 782a
Football
Betting and Gambling 119d; Words and Meanings, New 805b
Forbes, George William 544b
Ford, Edsel Bryant 44
Ford, Henry: Detroit 250c; Obituaries 544b
Foreign Economic Administration 46, 45, 44
Foreign Exchange: *see* **Exchange Control and Exchange Rates**
Foreign Investments in the U.S.
Law 43a
Foreign Ministers' Conferences 48. *See* **Council of Foreign Ministers 47**
European Recovery Program 288a; Germany 343d; Marshall, G.C. 463d; Molotov, V.M. 488c; Occupied Areas, Administration of, 555b; Peace Treaties 574a; Reparations 643b; U.S. 759b; Vatican City State 773d
Foreign Missions: *see* **Missions, Foreign**
Foreign Relief and Rehabilitation Operations, Office of: *see* **Foreign Economic Administration 46, 45, 44**
Foreign Trade: *see* **International Trade**
Forests
Entomology 283a; Fires and Fire Losses 308b; Indians, American 387b; Lumber 451d; National Parks and Monuments 515b; TVA 723b; Wilderness Preservation 798d. *See* also various states, provinces and countries
Forgery 663c
Formosa
Food Supply of the World 317a; Sugar 703a
Forrestal, James 48, 47, 46, 45
Democratic Party 246c
Foundations: *see* **Societies and Associations 48, 47, 46.** *See* **Donations and Bequests 48, 47, 46, 45, 44.** *See* also foundations under their specific names **45, 44**
Four-H Clubs
Home Economics 364c
France
Advertising 21a; Agriculture 28d; Aircraft Manufacture 33a; Airports 34d; Allergy 41c; Aluminum 42a; American Citizens Abroad 43c; Anthropology 54b; Anti-Semitism 57b; Archaeology 63d; Architecture 68b; Argentina 71a; Armies of the World 76b; Art Exhibitions 78b; Atomic Energy 84d; Australia 87d; Aviation, Civil 93b; Aviation, Military 102a; Barium Minerals 109b; Bauxite 115b; Birth Control 123a; Birth Statistics 123b; Black Markets 125a; Book Publishing 127c; Bridges 137b; Business Review 156b; Butter 157c; Cadmium 157d; Candy 169c; Chess 187d; Child Welfare 191c; Civil Liberties 202c; Coal 205d; Cocoa 209d; Coke 210c; Communism 215b; Contract Bridge 224c; Copyright 226a; Cycling 233b; Dams 236c; Dance 238c; Debt, National 242d; Democracy 245a; Denmark 248a; Dominican Republic 257a; Eggs 268a; Electrical Industries 274d; Electric Transportation 275d; Etching 286c; European Recovery Program 288a; Exchange Control 289a; Fashion and Dress 299a; Fisheries 308c; Floods 312c; Fluorspar 314c; Food Supply of the World 315d; Foreign Investments in the U.S. 321a; Foreign Ministers' Conferences 322b; Forests 324c; French Literature 329c; French Overseas Territories 330c; Friends, Religious Society of, 332c; Fuel Briquettes 334d; Furniture Industry 335c; Geography 339a; Germany 343b; Glass 346c; Gliding 347a; Great Britain 353a; Greece 354b; Gypsum 359c; Horticulture 367c; Housing 373d; Immigration and Emigration 380a; International Bank 396d; International Law 400a; International Monetary Fund 402a; International Trade 405a; Intoxication, Alcoholic 407a; Iron and Steel 410b; Italian Colonial Empire 413d; Jet Propulsion 420b; Lead 435c; Linen and Flax 443d; Literary Prizes 447b; Lumber 451d; Marriage and Divorce 462d; Mathematics 466a; Meteorology 476d; Mineral and Metal Production 484a; Mormons 491c; Motion Pictures 497a; Motor-Boat Racing 498b; Music 508b; Navies of the World 516b; Norway 537c; Oats 539c; Occupied Areas, Administration of, 555b; Oceanography 557d; Pacific Islands British 562a; Peace Treaties 574a; Petroleum 580a; Philosophy 583b; Phosphates 584b; Poland 597b; Police 597c; Potash 602d; Potatoes 603c; Presbyterian Church 604c; Prices 609d; Prisoners of War 611d; Radio 628d; Railroads 633a; Rationing 635b; Rayon and Other Synthetic Fibres 636b; Red Cross 638d; Rubber 654d; Rural Electrification 656d; Saar 657d; Salt 658d; Sculpture 662d; Shipbuilding 667b; Shipping, Merchant Marine 669d; Silk 673a; Soap, Perfumery and Cosmetics 676a; Soccer 676b; Socialism 676c; Social Security 680a; Sociology 684c; Spices 694c; Sugar 703a; Sweden 707d; Swimming 708c; Switzerland 710a; Tariffs 712d; Taxation 717b; Tennis 724a; Trustee Territories 736b; Tunnels 739d; U.N. 746d; U.S. 756a; U.S. Investments Abroad 761c; Venereal Diseases 776d; Veterans' Organizations 781c; War Crimes 788d; War Debts 790a; Wheat 798a; Wines 801d; Wool 803c; World Federation of Trade Unions 806b; Zinc 821a; Zoology 822c
France, Free (Fighting France): *see* **France; French Colonial Empire 45, 44.** *See* **World War II 44**
Francium 805a
Franco, Francisco
Spain 691a
Frank, Hans 47
Frank, Karl Hermann 47
Fraser, Sir Bruce Austin 46
Fraser, Leon 46
Frazier, Lynn Joseph 544c
Fredendall, Lloyd R. 44
Frederick IX 48
Denmark 247d
Freedom of the press: Democracy 244d; Hutchins, R. M. 375d; Law 431a; Newspapers and Magazines 528c
Freedom Train: Archives, National 68d; Negroes, American 519b; Words and Meanings, New 805a
Free France (Fighting France): *see* **France; French Colonial Empire 45, 44.** *See* **World War II 44**
Freeman, James Edward 44
Freeman, Richard Austin 44
Freemasonry: *see* **Societies and Associations 48.** *See* **Masonic Fraternity 46, 45**
Freer Gallery of Art: *see* **Smithsonian Institution**
French Colonial Empire: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Armies of the World 74a; British West Africa 143a
French Committee of National Liberation: *see* **France 45, 44**
French Indo-China: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Food Supply of the World 318a
French Literature
French Overseas Territories 48. *See* **French Colonial Empire 47, 46, 45, 44**
France 326b
French Pacific Islands: *see* **Pacific Islands, French**
French Possessions in Africa: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Diamonds 252a
French Union: *see* **France 47**
Frequency Modulation: *see* **Federal Communications Commission 48, 47.** *See* **Radio 48, 47, 46, 45, 44**
Frick, Wilhelm 47
Friedeburg, Hans Georg von 46
Friends, Religious Society of
Church Membership 200a; Nobel Prizes 534a; Pacifism 563b
Friendship Train 805b
Frings, Joseph 46
Fritzsche, Hans 47
War Crimes 789b
Fruit 48, 47, 46, 45. *See* **Apples; Bananas; Grapefruit; Grapes; Lemons and Limes; Oranges; Peaches; Pears; Plums and Prunes 44**
ARA 25b; Agriculture 25d; Canning Industry 169c; Entomology 284a; International Trade 404b; Vegetables 775b. *See* also various states, provinces and countries
FSA: *see* **Federal Security Agency**
FSLIC (Federal Savings and Loan Insurance Corporation): *see* **Housing 48, 47, 46, 45**
FTC: *see* **Federal Trade Commission**
Fuel Briquettes
Fuel Oil: *see* **Petroleum 48, 47, 46, 45, 44.** *See* **Business Review 46, 45, 44.** *See* **Price Administration, Office of, 45.** *See* **Rationing 44**
Fuller's Earth
Fulmer, Hampton Pitts 45
Funk, Walther 47
Fuqua, Stephen Ogden 44
Furacin 250a
Furfural: *see* **Chemurgy 48**
Furniture Industry
Art Sales 79c; Employment 280b; Interior Decoration 395c; Strikes 700d; Wages and Hours 787a
Furs
Fisheries 310b; Veterinary Medicine 782c; Wildlife Conservation 799c
FWA: *see* **Federal Works Agency**
Fyffe, Will 544c
Gager, Charles Stuart 44
Galen, Clement August von 47, 46
Galway, George Vere A. M.-A. 44
Gambia: *see* **British West Africa**
Gambling: *see* **Betting and Gambling 48, 47**
Gandhi, Mohandas Karamchand
Pacifism 563a
Gandhi, Mrs. Mohandas K. 45
Gardner, Oliver Max 47
Garnet: *see* **Abrasives**
Garvin, James Louis 544d
Gas, Natural
FPC 302a; Law 429c; Munitions 503b; Public Utilities 621b
Gasoline: *see* **Petroleum 48, 47, 46, 45, 44.** *See* **Price Administration, Office of, 45.** *See* **Rationing 44**
Gasoline Engines: *see* **Power Engineering 46**
Gasparri, Enrico 47
Gasperi, Alcide de 48
Italy 415b; Socialism 677a
Gas Turbines: *see* **Power Engineering 46.** *See* **Gas Turbine, The Combustion 45**
Gaulle, Charles de
France 326b
Gay, Maisie 46
Gayda, Virginio 45
Gayford, Oswald Robert 46
GCA (ground controlled approach): Airports 34c; Aviation, Civil 96b
Geiger, Roy Stanley 46, 45
Obituaries 544d
Gem Stones 48. *See* **Gems and Precious Stones 47, 46, 45, 44**
Diamonds 252a; Mineralogy 485b
General Education Board: *see* **Societies and Associations 46.** *See* **Rockefeller Foundation 45, 44**
General Federation of Women's Clubs: *see* **Societies and Associations 48, 47, 46.** *See* **Women's Clubs, General Federation of, 45, 44**
Genetics
Yale University 817d; Zoology 821d
Geographical Society, American: *see* **Societies and Associations 48, 47, 46.** *See* **American Geographical Society 45, 44**
Geography
Book Publishing 126d; Cartography 170c; Coast and Geodetic Survey, U.S. 208a; Exploration and Discovery 293a; National Geographic Society 512a; Societies 680c. *See* also various cities, states, provinces and countries
Geology
Anthropology 55d; Education 264c; Mineralogy 485b; Oceanography 557d; Smithsonian Institution 675a
George II 47
Obituaries 545a
George VI
Parliament, Houses of, 572b
George, Harold Lee 44
George of Bavaria, Prince 44
Georgia
German Literature
Germany
American Citizens Abroad 43c; Anti-Semitism 57b; Armies of the World 74a; Baptist Church 108c; Barium Minerals 109b; Black Markets 125b; Book Publishing 127c; Bridges 136b; Business Review 156b; Canada 165b; Canals and Inland Waterways 168b; Candy 169c; Child Welfare 192a; Christian Science 198a; Coal 205d; Communism 215b; Cotton 228c; Debt, National 242d; Denmark 247d; Education 266c; Electric Transportation 275d; European Recovery Program 288b; Fascism 297d; Fertilizers 306b; Fluorspar 314c; Food Supply of the World 317a; Foreign Investments in the U.S. 321a; Foreign Ministers' Conferences 322b; Forests 324c; Friends, Religious Society of, 332c; Fruit 332d; Fuel Briquettes 334d; Furniture Industry 335c; Geography 339a; German Literature 342a; Gliding 347a; Great Britain 353a; Illiteracy 379c; Immigration and Emigration 380a; Infantile Paralysis 388c; International Law 400b; International Trade 405a; Iron and Steel 411b; Lard 428a; Latvia 428b; Libraries 442d; Linen and Flax 444a; Lithuania 447d; Marriage and Divorce 463b; Mathematics 466a; Mineral and Metal Production 484a; Missions, Foreign 486d; Mormons 491b; Motion Pictures 496c; Music 508a; Navies of the World 516b; Netherlands 520d; Newspapers and Magazines 529c; Oats 539c; Occupied Areas, Administration of, 555a; Palestine 567d; Patents 573d; Poland 596d; Police 597c; Potatoes 603c; Presbyterian Church 604d; Prisoners of War 611d; Public Health Services 619c; Railroads 633b; Rationing 635b; Rayon and Other Synthetic Fibres 635d; RFC 637b; Red Cross 638d; Refugees 638d; Reparations 643b; Rivers and Harbours 648c; Roads and Highways 649d; Roman Catholic Church 650d; Rubber 654b; Saar 657d; Salt 658d; Socialism 677a; Sociology 684c; Sugar 703a; Sweden 707d; Town and Regional Planning 732a; Unitarian Church 746a; U.S. 758c; Venereal Diseases 776c; War Crimes 788d; War Debts 790b; Wines 802a; World Federation of Trade Unions 806a; Zinc 821a; Zoology 822c
Gerould, Katharine Fullerton 45
Gerow, Leonard T. 46
Ghavam-es-Saltaneh, Ahmad 47
G.I. Bill of Rights: *see* **Education; Veterans' Administration 48, 47, 46, 45.** *See* **Law; Social Security 46, 45.** *See* **Housing 45**
Gibraltar 48. *See* **Mediterranean, British Possessions in the 47, 46, 45, 44**
Aviation, Civil 93a
Gibson, Charles Dana 45
Gide, André Paul Guillaume 48
American Literature 49a; French Literature 330a; Nobel Prizes 534a
Gilbert and Ellice Islands Colony: *see* **Pacific Islands, British**
Gilroy, Norman 46
Gin 445a
Ginger: *see* **Spices 48, 47, 46, 44**
Giraud, Henri Honoré 44
Giraudoux, Hippolyte Jean 45
Girl Scouts
Glands: *see* **Endocrinology; Medicine**
Glasgow, Ellen (Anderson G.) 46
Glass, Carter 47
Glass
Business Review 153b; Employment 280b; Interior Decoration 396b; International Trade 404d; Rayon and Other Synthetic Fibres 636c; Sand and Gravel 660a; U.S. Investments Abroad 762b; Wages and Hours 787a; Words and Meanings, New 805d
Glassford, William Alexander II 44
Glennon, John Joseph 47, 46
Gliding
Air Races and Records 35c
Glutamic acid 186b
Glyn, Elinor 44
G-Men: *see* **Federal Bureau of Investigation 47, 46, 45, 44**
Goddard, Rayner Goddard 47
Goebbels, Josef 46, 45
Goering, Hermann Wilhelm 47, 46, 45, 44
Gold
Coinage 210c; Employment 280b; Exchange Control 289a; International Monetary Fund 402c; Mineral and Metal Production 483b; Secondary Metals 663a; U.S. Investments Abroad 762b. *See* also various states and countries
Gold Coast: *see* **British West Africa**
Bauxite 115b; Diamonds 252a; Gold 347d; Manganese 459a; Mineral and Metal Production 484a
Golf
Golikov, Filip Ivanovich 45, 44
Gonorrhoea: *see* **Venereal Diseases**

Goode, Sir William (A. M.) 45
Goodland, Walter Samuel 545b
Gore, Howard Mason 545b
Göring, H. W.: *see* **Goering, Hermann Wilhelm 47, 46, 45, 44**
Gorizia: *see* **Trieste, The Free Territory of, 48, 47, 46.** *See* **Yugoslavia 46**
Gort, John S. S. P. V. 47
Goudy, Frederic William 545b
Gouraud, Henri Joseph Étienne 47
Gouveia, Teodosio Clemente de 46
Government Departments and Bureaus
Law 428d
Government Expenditures and Government Receipts: *see* **Budget, National**
Government Printing Office: *see* **Printing Office, U.S. Government**
Governors and Premiers, British: *see* **British Empire**
Govorov, Leonid N. 45
Grain: *see* **Barley; Corn; Oats; Rice; Rye; Wheat**
International Trade 404b; Law 428d
Granite: *see* **Stone**
Grant, Heber J. 46
Granville-Barker, Harley G. 47
Grapefruit: *see* **Fruit 48, 47, 46, 45.** *See* **Grapefruit 44**
Grapes: *see* **Fruit 48, 47, 46, 45.** *See* **Grapes 44**
Graphite
Gravel: *see* **Sand and Gravel**
Gray, Carl R., Jr. 48
Gray, George Kruger 44
Gray Markets: *see* **Black Markets 48**
Building and Construction Industry 148a
Great Books: *see* **Hutchins, Robert Maynard 48**
Education 264c; Libraries 441b
Great Britain and Northern Ireland, United Kingdom of
Accidents 19d; Advertising 21a; Agriculture 31a; Aircraft Manufacture 32c; Airports 34c; Albania 37b; Aliens 40a; Aluminum 42a; Ambassadors and Envoys 42d; American Citizens Abroad 43b; Angling 53c; Anthropology 54b; Arabia 59b; Archaeology 63d; Architecture 65b; Argentina 72b; Armies of the World 75b; Art Sales 79c; Atomic Energy 84c; Austria 89b; Automobile Industry 92b; Aviation, Civil 92d; Aviation, Military 100d; Banking 108a; Bank of England 108a; Baptist Church 108d; Barium Minerals 109b; Barley 109d; Betting and Gambling 120a; Birth Statistics 123b; Black Markets 125b; Book-Collecting 126c; Book Publishing 127b; Boxing 130c; Boy Scouts 131a; Bread and Bakery Products 133d; Bridges 138a; British Legion 142a; Budget, National 147b; Building and Construction Industry 149b; Bulgaria 150b; Business Review 156a; Cabinet Members 157c; Camp Fire Girls 159d; Canals and Inland Waterways 168a; Candy 169c; Cartography 170c; Cattle 174c; Chambers of Commerce 181a; Chess 187c; Child Labour 190b; Child Welfare 192c; Church Membership 200b; Church of England 200c; Civil Liberties 202b; Civil Service 203b; Clothing Industry 205b; Coal 205d; Cocoa 209d; Coke 210c; Cold, Common 211a; Communism 215b; Consumer Credit 223c; Contract Bridge 224b; Cricket 229a; Crime 230b; Cuba 231d; Curaçao 232d; Cycling 233b; Dairying 235d; Dance 238b; Death Statistics 240a; Debt, National 242d; Decorations, Medals and Badges 243c; Democracy 245d; Denmark 248a; Diamonds 252a; Dog Racing 256a; Dominican Republic 257a; Donations and Bequests 257c; Ecuador 262a; Education 266d; Eggs 267d; Egypt 268a; Eire 269b; Electrical Industries 274c; Electric Transportation 275c; Employment 280c; English Literature 282b; Epidemics 284d; Estonia 285c; Etching 286a; Ethical Culture Movement 287b; Ethiopia 287c; European Recovery Program 288a; Exchange Control 290a; Exploration and Discovery 295a; Fascism 297d; Finland 307d; Fisheries 310c; Floods 312a; Fluorspar 314c; Food Supply of the World 315c; Football 320c; Foreign Investments in the U.S. 321a; Foreign Ministers' Conferences 322b; Forests 324d; France 326a; Friends, Religious Society of, 332a; Fruit 332d; Furniture Industry 335c; Furs 336b; Germany 343d; Girl Scouts 346b; Glass 346c; Gliding 347a; Gold 347b; Golf 348a; Government Departments and Bureaus 350a; Greece 354b; Gypsum 359c; Horse Racing 366c; Horticulture 367c; Hospitals 368d; Housing 373a; Hungary 374b; Iceland 377a; Ice Skating 377d; Immigration and Emigration 380b; Industrial Health 388b; Infantile Paralysis 388c; Infant Mortality 389d; Insurance 391c; International Court of Justice 397d; International Law 399b; International Monetary Fund 402a; International Trade 404d; Iraq 409c; Iron and Steel 410b; Italian Colonial Empire 413d; Italy 415a; Japan 417c; Jet Propulsion 420a; Labour Unions 427a; Latvia 428c; Law 434d; Lend-Lease 438b; Libraries 442b; Linen and Flax 443d; Liquors, Alcoholic 445b; Literary Prizes 447a; Lithuania 447d; Lumber 451d; Machinery and Machine Tools 455b; Marine Biology 460d; Marriage and Divorce 462d; Mathematics 466c; Meat 467b; Medicine 471a; Meteorology 475b; Mexico 479b; Mineral and Metal Production 484a; Mongolia 489b; Mormons 491c; Motion Pictures 492b; Motor-Boat Racing 498b; Motor Transportation 499d; Municipal Government 502b; Munitions 505d; Museums 507b; Music 508c; National Parks and Monuments 515c; Navies of the World 516b; Newspapers and Magazines 529a; Norway 537c; Oats 539c; Occupied Areas, Administration of, 555a; Pacific Islands under Trusteeship 563a; Palestine 566d; Paper and Pulp Industry 570b; Parliament, Houses of, 572b; Peace Treaties 574b; Petroleum 580a; Philately 581b; Photography 586d; Physics 587d; Plastics Industry 593b; Poland 597a; Police 597d; Political Parties, British 598c; Post Office 602c; Prices 608d; Prisoners of War 611d; Prisons 612d; Public Health Engineering 617d; Public Health Services 619b; Public Utilities 621c; Radio 629b; Railroads 633a; Rationing 635a; Rayon and Other Synthetic Fibres 636a; Red Cross 638d; Refugees 640a; Relief 641c; Religion 642b; Reparations 643b; Rhodesia, Southern 646d; Rivers and Harbours 648b; Roads and Highways 649b; Rowing 652a; Rubber 654b; Rural Electrification 656c; Saar 657d; Salt 658d; Sculpture 662b; Selective Service 665d; Sheep 667a; Shipbuilding 667b; Shipping, Merchant Marine 670a; Shoe Industry 671a; Shows, Animal 671d; Siam 672a; Silk 672d; Soap, Perfumery and Cosmetics 676a; Soccer 676b; Socialism 676b; Social Security 679c; Sociology 684c; Spain 692b; Stocks and Bonds 699b; Strikes 701b; Suicide Statistics 703b; Sweden 707d; Syria and Lebanon 710c; Table Tennis 711b; Tariffs 712c; Taxation 715d; Telegraphy 718d; Television 722a; Tennis 724a; Textile Industry 725d; Theatre 727d; Tobacco 729d; Town and Regional Planning 732a; Trieste 734b; Trustee Territories 736b; Tuberculosis 737a; Tunnels 739d; Turkey 741b; U.S.S.R. 744c; U.N. 746d; U.N.R.R.A. 753b; U.S. 758c; U.S. Investments Abroad 761b; Uruguay 771d; Venereal Diseases 776c; Veterans' Organizations 781c; Wages and Hours 788a; War Crimes 788d; War Debts 790b; Wealth and Income, Distribution of, 794c; Wheat 798a; Wildlife Conservation 800c; Wool 804a; World Federation of Trade Unions 806b; Yachting 816d; Y.M.C.A. 818c; Y.W.C.A. 819a; Yugoslavia 820a; Zinc 821a; Zoology 822c. *See* also British Empire
Great Lakes Traffic: *see* **Canals and Inland Waterways**
Greece
Albania 37c; Archaeology 62a; Armies of the World 76c; Aviation, Civil 93a; Black Markets 125b; Bulgaria 150c; Canals and Inland Waterways 168b; Child Welfare 191c; Chromite 199a; Communism 215b; Cyprus 233c; Debt, National 242d; Dodecanese 255d; Eastern Orthodox Churches 260b; European Recovery Program 288a; Exchange Control 289b; Foreign Investments in the U.S. 321a; Friends, Religious Society of, 332c; Griswold, D. P. 357b; Information and Educational Exchange, Office of, 390a; International Monetary Fund 402b; International Trade 405a; Libraries 442d; Mineral and Metal Production 484a; Navies of the World 518a; Public Health Services 619c; Rivers and Harbours 648c; Shipbuilding 667b; Socialism 677d; Soil Erosion 687a; Taxation 718a; Truman, H. S. 735b; Tunnels 739d; U.N. 746d; U.N.R.R.A. 753b; U.S. 756a; Vatican City State 773d; War Crimes 788d; War Debts 790b; Wines 802a; Yugoslavia 820b
Green, William 48, 47, 46
Murray, P. 506b; U.S. 758a
Greenland
Cryolite 230d; Denmark 248b
Gregory, Jackson 44
Greiser, Arthur 47
Grenada: *see* **Windward Islands 48, 47.** *See* **West Indies, British 46, 45, 44**
Spices 694d
Griffin, Bernard William 46
Grindstones: *see* **Abrasives**
Grisein 805b
Griswold, Dwight Palmer 48
Gromyko, Andrei A.
Atomic Energy 81d
Groutite 485b
Guadalcanal: *see* **Solomon Islands 46, 45, 44.** *See* **World War II 44**
Guadeloupe: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Guam
Marine Corps 462a
Guariglia, Raffaele 44
Guatemala
American Citizens Abroad 44a; Archaeology 61c; British Honduras 141d; Child Welfare 192c; Costa Rica 227c; Dominican Republic 256c; Exchange Control 289d; Illiteracy 379b; Inter-American Affairs, The Institute of, 392d; Inter-American Defense Conference 393c; International Law 401c; International Monetary Fund 402d; Refugees 640b; Smithsonian Institution 675a; U.N. 746d
Guayule: *see* **Rubber 45, 44.** *See* **Chemurgy 44**
Guderian, Heinz 45
Guedalla, Philip 45
Guerrero, José Gustavo 47
Guerrilla Warfare 46, 45
Armies of the World 77b; Greece 356a; U.N. 749a
Guevara, Juan Gualberto 46
Guggenheim Memorial Foundation: *see* **Societies and Associations 48, 47, 46.** *See* **Guggenheim Memorial Foundation 45, 44**
Literary Prizes 446c
Guiana, British: *see* **British Guiana**
Guiana, Dutch: *see* **Surinam**
Guiana, French: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Guinea: *see* **French Overseas Territories 48.** *See* **Portuguese Colonial Empire; Spanish Colonial Empire 48, 47, 46, 45, 44.** *See* **French Colonial Empire 47, 46, 45, 44**
Guinea, New: *see* **Netherlands Indies; Pacific Islands under Trusteeship; Trustee Territories 48.** *See* **New Guinea 47, 46, 45, 44**
Gustavus V
Gustavus Adolphus, Prince O.F.A.E.: Gustavus V 358c; Obituaries 545c
Gymnastics
Gynaecology and Obstetrics
Infant Mortality 389d; Medicine 470b
Gypsum
Building and Construction Industry 148b; Mineral and Metal Production 484c
Haakon VII
Hâcha, Emil 46
Hackworth, Green Haywood 47
Hackzell, Anders Werner Antti 47
Haemolysis 770d
Haiti
American Citizens Abroad 44a; Argentina 71a; Inter-American Affairs, The Institute of, 392c; Inter-American Defense Conference 393c; U.N. 746d; U.S. Investments Abroad 762d; War Debts 790c
Hall, Radclyffe 44
Hall, Sir (William) Reginald 44
Halsey, William F., Jr. 46, 45, 44
Sculpture 661d
Hamilton, Sir Ian Standish Monteith 545c
Hammerstein-Equord, Kurt von 44
Hammer Throw: *see* **Track and Field Sports**
Hand-ball
Hanna, Edward Joseph 45
Hannegan, Robert Emmet 47, 46
Truman, H. S. 736a
Hanotaux, Albert Auguste G. 45
Hansson, Per Albin 47
Harbord, James Guthrie 545d
Harbours: *see* **Rivers and Harbours**
Hardinge of Penshurst, C. H. 45
Harmon, Clifford B. 46
Harmon, Millard Fillmore 46
Harper, George McLean 545d
Harper, Samuel Northrup 44
Harriman, William Averell 48, 47, 44
Harris, Sir Arthur T. 46, 45, 44
Hart, Albert Bushnell 44
Hart, Lorenz 44
Hart, William S. 47
Hartley, Fred Allan, Jr. 48
Hartley, Marsden 44
Harvard University
Anthropology 54d; Archaeology 61a; Botany 129a; Music 508d; Rowing 652a
Hassani, Mohamed Tageddine el 44
Hauptmann, Gerhart 47
Hawaii
Hawkes, Herbert Edwin 44
Hay
Agriculture 26a; Alfalfa 38c; Purdue University 622d. *See* also various states
Hayashi, Senjuro 44
Headache 260a
Health, Industrial: *see* **Industrial Health**
Hearing Aids: *see* **Deafness**
Heart and Heart Diseases
Anaemia 52a; Atomic Energy 83b; Death Statistics 240a; Medicine 470b; Psychosomatic Medicine 616d; Vitamins 785d; X-Ray and Radiology 816b
Hecht, Selig 546a
Helicopter: *see* **Aviation, Civil**
Aircraft Manufacture 33a; Aviation, Military 98d; Marine Corps 462a; Motion Pictures 496b; Post Office 601d
Helium
Hemp
Henderson, Leon 44
Henriot, Philippe 45
Henson, Herbert Hensley 546a
Herriot, Edouard 47, 46, 45
Hershey, Milton Snavely 46
Hertz, Joseph Herman 47
Hess, Rudolf Walther 47
Heward, Leslie Hays 44
Hewitt, Henry Kent 46, 45, 44
Hexachlorethane 782d
Higashi-Kuni, Naruhiko 46
Highways: *see* **Roads and Highways**
Hilbert, David 44
Hill, Grace Livingston 546b
Hillman, Sidney 47, 46, 45
Himmler, Heinrich 46, 45, 44
Hinsley, Arthur 44
Hirohito 48, 47, 46
Hispanic America: *see* **French Overseas Territories 48.** *See* **Argentina; Bolivia; Brazil; British Guiana; British Honduras; Chile; Colombia; Costa Rica; Ecuador; Guatemala; Honduras; Nicaragua; Panamá; Paraguay; Peru; Salvador, El; Surinam; Uruguay; Venezuela 48, 47, 46, 45, 44.** *See* **French Colonial Empire 47, 46, 45, 44**
Hispanic America and World War II 44
Hispaniola: *see* **Dominican Republic; Haiti; West Indies**
Hitler, Adolf 46, 45, 44
Hobby, Oveta Culp 44
Hockey: *see* **Ice Hockey**
Hodges, Courtney H. 46, 45
Hodgson, William Roy 48
Hodža, Milan 45
Hoffman, Paul Gray 44
Hogs
ARA 24b; Agriculture 25d; Bacon 103b; Food Supply of the World 317b; Lard 428a; Livestock 448a; Meat 467a; Purdue University 622d; Veterinary Medicine 782a. *See* also various states, provinces and countries
Hoke, Michael 45
HOLC (Home Owners' Loan Corporation): *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
Holland: *see* **Netherlands**
Home Building, Federal: *see* **Housing 48, 47, 46, 45, 44.** *See* **National Housing Agency 44**
Home Economics
ARA 25a; Book Publishing 126d; Four-H Clubs 325c
Home Loan Bank, Federal: *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
Home Owners' Loan Corporation: *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
Homer, Louise 546b
Homma, Masaharu 47
Honduras
American Citizens Abroad 44a; Illiteracy 379b; Inter-American Affairs, The Institute of, 392d; Inter-American Defense Conference 393c; Silver 673c; U.N. 746d; War Debts 790c
Honduras, British: *see* **British Honduras**
Honey: *see* **Beekeeping**
Hong Kong: *see* **British Empire**
Hoof-and-mouth disease: *see* Foot-and-mouth disease
Hoover, Herbert Clark 48, 47
Book-Collecting 126b; Camp Fire Girls 160c; Food Supply of the World 315d
Hoover, Lou Henry 45
Hopkins, Sir Frederick Gowland 546b
Hopkins, Harry Lloyd 47, 45, 44
Hops
Hormones: *see* **Endocrinology**
Cancer 168d; Chemotherapy 185b; Medicine 469c
Horse Racing
Betting and Gambling 119d
Horses
Agriculture 28c; Horse Racing 365c; Livestock 448a; Shows, Animal 671a; Veterinary Medicine 782b. *See* also various states and countries
Horse Shows: *see* **Shows, Animal**
Horticulture
Hospitalization Insurance: *see* **Insurance**

Hospitals
Architecture 66c; FSA 303d; Infant Mortality 389d; Insurance 391d; Medical Rehabilitation of Disabled Veterans 467d; Municipal Government 501c; Osteopathy 561a; Psychiatry 613c; Veterans' Administration 779a. *See* also various states
Hotels
Employment 280b; Law 433b; Wages and Hours 787a
Housing
American Legion 45d; A.V.C. 51a; AMVETS 51c; Architecture 65a; Banking 107b; Black Markets 124b; Budget, National 145c; Building and Construction Industry 147c; Business Review 152c; Census Data 177b; Education 263c; Home Economics 364c; Insurance 391b; Law 428d; Municipal Government 502d; Occupied Areas, Administration of, 556a; Prices 607c; Priorities and Allocations 611b; RFC 636d; Sociology 683d; Town and Regional Planning 731d; Veterans' Administration 779c; V.F.W. 780c. *See* also separate colleges and universities and various cities, states, provinces and countries
Housing Administration, Federal: *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
Housing Agency, National: *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
Housing and Home Finance Agency: *see* **Housing 48**
Housing Authority, U.S.: *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
Houssay, Bernardo Alberto 48
Diabetes 251c; Nobel Prizes 533d
Howard, Leslie 44
Howland Island: *see* **Pacific Islands, U.S., 47, 46, 45, 44**
Hrdlicka, Ales 44
Huch, Ricarda 546c
Hull, Cordell 46, 45, 44
Human Nutrition and Home Economics, Bureau of: *see* **Agricultural Research Administration**
Human rights: Canada 165b; Civil Liberties 202d; Democracy 245a; International Law 400d; Negroes, American 519b; U.N. 750b
Humbert 47, 46, 45
Hungary
American Citizens Abroad 43c; Armies of the World 76c; Bauxite 115c; Bridges 137a; Canada 165b; Child Welfare 191c; Civil Liberties 202c; Coal 205d; Communism 215c; Debt, National 242d; Elections 271c; European Recovery Program 288a; Exchange Control 291b; Foreign Investments in the U.S. 321d; Friends, Religious Society of, 332c; Infantile Paralysis 388c; International Law 400a; Mathematics 466c; Mineral and Metal Production 484a; Music 507d; Patents 573d; Peace Treaties 574a; Petroleum 580a; Presbyterian Church 604d; Roman Catholic Church 650d; Rye 657c; Spices 694c; Swimming 708c; Table Tennis 711b; Tennis 724a; U.N. 746d; U.N.R.R.A. 753b; U.S. 756a; War Debts 790b; Wines 802a; Yugoslavia 820b
Hunter College 47
Dance 236d
Hunting: *see* **Wildlife Conservation 48**
Hurdling: *see* **Track and Field Sports**
Hurley, Patrick Jay 46
Hurricanes: Disasters 254d; Meteorology 472c; Seismology 665a; Words and Meanings, New 805b
Husseini, Haj Amin el 48, 47
Hutchins, Robert M. 48, 47, 46, 45
Chicago, University of, 189a; Education 264a; Newspapers and Magazines 528c
Hyaluronidase 821d
Hydantoin 468d
Hygiene, Industrial: *see* **Industrial Health**
Hypospray: Chemotherapy 186c; Words and Meanings, New 805b
Ibn-Sa'ud 48, 47
Arabia 59a
ICC: *see* **Interstate Commerce Commission**
Ice Cream 48, 47, 46, 45
Medicine 468d
Ice Hockey
Iceland
Contract Bridge 224c; European Recovery Program 288a; Exchange Control 290d; Fisheries 308c; Foreign Investments in the U.S. 321a; International Law 400a; International Trade 405a; Lend-Lease 438b; Refugees 640b; U.N. 746d
Ice Skating
Ickes, Harold L. 47, 46, 45, 44
Idaho
Illinois
Illinois, University of
Education 264c; Track and Field Sports 732b
Illiteracy 48, 47, 45
Education 266d. *See* also various countries
Illumination: *see* **Electrical Industries**
I.L.O.: *see* **International Labour Organization**
ILS (instrument landing system): Airports 34c; Aviation, Civil 96b; Words and Meanings, New 805b
Immigration and Emigration
Aliens 38d; Australia 87d; Canada 160c; Census Data 175a; Law 430a; Palestine 567a; Pius XII 590c; Refugees 640a; Shipping, Merchant Marine 670a; South Africa, Union of, 687d
Imports: *see* **International Trade; Tariffs.** *See* also various industries, products and countries
Incendiary Warfare: *see* **Warfare, Incendiary 46, 45, 44**
Income, Distribution of: *see* **Wealth and Income, Distribution of**
Income and Product, U.S. 48, 47, 46, 45. *See* **National Income and National Product 44**
Agriculture 25c; Business Review 152d; Wealth and Income, Distribution of, 793a
Income Tax: *see* **Taxation**
India
Afghanistan 23c; Agriculture 28d; Archaeology 63d; Armies of the World 74a; Baptist Church 108d; Barium Minerals 109b; Bridges 138a; Burma 151b; Business Review 156a; Cartography 171a; Christian Unity 199a; Chromite 199b; Coal 205d; Communism 215b; Cotton 228d; Debt, National 242d; Electrical Industries 274c; Exchange Control 292c; Famines 296b; Floods 312c; Food Supply of the World 315d; Forests 324d; Friends, Religious Society of, 332c; George VI 340c; Gold 347d; Great Britain 351b; International Law 399b; International Trade 404d; Iron and Steel 411b; Irrigation 412d; Law 435b; Lend-Lease 438b; Lutherans 452c; Manganese 459a; Marriage and Divorce 463b; Mica 480c; Mineral and Metal Production 484a; Missions, Foreign 486d; Monazite 489a; Narcotics and Narcotic Traffic 510d; Newspapers and Magazines 525c; Pacifism 563a; Pakistan 565d; Peace Treaties 574d; Peanuts 576b; Portuguese Colonial Empire 600c; Railroads 633c; Red Cross 638d; Roads and Highways 650a; Shipbuilding 669a; Shipping, Merchant Marine 670a; Silk 672d; Smithsonian Institution 675a; Socialism 677c; South Africa, Union of, 688b; Spices 694b; Sugar 703a; Tariffs 712c; Taxation 717a; Tea 718a; Tobacco 730a; Tunnels 739d; U.N. 746d; Wheat 798b; World Federation of Trade Unions 806b
India, Dominion of, 48
Australia 88a; Cartography 171a; George VI 340c; India 384b; Law 435b; Nehru, J. 520b; Patel, V. 573b
Indiana
Indiana University 48, 47
Philology 583b
Indians, American
Archaeology 60b; Red Cross 638c
Indo-China, French: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Mineral and Metal Production 484a
Indonesia, The United States of: *see* **Netherlands Indies 48, 47**
Indonesian Republic: *see* **Netherlands Indies 48**
Industrial Health
Industrial Production: *see* **Business Review 48, 47, 46, 45, 44.** *See* **Civilian Production Administration 47.** *See* **War Production, U.S. 46, 45, 44.** *See* also separate industries and various states, provinces and countries
Infantile Paralysis
Donations and Bequests 257c; Epidemics 284d; Medicine 470d; Public Health Engineering 617d; Public Health Services 619a
Infant Mortality
Death Statistics 240a; Public Health Services 618d; Venereal Diseases 775d
Infantry: *see* **Munitions of War 48, 47, 46, 45, 44.** *See* **World War II 46, 45, 44**
Inflation: *see* **Business Review; Consumer Credit; Prices**
Budget, National 145c; Debt, National 243a; Democratic Party 246a; Exchange Control 292b; International Trade 404b; Law 428d; Priorities and Allocations 611d; Republican Party 645b; Taft, R. A. 711c. *See* also various countries
Influenza: *see* **Epidemics 48**
Cold, Common 211a; Death Statistics 240a; Infant Mortality 389c; Medicine 470c; Public Health Services 619a
Information and Educational Exchange, Office of, 48
Information Organization, United Nations: *see* **United Nations Information Organization 46, 45, 44**
Ingersoll, Royal Eason 45, 44
Ingram, Arthur Foley W. 47
Ingram, William ("Navy Bill") 44
Inland Waterways: *see* **Canals and Inland Waterways**
Inner Mongolia: *see* **Mongolia**
Inönü, Ismet 44
Insecticides: ARA 24d; Chemistry 182d; Entomology 283a; Talc 711d; Words and Meanings, New 805a
Insects: *see* **Entomology**
Instalment Buying and Selling: *see* **Consumer Credit**
Institutum Divi Thomae 48, 47, 46, 45
Insulin: *see* **Diabetes**
Intoxication, Alcoholic 407b; Psychiatry 614c
Insurance
Agriculture 31a; A.M.A. 50c; Banking 107c; Fires and Fire Losses 308a; Hospitals 368c; Infant Mortality 389d; Law 429d; RFC 637a; Societies 680c; Veterans' Administration 780b
Insurance, Crop: *see* **Agriculture 46, 45, 44**
Agriculture 31a
Insurance, Old Age: *see* **Social Security**
Inter-Allied Debts: *see* **War Debts**
Inter-Allied Reparations agency 643b
Inter-American Affairs, The Institute of
Inter-American Conference on Problems of War and Peace 46
Inter-American Defense Board
Inter-American Defense Conference 48
Brazil 132c; Marshall, G. C. 463d; Pan American Union 569c; U.S. 759a
Inter-American Highway: *see* **Roads and Highways**
Interior, U.S. Department of: *see* **Government Departments and Bureaus**
Indians, American 387b
Interior Decoration
Furniture Industry 335c
International Bank for Reconstruction and Development 48, 47. *See* **United Nations Monetary and Financial Program 46.** *See* **Banking 46, 45**
Bank for International Settlements 105d; Banking 106b; Exchange Control 289b; Foreign Investments in the U.S. 320d; McCloy, J. J. 453d; U.S. Investments Abroad 761b
International Children's Emergency fund: Canada 162a; Child Welfare 191c; U.N. 750b; U.N.R.R.A. 753d
International College of Surgeons: *see* **Societies and Associations 48**
International co-operation: Aviation, Civil 95b; Cartography 170c; Education 266a; Exploration and Discovery 295a; Taxation 714d. *See* also various countries
International Court of Justice 48, 47. *See* **United Nations Conference on International Organization 46**
Albania 37b; International Law 399b; U.N. 747a
International Emergency Food Council: *see* **Food Supply of the World 48, 47**
Sugar 702d
International Information and Cultural Affairs, Office of: *see* **Information and Educational Exchange, Office of, 48.** *See* **International Information and Cultural Affairs, Office of, 47**
International Labour Conference: *see* **International Labour Organization**
International Labour Organization
A.F. of L. 44d; International Law 401c
International Law
International Court of Justice 397b; U.N. 747b
International Maritime Consultative organization 400d
International Monetary Fund 48, 47. *See* **United Nations Monetary and Financial Program 46**
Banking 106b; Exchange Control 289a; Foreign Investments in the U.S. 320d; Gold 347b; U.S. Investments Abroad 761b
International Refugee Organization: *see* **Refugees 48**
International Law 400d; U.N.R.R.A. 753d
International Stabilization Fund: *see* **Banking 47, 46, 45**
International Trade
Black Markets 125a; Business Review 154a; Exchange Control 288d; Export-Import Bank 295c; International Law 401b; Law 428d; Priorities and Allocations 611c; Shipping, Merchant Marine 669a; Tariffs 712a. *See* also various industries, products and countries
International Trade Organization: *see* **Tariffs 48**
Food Supply of the World 318d; International Law 400d; Sugar 703a
Interstate Commerce Commission
Law 429c; Motor Transportation 498d; Railroads 630d
Intestinal Disorders: *see* **Alimentary System, Disorders of**
Intoxication, Alcoholic
Medicine 470a
Inventions: *see* **Patents**
Inverchapel, Sir A. J. K. C. 48, 47
Investment Banking *see* **Banking**
Investments, Foreign, in U.S.: *see* **Foreign Investments in the U.S.**
Iodine
Endocrinology 281c; Munitions 503b
Iowa
Iowa, State University of
Iowa State College
Iran
Archaeology 63d; Armies of the World 77c; Cartography 171a; Exchange Control 290b; International Monetary Fund 402c; Irrigation 413a; Lend-Lease 438b; Narcotics and Narcotic Traffic 510d; Petroleum 579b; Seismology 664d; U.N. 746d; War Debts 790d
Iraq
Archaeology 62c; Armies of the World 77c; Bridges 138a; Cartography 171a; Exchange Control 290d; Great Britain 351b; Islam 413c; Lend-Lease 438b; Petroleum 579c; Trans-Jordan 733b; Trustee Territories 736b; U.N. 746d; War Debts 790d
Ireland: *see* **Eire**
Ireland, Northern
Iridium 483b
Irish Free State: *see* **Eire**
Iron and Steel
Black Markets 124c; Building and Construction Industry 148b; Business Review 153b; Coal 206a; Employment 280a; International Trade 404d; Metallurgy 472a; Mineral and Metal Production 483b; Secondary Metals 663a; Societies 681a; Strikes 700d; U.S. Investments Abroad 761d; Wages and Hours 787a. *See* also various states and countries
Iron and Steel Institute, American: *see* **Societies and Associations 48, 47, 46.** *See* **American Iron and Steel Institute 45, 44**
Irrigation
Aqueducts 58a; Dams 235d; Soil Erosion 686b
Islam
Isle of Man: *see* **British Empire**
Isotopes: *see* **Atomic Energy 48, 47.** *See* **Chemistry 47, 46.** *See* **Atomic Bomb 46**
Istria: *see* **Trieste 47, 46**
Italian Colonial Empire
International Law 400c; Peace Treaties 574c
Italian Literature
Italian Possessions in Africa: *see* **Italian Colonial Empire**
Italy
Agriculture 28d; Airports 34d; Albania 37b; Aluminum 42a; Anthropology 54b; Architecture 68c; Argentina 72b; Armies of the World 74a; Austria 89b; Aviation, Civil 93a; Aviation, Military 103b; Baptist Church 108d; Bauxite 115b; Birth Statistics 123b; Black Markets 125b; Book Publishing 127d; Bridges 137a; Business Review 156b; Cadmium 157d; Canada 165b; Candy 169c; Child Welfare 191c; Christian Unity 198d; Civil Liberties 202c; Coal 205d; Communism 215b; Dams 236b; Dance 238d; Debt, National 242d; Democracy 245a; Denmark 248a; Dodecanese 255d; Eggs 268a; Electrical Industries 274d; Electric Transportation 276b; European Recovery Program 288a; Exchange Control 289b; Fascism 297c; Food Supply of the World 316d; Foreign Investments in the U.S. 321a; Friends, Religious Society of, 332c; Fruit 332d; Greece 356b; Horticulture 368a; Immigration and Emigration 380a; International Law 400a; International Monetary Fund 402b; International Trade 405a; Iron and Steel 410b; Italian Colonial Empire 413d; Italian Literature 414a; Lead 435c; Lumber 451d; Mathematics 466a; Mercury 471d; Mineral and Metal Production 484a; Motion Pictures 493a; Music 507d; National Parks and Monuments 515c; Navies of the World 516b; Occupied Areas, Administration of, 555a; Patents 573d; Peace Treaties 574a; Police 597c; Railroads 633b; Rationing 635b; Rayon and Other Synthetic Fibres 636c; Refugees 640b; Roads and Highways 649d; Rubber 654d; Sculpture 662c; Seismology 664d; Shipbuilding 667b; Shipping, Merchant

Marine 669d; Silk 673a; Socialism 676d; Sulphur 703d; Swimming 708c; Taxation 717d; Tennis 724a; Trieste 734a; Tunnels 739d; U.N. 746d; U.N.R.R.A. 753b; U.S. 756a; U.S. Investments Abroad 762d; Venereal Diseases 776c; Veterans' Organizations 781d; War Debts 790b; Wheat 798a; Wildlife Conservation 800d; Wines 802a; Wool 803c; World Federation of Trade Unions 806b; Yachting 816d; Zinc 821a

Ivory Coast: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**

Iwo Jima 46

Jackson, Robert H. 47, 46

Jacobs, William W. ("W. W.") 44

Jamaica 48, 47. *See* **West Indies, British 46, 45, 44**
Agriculture 30c; Spices 694d

Janson, Paul Émile 45

Japan
Agriculture 28d; American Citizens Abroad 43d; Armies of the World 74a; Australia 88a; Birth Statistics 124a; Child Labour 190c; Child Welfare 192a; China 197b; Coal 207b; Congregational Christian Churches 217d; Cotton 228c; Debt, National 242d; Democracy 245d; Exchange Control 292d; Exploration and Discovery 295c; Food Supply of the World 315d; Foreign Investments in the U.S. 321d; Friends, Religious Society of, 332c; Furs 335d; Illiteracy 379c; Infantile Paralysis 388c; International Law 400b; International Trade 406a; Iron and Steel 410b; MacArthur, D. 453c; Marriage and Divorce 463b; Mercury 471d; Methodist Church 477d; Mineral and Metal Production 484a; Missions, Foreign 486c; Narcotics and Narcotic Traffic 511a; Navies of the World 516c; New Zealand 532b; Occupied Areas, Administration of, 555a; Patents 573d; Peace Treaties 574d; Police 597c; Prisoners of War 611d; Public Opinion Surveys 619d; Rayon and Other Synthetic Fibres 635d; RFC 637b; Red Cross 638d; Refugees 641a; Reparations 644b; Rice 647b; Roman Catholic Church 651a; Silk 672c; Socialism 677c; Sociology 684d; Textile Industry 725d; Tungsten 739a; U.S. 758c; Veterinary Medicine 782d; War Crimes 789b; War Debts 790d; Wool 803c

Japanese-Chinese War: *see* **World War II 46, 45, 44**

Japanese Relocation, U.S.: *see* **War Relocation Authority 47, 46, 45, 44.** *See* **Aliens 44**

Jarvis Island: *see* **Pacific Islands, U.S. 47, 46, 45, 44**

Jastrow, Joseph 45

Java: *see* **Netherlands Indies 48, 47, 46, 45, 44.** *See* **Netherlands Colonial Empire 47, 46, 45, 44**

Javelin Throw: *see* **Track and Field Sports**

Jeans, Sir James Hopwood 47

Jeffers, William M. 44

Jespersen, Jens Otto Harry 44

Jesschonnek, Hans 44

Jessup, Walter Albert 45

Jet Propulsion 48, 47. *See* **Power Engineering 46**
Aircraft Manufacture 33b; Aviation, Military 98b; Exploration and Discovery 294b; Munitions 505c; Words and Meanings, New 805c

Jewish Religious Life
Anti-Semitism 56d; Church Membership 200a; Jewish Welfare Board, National 421b; Refugees 640c; Religion 642b; Surinam 705d

Jewish Welfare Board, National

Jiménez Oreamuno, Ricardo 46

Jinnah, Mohammed Ali 48, 47
India 384d

Jodl, Alfred 47, 46

Johns Hopkins University
Munitions 505a

Johnson, Herschel V. 48, 47

Johnson, Hiram Warren 46

Johnson, John Monroe 45

Johnson, Walter 47

Johnston, Eric A. 46, 45, 44
Motion Pictures 492a

Johnston Island: *see* **Pacific Islands, U.S. 47, 46, 45, 44**

Joint War Committees (U.S. and Canada): *see* **Canadian-U.S. War Committees 46, 45, 44**

Jones, George Clarence 47

Jones, Jesse Holman 46, 45, 44

Jones, Marvin 44

Jong, Jau de 46

Jordana y Souza, F. G. 45, 44

Judaism: *see* **Jewish Religious Life**

Jugoslavia: *see* **Yugoslavia**

Juin, Alphonse Pierre 45, 44

Juke-Boxes: *see* **Performing Right Societies 44**

Julius Rosenwald Fund: *see* **Societies and Associations 48, 47, 46.** *See* **Rosenwald Fund, The Julius 45, 44**

Julleville, Pietro Petit de: *see* **Petit de Julleville, Pietro 46**

Jumping: *see* **Track and Field Sports**

Junior Colleges: *see* **Universities and Colleges**

Justice, U.S. Department of: *see* **Government Departments and Bureaus**

Justo, Augustin P. 44

Jute

Juvenile Delinquency 48, 47. *See* **Child Welfare; Crime; Federal Bureau of Investigation 46, 45, 44**
AMVETS 51c; Sociology 683d

Kaiser, Georg 46

Kaiser, Henry J. 44

Kalinin, Mikhail Ivanovich 47

Kalish, Max 46

Kaltenbrunner, Ernst 47

Kameroons: *see* **French Overseas Territories; Trustee Territories 48.** *See* **British West Africa 48, 47, 46, 45, 44.** *See* **French Colonial Empire; Mandates 47, 46, 45, 44**

Kansas

Keenan, Joseph Berry 47

Keitel, Wilhelm 47, 46, 44

Kelly, Howard Atwood 44

Kenney, George Churchill 46, 45, 44

Kenny Treatment: *see* **Infantile Paralysis 44**

Kent, Raymond Asa 44

Kentucky

Kenya: *see* **British East Africa**

Keppel, Frederick Paul 44

Kern, Jerome David 46

Kesselring, Albert 46, 45, 44
War Crimes 789a

Keyes, Roger John B. K. 46

Keynes, John Maynard 47

Keyserling, Hermann 47

Kidnapping
FBI 299d

King, Ernest Joseph 46, 45, 44

King, William Lyon Mackenzie
Canada 162a

Kingman Island: *see* **Pacific Islands, U.S. 47, 46, 45, 44**

Kinkaid, Thomas Cassin 46, 45

Kinnick, Nile Clarke, Jr. 44

Kirk, Alan Goodrich 45

Kisch, Frederick Hermann 44

Kiska: *see* **Alaska; World War II 44**

Kiwanis International: *see* **Societies and Associations 48, 47, 46.** *See* **Kiwanis International 45, 44**

Kleffens, Eelco Nicolaas van 48, 47

Kleist, Paul Ludwig von 44

Kluge, Guenther von 45

Knight, Eric 44

Knights of Columbus: *see* **Societies and Associations 48, 47, 46.** *See* **Knights of Columbus 45, 44**

Knox, (William) Franklin 45, 44

Knudsen, William Signius 44

Koenig, Joseph-Pierre 45

Koenigsberg: *see* **East Prussia 47.** *See* **Koenigsberg 46**

Koga, Mineichi 45, 44

Koiso, Kuniaki 46, 45

Komorowski, Tadeusz 45

Konev, Ivan Stepanovich 46, 45

Konoye, Fumimaro 46

Korea 48, 47, 46. *See* **Chosen 45, 44**
Agriculture 28d; Armies of the World 74a; Barium Minerals 109b; Communism 215b; Fluorspar 314c; Food Supply of the World 316d; International Law 400b; Irrigation 413b; Missions, Foreign 486c; Music 507d; Occupied Areas, Administration of, 555a; RFC 637b; Red Cross 638d; Refugees 641a; Track and Field Sports 732b; U.N. 747b; U.N.R.R.A. 753b; War Debts 790d

KR serum 185d

Krueger, Walter 46, 45, 44

Krug, Julius Albert 48, 47, 45
Wilderness Preservation 798d

Kruger-Gray G.: *see* **Gray, G. K. 44**

Kure (Ocean) Island: *see* **Pacific Islands, U.S. 47, 46, 45, 44**

Kuwait: *see* **Arabia**

Kyanite Minerals

Labor, U.S. Department of: *see* **Government Departments and Bureaus**
A.F. of L. 44c; Child Labour 190a; Labour Unions 426b

Labor Relations Board, National: *see* **National Labor Relations Board**

Labour: *see* **Federal Mediation and Conciliation Service 48.** *See* **Municipal Government 48, 47.** *See* **Agriculture; American Federation of Labor; Child Welfare; Congress of Industrial Organization; Employment; International Labour Organization; Labour Unions; Law; Motion Pictures; National Labor Relations Board; National Mediation Board; Negroes, American; Radio; Relief; Shipbuilding; Strikes and Lockouts; Supreme Court of the U.S.; United States; Wages and Hours 48, 47, 46, 45, 44.** *See* **Civilian Production Administration; National Wage Stabilization Board 47.** *See* **War Labor Board, National; War Production, U.S. 46, 45, 44**
Aliens 39d; Business Review 152a; Census Data 178c; Chambers of Commerce 180c; Child Labour 189d; Democratic Party 246b; Green, W. 356c; Immigration and Emigration 379d; International Law 401c; Prisoners of War 611d; Refugees 640a; Republican Party 645a. *See* also various industries, products, states, provinces and countries

Labour Party, Great Britain: *see* **Political Parties, British 48.** *See* **Labour Party, Great Britain 47, 46, 45, 44**

Labour Unions
A.F. of L. 44c; Building and Construction Industry 148c; C.I.O. 221c; Co-operative Movement 225a; I.L.O. 398c; Law 429b; Lewis, J. L. 439b; NLRB 513b; Negroes, American 519b; Newspapers and Magazines 525d; Police 598b; Political Parties, British 598d; Public Utilities 620d; Radio 627d; Railroads 631b; Schwellenbach, L. B. 661c; Strikes 701d; Truman, H. S. 735b; Wages and Hours 788a; World Federation of Trade Unions 805d

Labrador: *see* **Newfoundland and Labrador**

Labuan: *see* **North Borneo 48**

Lacrosse

La Fontaine, Henri 44

La Guardia, Fiorello H. 47
Obituaries 546d

Lalique, René 46

Lamb: *see* **Meat**

Land, Emory S. 46, 45, 44

Landis, Kenesaw Mountain 45

Landsteiner, Karl 44

Lang, Cosmo Gordon 46

Langdon, Harry 45

Lange, Oscar Richard 47

Laos: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**

Laparra, Raoul 44

La Puma, Vincenzo 44

Lard
ARA 23d; Vegetable Oils 774a

Larkin, James 546d

Laski, Harold J. 46

Latin America: *see* **French Overseas Territories 48.** *See* **Argentina; Bolivia; Brazil; British Guiana; British Honduras; Chile; Colombia; Costa Rica; Ecuador; Guatemala; Honduras; Nicaragua; Panamá; Paraguay; Peru; Salvador, El; Surinam; Uruguay; Venezuela 48, 47, 46, 45, 44.** *See* **French Colonial Empire 47, 46, 45, 44.** *See* **International Law 46, 45, 44.** *See* **Hispanic America and World War II 44**
Agriculture 28d; Cartography 170d; Inter-American Affairs, The Institute of, 392c; Sociology 684c; Spanish-American Literature 692c; U.S. 759a

Latter Day Saints: *see* **Mormons**

Latvia
Estonia 285d; Lithuania 447d; War Debts 790b

Laval, Pierre 46, 45, 44

Law
Aliens 39d; Book Publishing 126d; Child Welfare 194a; Civil Liberties 201c; Copyright 226a; Insurance 391c; International Law 398d; Labour Unions 426b; Liquors, Alcoholic 445d; Meteorology 472d; Motion Pictures 492d; Public Utilities 620c; Radio 628a; Railroads 632b; Societies 680b; Supreme Court of the U.S. 704b; Taxation 713b

Lawes, Lewis Edward 547a

Lawn Tennis: *see* **Tennis**

Lawrence, Ernest Orlando 46

Lawrence, Sir Geoffrey 47

Leacock, Stephen Butler 45

Lead
Employment 280b; Mineral and Metal Production 483b; OPA 605c; Secondary Metals 663a. *See* also various states and countries

League of Nations 47, 46, 45, 44

League of Women Voters of the United States: *see* **Societies and Associations 48, 47**

Leahy, William Daniel

Lease-Lend: *see* **Lend-Lease 48, 47.** *See* **Foreign Economic Administration 46, 45, 44**

Leather
Business Review 153b; Employment 280b; Prices 606a; Shoe Industry 670c; Wages and Hours 787a

Lebanon: *see* **Syria and Lebanon 48, 47, 46, 45.** *See* **Lebanon 44**

Leclerc, Jacques 45
Obituaries 547a

Lecointe, Sadi 45

Lee, John Clifford Hodges 45

Lee, Willis Augustus, Jr. 46

Lee of Fareham, Arthur Hamilton Lee 547b

Leese, Sir Oliver William H. 45

Leeward Islands

Le Fanu, Henry Frewen: *see* **Perth, Archbishop of, 47**

Legislation: *see* **Business Review; Law**

Lehman, Herbert H. 46, 45, 44

Leigh-Mallory, Sir Trafford 45

Leland Stanford Junior University: *see* **Stanford University**

LeMay, Curtis E. 45

Lemons: *see* **Fruit 48, 47, 46, 45.** *See* **Lemons and Limes 44**
Dentistry 249a

Lend-Lease 48, 47. *See* **Foreign Economic Administration 46, 45, 44**
U.S. 756d; War Debts 790c

Leonard, Adna Wright 44

Leonard, Benjamin (Benny) **547b**

Leonard, William Ellery 45

Leopold III 46

Leprosy
Trinidad 734d

Lettuce
ARA 25b; Vegetables 774c

Leucaemia: Atomic Energy 83b; Cancer 168c; Chemotherapy 185b; Medicine 469a

Lewis, John Llewellyn
Democratic Party 246a; Krug, J. A. 425d; Labour Unions 427a; Law 433c; U.S. 757d

Ley, Robert 46

Lhévinne, Josef 45

Liberal Party: *see* **Political Parties, British 48.** *See* **Liberal Party 47, 46, 45, 44**

Liberia
Lend-Lease 438b; U.N. 746d; War Debts 790d

Liberty Ships: *see* **Shipbuilding; Shipping, Merchant Marine 47, 46, 45, 44**

Libraries
A.L.A. 46b; Information and Educational Exchange, Office of, 390c; Societies 680b

Libya: *see* **Italian Colonial Empire 48, 47, 46, 45, 44.** *See* **World War II 44**

Lick observatory 720c

Lie, Trygve 48, 47

Liechtenstein

Life Insurance: *see* **Insurance**

Life Span: *see* **Birth Statistics; Death Statistics; Infant Mortality; Suicide Statistics**

Lighting: *see* **Electrical Industries 48, 47, 46, 45, 44.** *See* **Motion Pictures 44**
Interior Decoration 396b

Lilienthal, David Eli 48, 47
Atomic Energy 82c

Lime
Public Health Engineering 617c. *See* also various states

Limes: *see* **Fruit 48, 47, 46, 45.** *See* **Lemons and Limes 44**

Limestone: *see* **Stone**

Lincoln, Joseph Crosby 45

Lindsey, Benjamin Barr 44

Linear accelerators: Atomic Energy 86b; California, University of, 159b; Stanford University 696c

Linen and Flax
Textile Industry 725d. *See* also various countries

Link, Mrs. Adeline DeSale 44

Lin Sen 44

Lions Clubs, International Association of: *see* **Societies and Associations 48, 47, 46.** *See* **Lions Clubs, International Association of, 45, 44**

Liquor Control: *see* **Liquors, Alcoholic**

Liquors, Alcoholic
Business Review 153b; Intoxication, Alcoholic 406d; Law 428d; Societies 681b; Taxation 715b; Wines 801c

Literary Prizes 48, 44. *See* **Prizes 47, 46, 45**
A.L.A. 46c

Literature: *see* **Nobel Prizes; Pulitzer Prizes 48.** *See* **Book Publishing 48, 47, 46.** *See* **Literary Prizes 48, 44.** *See* **American Literature; Canadian Literature; English Literature; French Literature; German Literature; Italian Literature; Russian Literature Spanish-American Literature; Spanish Literature 48, 47, 46, 45, 44.** *See* **Prizes 47, 46, 45.** *See* **Publishing (Book) 45, 44**

Lithium Minerals

Lithuania
Baptist Church 108d; Estonia 285d; War Debts 790b

Little Assembly: Gromyko, A. A. 357c; Johnson, H. V. 422d; Marshall, G. C. 463d

Litvinov, Maxim Maximovich 44

Liver Disorders: *see* **Alimentary System, Disorders of, 48**

Livestock
ARA 24b; Agriculture 25c; Black Markets 125b; Cattle 173d; Food Supply of the World 317b; Hogs 363d; Horses 366d; Meat 466d; Sheep 666d; Shows, Animal 671b;

Veterinary Medicine 782a. *See* also various states, provinces and countries

Livestock Shows: *see* **Shows, Animal**

Lloyd, Lola Maverick 45

Lloyd George, David Lloyd G. 46

Local Government: *see* **Municipal Government**

Loftus, Marie Cecilia 44

London

London Conference of Foreign Ministers: *see* **Moscow Conference of Foreign Ministers 46**

London University

Lonsdale, Hugh Cecil Lowther 45

Loran Navigation: *see* **Electronics 48, 47.** *See* **Radar 46**
Aviation, Civil 96d; Coast Guard, U.S. 209a

Lorenz, Adolf 47
Loring, John Alden 547c

Los Angeles

Louisiana

Love, Nancy Harkness 44

Lovett, Robert Abercrombie 48

Lowden, Frank Orren 44

Lowell, Abbott Lawrence 44
Lubitsch, Ernst 547c

Luce, Clare Boothe 46, 45, 44

Lumber
Building and Construction Industry 148b; Business Review 153b; Employment 280b; Forests 323d; Interior Decoration 395c; International Trade 403c; Plastics Industry 593d; Wages and Hours 787a; Wilderness Preservation 798d. *See* also various states, provinces and countries

Lutherans
Church Membership 200a

Lutyens, Sir Edwin Landseer 45

Lutz, Frank Eugene 44

Lutze, Viktor 44

Luxembourg
American Citizens Abroad 43d; Belgium 117b; European Recovery Program 288a; Exchange Control 289b; Foreign Investments in the U.S. 321a; Foreign Ministers' Conferences 322b; International Bank 396d; International Trade 405a; Iron and Steel 410b; Lumber 451d; Mineral and Metal Production 484a; Netherlands 520d; Norway 537c; Philately 581b; Prisoners of War 611d; Tariffs 712d; U.N. 746d; Wines 802a

Lynching

Lyttelton, Oliver 45, 44
Lytton, Victor Alexander G. R. L. 547d

McAdie, Alexander George 44

McAfee, Mildred H. 44

Macao: *see* **Portuguese Colonial Empire**

MacArthur, Douglas

McCain, John Sidney 46

McCloy, John Hay 48

McCormack, John 46

McGill, Frank Scholes 44
MacGill, Helen Gregory 547d

McGill University 48, 47

McGrath, James Howard 48
Democratic Party 246d; Truman, H. S. 736a

McGuigan, James Charles 46

Machado, Bernadino 45

Machinery, Farm: *see* **Agriculture**

Machinery and Machine Tools
Business Review 153b; Employment 280a; International Trade 403c; Munitions 503b; Surplus Property Disposal 706c; Wages and Hours 787a

McIntyre, Marvin Hunter 44

McKenna, Reginald 44

Mackensen, August von 46

Mackenzie King, William Lyon: *see* **King, William Lyon Mackenzie**
McLaughlin, Andrew Cunningham 548a
McLean, Evalyn Walsh 548a
MacNair, Harley Farnsworth 548b

McNair, Lesley James 45, 44

McNarney, Joseph Taggart 47, 46

McNary, Charles Linza 45

McNaughton, Andrew G. L. 45, 44

McNeil, Hector 48

McNutt, Paul Vories 47, 46, 44

McPherson, Aimee Semple 45

McReynolds, James Clark 47

Madagascar: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Food Supply of the World 316d; Friends, Religious Society of, 332c; Graphite 350c; Mica 480c; Missions, Foreign 486d

Magazines and Periodicals: *see* **Newspapers and Magazines**

Magee, John Benjamin 44

Maglione, Luigi 45

Magnesia 46, 45, 44

Magnesium
Mineral and Metal Production 483b; Secondary Metals 663a

Magnesium Compounds 48, 47
Magnetron 278b

Magni, Alessio 45

Maher Pasha, Ahmed 46

Maillol, Aristide 45

Maine

Maize: *see* **Corn**

Makin, Norman John Oswald 48, 47

Malaria: *see* **Epidemics and Public Health Control 44**
Chemistry 184d; Medicine 468d; Occupied Areas, Administration of, 557b; U.N. 750d

Malaya, British: *see* **Malayan Union and Singapore 48, 47.** *See* **Federated Malay States: Straits Settlements; Unfederated Malay States 46, 45, 44.** *See* **World War II 44**

Malayan Union and Singapore 48, 47
International Trade 406b; Rubber 653d; Tin 728d

Malinovsky, Rodion Y. 46, 45

Malta 48. *See* **Mediterranean, British Possessions in the 47, 46, 45, 44**

Manchuria
China 196a; Communism 217a; Mineral and Metal Production 484a; Refugees 641a; Soybeans 690c

Mandated Pacific Islands: *see* **Pacific Islands under Trusteeship 48.** *See* **Pacific Islands, Mandated 47, 46, 45, 44**

Mandates: *see* **Trustee Territories 48.** *See* **Mandates 47, 46, 45, 44**

Mandel, Georges 44

Manganese
Mineral and Metal Production 483b

MANIAC (mechanical and numerical integrator and calculator) 805b

Manitoba

Mannerheim, Carl G. E. von 46, 45

Manpower, War: *see* **War Manpower Commission 46, 45, 44**

Manufacturers, National Association of: *see* **Societies and Associations 48, 47, 46.** *See* **National Association of Manufacturers 45, 44**
Manufacturing: Business Review 153b; Employment 279d; Societies 682b; Wages and Hours 786c. *See* also separate industries and various states, provinces and countries

Manuilsky, Dmitry Zacharovich 47

Mao Tse-tung 47
Communism 216d

Maple Products
Sugar 702d

Maps: *see* **Cartography; Geography 48**

Marble: *see* **Stone**

Margarine 48, 47, 46, 45. *See* **Oleomargarine 44**
Plastics Industry 593a; Vegetable Oils 774b

Marianas Islands: *see* **Trustee Territories 48.** *See* **Mandates 47.** *See* **Marianas Islands 46, 45**
Anthropology 55b; Pacific Islands under Trusteeship 563a
Marietta college 652c

Marigny, Alfred de: *see* **Oakes, Sir Harry 44**

Marine Biology
Oceanography 557d; Zoology 821d

Marine Corps

Marine Insurance: *see* **Insurance**

Marinetti, Filippo Tommaso 45
Marjoram 694c

Market Gardening: *see* **Vegetables 48, 47, 46, 45.** *See* **Market Gardening 44**

Marketing: *see* **Business Review**
Agriculture 30d
Marlate methoxychlor 283d

Marmon, Howard C. 44

Marriage and Divorce
Census Data 175b; Child Welfare 192d; Law 432d

Marriott, Sir John Arthur R. 46

Marshall, George Catlett
China 195d; C.I.O. 221c; Democracy 244d; Democratic Party 246a; European Recovery Program 287d; Foreign Ministers' Conferences 322d; Greenland 357a; Poland 596d; Reparations 643d; Stalin, J. V. 695b; U.S. 757b

Marshall, Tully 44

Marshall Islands: *see* **Trustee Territories 48.** *See* **Mandates 47.** *See* **Marshall Islands 46, 45**
Anthropology 55b; Atomic Energy 83a; Pacific Islands under Trusteeship 563a; Psychiatry 614c

Marshall Plan: *see* **European Recovery Program 48**

Martin, Joseph William, Jr. 48

Martinique: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Tariffs 713b

Marvin, Charles Frederick 44

Mary, Wilhelm 47

Maryland

Mascagni, Pietro 46

Masella, Benedetto Aloisi 46

Masonic Fraternity: *see* **Societies and Associations 48.** *See* **Masonic Fraternity 46**

Massachusetts

Massachusetts Institute of Technology
Libraries 441d; Meteorology 473c; Rowing 652a

Material Coordinating Committee (U.S. and Canada): *see* **Canadian-U.S. War Committees 46, 45, 44**

Mathematics
Meteorology 473c; Pennsylvania, University of, 577c; Photography 586b; Societies 681a; Sociology 684c; Standards, National Bureau of, 695d

Maurice and Laura Falk Foundation, The: *see* **Societies and Associations 48, 47, 46.** *See* **Falk Foundation, The Maurice and Laura 45, 44**

Mauritania: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**

Mauritius 48. *See* **British East Africa 47, 46, 45, 44**

Mayhew, Kate 45

Meat
Agriculture 26a; Bacon 103b; Cattle 173d; Food Supply of the World 317a; Hogs 363d; Horses 367a; International Trade 404b; Livestock 448a; Rationing 635a; Sheep 667a; Veterinary Medicine 782b. *See* also various states and countries

Medals: *see* **Decorations, Medals and Badges—Military, Naval and Civil**

Mediation Board, National: *see* **National Mediation Board**

Medical Association, American: *see* **American Medical Association**

Medical Rehabilitation of Disabled Veterans 48, 47
British Legion 142a; Veterans' Administration 780a

Medical Research, Committee on: *see* **Scientific Research and Development, Office of, 46, 45, 44**

Medicine
A.M.A. 50b; Atomic Energy 83a; Birth Control 122c; Book Publishing 126d; Chemotherapy 185b; Industrial Health 387b; Insurance 391d; Literary Prizes 446d; Narcotics and Narcotic Traffic 510d; Nobel Prizes 533d; Plastics Industry 593a; Psychiatry 613c; Psychosomatic Medicine 616c; Public Health Services 618b; U.N. 750d; U.N.R.R.A. 753b; Veterans' Administration 780a. *See* also specific diseases and medical sciences

Mediterranean, British Possessions in the; *see* **Cyprus; Gibraltar; Malta 48.** *See* **Mediterranean, British Possessions in the 47, 46, 45, 44**

Meek, Donald 47

Mei Lan-fang 44

Mello Franco, Afranio de 44

Meloney, Marie Mattingly 44
Meningitis 520b

Merchant Marine: *see* **Shipping, Merchant Marine**

Mercury
Mineral and Metal Production 483b

Meretskov, Kirill Afanasjevich 46

Merit System: *see* **Civil Service**

Merrill, Frank Dow 45
Mesantoin 805b

Mesotrons (Mesons): *see* **Physics**

Metallurgy

Metal Prices and Production: *see* **Mineral and Metal Production and Prices**

Meteorology
Coast Guard, U.S. 208c; Exploration and Discovery 294d; Marine Biology 460d; Words and Meanings, New 805c
Methadon: Anaesthesiology 52c; Chemotherapy 186b; Medicine 469d

Methodist Church
Christian Unity 198d; Church Membership 200a
Metopon: Chemotherapy 186b; Medicine 469d; Narcotics and Narcotic Traffic 511b

Metropolitan Museum of Art: *see* **Museums 48.** *See* **Art Exhibitions; Art Galleries and Art Museums 47, 46, 45, 44**
Art Exhibitions 78d; Sculpture 661d

Mexico
Agriculture 30c; American Citizens Abroad 44a; Anthropology 56a; Antimony 56c; Archaeology 61a; Armies of the World 76c; Arsenic 77c; Baseball 112d; Beekeeping 115d; Birth Statistics 123c; Bismuth 124b; Cadmium 157d; Cattle 174c; Copper 225b; Cotton 228d; Cuba 231b; Dance 239a; Debt, National 242d; Education 266d; Exchange Control 289d; Fencing 306a; Fluorspar 314c; Food Supply of the World 317b; Gas, Natural 336d; Gold 347d; Graphite 350c; Immigration and Emigration 379d; Inter-American Affairs, The Institute of, 392d; Inter-American Defense Conference 393c; International Monetary Fund 402a; International Trade 404a; Lead 435c; Livestock 448b; Meat 467b; Mercury 471d; Mineral and Metal Production 484a; Motion Pictures 496d; Narcotics and Narcotic Traffic 510d; Navies of the World 518b; Philately 581b; Polo 599c; Radio 628c; Roads and Highways 649b; Silver 673c; Smithsonian Institution 675b; Soil Erosion 686b; Spanish-American Literature 692c; Sulphur 703d; Tariffs 712c; Taxation 714d; Truman, H. S. 735d; Trustee Territories 736b; Tungsten 739a; Tunnels 739d; U.N. 746d; U.S. Investments Abroad 762b; Veterinary Medicine 782a; War Debts 790c; Wheat 798a; Zinc 821a

Mexico City Conference: *see* **Inter-American Conference on Problems of War and Peace; Pan American Union 46**

Meyer, Eugene 47

Mica

Micara, Clemente 46

Michael (Mihai) I 48
Rumania 655d

Michigan

Michigan, University of
Archaeology 59d; Football 318d; Golf 348d; Music 508d; Philology 583a

Microphotography: *see* **Photography**

Microscope, Electron: *see* **Photography 44**
Botany 128c; Photography 585d

Midway Islands: *see* **Pacific Islands, U.S. 47, 46, 45, 44**

Mikhailovitch, Draja 47, 44

Mikolajczyk, Stanislaw
Poland 596b

Military Academy, U.S. 48, 47, 46
Football 318d; Naval Academy, U.S. 516a

Military Government, Allied: *see* **Occupied Areas, Administration of, 48.** *See* **Allied Military Government 47, 46, 45, 44**
Military training: American Legion 45d; AMVETS 51c; Armies of the World 74b; Budget, National 144d; Chambers of Commerce 180d; Education 263c; Pacifism 563c; V.F.W. 780d; Words and Meaning, New 805d

Milk
ARA 24b; Agriculture 27d; Butter 157b; Canning Industry 169c; Cattle 173d; Cheese 181c; Dairying 235d; Electronics 278b; Food Supply of the World 317b; Public Health Engineering 618a; Rationing 635a. *See* also various states and countries

Miller, Glenn 45

Millerand, Alexandre 44

Millstones: *see* **Abrasives**

Milyukov, Paul Nikolayevich 44

Mindszenthy, Joseph 46

Mineral and Metal Production and Prices
Employment 280a; Industrial Health 387d; International Trade 403c; Prices 606a; Secondary Metals 662d; Strikes 700d; Wages and Hours 787a. *See* also separate minerals and various states, provinces and countries

Mineralogy
Societies 681a

Miniature Photography: *see* **Photography 44**

Mining: *see* **Mineral and Metal Production and Prices**

Minnesota

Minnesota, University of

Minor League Baseball: *see* **Baseball**

Mint, United States: *see* **Coinage**

Miquelon: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**

Missions, Foreign
Congregational Christian Churches 217d; Methodist Church 477d; Religion 642b; Roman Catholic Church 651a; United Church of Canada 746c

Mississippi

Missouri

Mitscher, Marc Andrew 46, 45
Obituaries 548b

Mohammedanism: *see* **Islam**

Molasses: *see* **Sugar 47, 46, 45, 44**

Molotov, Vyacheslav Mikhailovich
China 196d; European Recovery Program 288a; Foreign Ministers' Conferences 322d; Poland 596d; Reparations 643d; U.S.S.R. 742b

Moltke, Hans Adolf von 44

Molybdenum
Mineral and Metal Production 483b

Monaco
Philately 581b

Monazite

Mondrian, Piet 45

Monetary Units: *see* **Exchange Control and Exchange Rates**

Money, Sir Leo George Chiozza 45

Mongolia
International Law 400a; U.N. 746d
Monsky, Henry 548c

Montana

Montenegro: *see* **Yugoslavia 48, 47, 46, 45.** *See* **Montenegro 44**

Montgomery of Alamein, B. L. M.
Cambridge University 159c

Montreal

Montreal, University of

Montserrat: *see* **Leeward Islands 48, 47.** *See* **West Indies, British 46, 45, 44**
Mooney, Edward 46
Moore, Grace 548c
Moore, John Bassett 548d
Moravia: *see* **Bohemia and Moravia 45, 44**
Mordacq, Jean-Jules-Henri 44
Morgan, John Pierpont 44
Mormons
Church Membership 200a
Morocco: *see* **French Overseas Territories 48.** *See* **Spanish Colonial Empire 48, 47, 46, 45, 44.** *See* **French Colonial Empire 47, 46, 45, 44**
Mineral and Metal Production 484a; Phosphates 584b; Spices 694c; Tangier 712a; Wines 802a
Morrison, Herbert Stanley 47, 46, 45, 44
Parliament, Houses of, 572c
Mortgages, Farm: *see* **Farmers Home Administration 48, 47.** *See* **Agriculture; Farm Credit Administration 48, 47, 46, 45, 44**
Mortgages, Home: *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
Banking 107b
Moscow
Moscow, Pact of: *see* **U.S.S.R. 44**
Moscow Conference of Foreign Ministers 46
Motion Pictures
Anti-Semitism 57b; Information and Educational Exchange, Office of, 390b; Mexico 479b
Motor-Boat Racing
Motor Transportation
Munitions 503d; Roads and Highways 648d. *See* also various states and countries
Motor Vehicles: *see* **Automobile Industry; Electric Transportation; Federal Bureau of Investigation; Motor Transportation**
Mott, John R. 47
Mottas, C. C. de V.: *see* **Vasconcellos Mottas, Carlo Carmelo de 46**
Mottistone, John Edward Bernard Seely 548d
Mountbatten, Philip: *see* **Edinburgh, Duke of, 48**
Mountbatten of Burma, Louis (F. A. V. N.) Mountbatten 48, 46, 45, 44
India 382d; Parliament, Houses of, 573a
Mount Holyoke College
Mount Palomar observatory: Astronomy 80c; Telescopes 720c
Mowinckel, Johan Ludwig 44
Moyne, Walter Edward Guinness 45
Mozambique: *see* **Portuguese Colonial Empire**
Mules: *see* **Horses**
Muller, Hermann Joseph 47
Genetics 337c
Mulock, Sir William 45
Munch, Edward 45
Municipal Government
Banking 106c; Civil Service 202d; Debt, National 242b; Police 597d; Taxation 715b. *See* also various cities and states
Munitions Assignment Board (U.S. and Great Britain): *see* **British-U.S. War Boards 46, 45, 44**
Munitions of War
Aircraft Manufacture 33b; Armies of the World 74b; Atomic Energy 83a; Aviation, Military 98b; Jet Propulsion 419c; Navies of the World 516c; Strategic Mineral Supplies 700a; U.N. 747c
Murphy, Robert Daniel 48, 46, 45, 44.
Murray, Philip
Museum of Fine Arts (Boston): Art Exhibitions 78b; Museums 507a
Museums 48. *See* **Art Galleries and Art Museums 47, 46, 45, 44**
Archaeology 59d; Art Exhibitions 77d; Donations and Bequests 257c; Painting 563d; Smithsonian Institution 675a
Music
Book Publishing 126d; Occupied Areas, Administration of, 556c; Pulitzer Prizes 622c; Radio 627d; Societies 682b; Television 721d; Theatre 726d
Music Library Association: *see* **Societies and Associations 48, 47, 46.** *See* **Music Library Association 45, 44**
Mussolini, Benito 46, 45, 44
Mustard Seed: *see* **Spices**
Muti, Ettore 44
Mutton: *see* **Meat**
Myanesin: Anaesthesiology 52c; Medicine 469a
Nagano, Osami 45, 44
Obituaries 549a
Nagumo, Chuichi 45
Nagy, Ferenc 48
Hungary 374b
Narcotics and Narcotic Traffic 48. *See* **Drugs and Drug Traffic 47, 46, 45, 44**
Medicine 469c; Occupied Areas, Administration of, 557a; U.N. 750b
Nash, Patrick A. 44
Nash, Paul 47
National Academy of Design 77d
National Academy of Sciences: *see* **Societies and Associations 48, 47, 46.** *See* **National Academy of Sciences 45, 44**
National Archives: *see* **Archives, National**
National Association of Evangelicals
National Association of Manufacturers: *see* **Societies and Associations 48, 47, 46.** *See* **National Association of Manufacturers 45, 44**
National Association of State Libraries: *see* **Societies and Associations 48, 47.** *See* **National Association of State Libraries 44**
National Budget: *see* **Budget, National**
National Catholic Community Service: *see* **Societies and Associations 48, 47, 46.** *See* **National Catholic Community Service 45, 44**
National Catholic Rural Life Conference: *see* **Catholic Rural Life Conference, National**
National Catholic Welfare Conference: *see* **Catholic Welfare Conference, National**
National Congress of Parents and Teachers: *see* **Parents and Teachers, National Congress of**
National Debt: *see* **Debt, National 48, 47, 46, 45.** *See* **National Debt 44**
National Defense (U.S.): *see* **Aviation, Military 45.** *See* **National Guard; Navies of the World; War Production, U.S. 45, 44.** *See* **Air Forces of the World 44**
National Defense Research Committee: *see* **Scientific Research and Development, Office of, 46, 45, 44**
National Education Association
Education 263b; Motion Pictures 494b
National Foundation for Infantile Paralysis: *see* **Infantile Paralysis**
National Gallery of Art: *see* **Museums 48.** *See* **Smithsonian Institution 48, 47, 46, 45, 44.** *See* **Art Galleries and Art Museums 47, 46, 45, 44**
Music 508d
National Geographic Society
Archaeology 61c; Smithsonian Institution 675b
National Guard
Armies of the World 74c
National Housing Agency: *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
National Income and National Product: *see* **Income and Product, U.S. 48, 47, 46, 45.** *See* **National Income and Product 44**
National Insurance: *see* **Relief 48.** *See* **Social Security 48, 47, 46, 45, 44**
Insurance 392a
National Labor Relations Board
Denham, R. N. 247b; Labour Unions 426b; Law 429b
National Lawyers Guild: *see* **Societies and Associations 48, 47, 46.** *See* **National Lawyers Guild 45, 44**
National League of Women Voters: *see* **Societies and Associations 46.** *See* **National League of Women Voters 45**
National Mediation Board
National Military Establishment: *see* **Government Departments and Bureaus; United States 48**
Armies of the World 74d; Aviation, Military 98a; Budget, National 144d; Decorations, Medals and Badges 243c; Forrestal, J. 325b; Selective Service 665b
National Museum: *see* **Smithsonian Institution**
National Parks and Monuments
Wilderness Preservation 798d; Wildlife Conservation 799b
National Railway Labor Panel: *see* **National Mediation Board**
National Wage Stabilization Board 47, 46, 45, 44
National War Fund: *see* **War Relief, U.S. 46, 45, 44**
National War Labor Board: *see* **National Wage Stabilization Board 47.** *See* **War Labor Board, National 46, 45, 44**
National Wealth: *see* **Wealth and Income, Distribution of**
National Youth Administration 44
Natural Gas: *see* **Gas, Natural**
Nauru: *see* **Pacific Islands under Trusteeship; Trustee Territories 48.** *See* **Mandates; Pacific Islands, Mandated 47, 46, 45, 44**
Naval Academy, U.S. 48, 47, 46
Military Academy, U.S. 482c; Rowing 652a
Navies of the World
Aviation, Military 98c; Peace Treaties 574b. *See* also various countries
Navy, U.S.: Armies of the World 74d; Atomic Energy 84b; Aviation, Military 98c; Cartography 171d; Denfeld, L. E. 247a; Exploration and Discovery 293a; Guam 357c; Jet Propulsion 420d; Libraries 442b; Marine Biology 460b; Marine Corps 461d; Meteorology 474d; Munitions 503d; Naval Academy, U.S. 516a; Navies of the World 517a; Negroes, American 519a; Photography 584b; Sullivan, J. L. 703d; Surplus Property Disposal 706c; U.S. 758b
Navy, U.S. Department of: *see* **Government Departments and Bureaus**
Nazimova, Alla 46
Nazis: *see* **Anti-Semitism; Germany 48, 47, 46, 45, 44.** *See* **Fascism 45, 44**
Argentina 70b
N.E.A.: *see* **National Education Association**
Nebraska
Necrology: *see* **Obituaries**
Negroes, American
Baseball 110a; Birth Statistics 123c; Census Data 176a; Death Statistics 240d; Education 264d; Infant Mortality 389c; Law 431a; Lynching 452d; Suicide Statistics 703b; Track and Field Sports 732b. *See* also various states
Nehru, Jawaharlal 48, 47, 44
Sculpture 662b; Socialism 677c
Neilson, Nellie 549a
Nelson, Donald Marr 45, 44
Nepal
Nervous System
Ear, Nose and Throat, Diseases of, 259d; Eye, Diseases of, 296a; Medicine 468d
Netherlands
Airports 34d; American Citizens Abroad 43d; Anthropology 54b; Armies of the World 74a; Australia 87d; Aviation, Military 103b; Belgium 117b; Birth Statistics 123b; Book Publishing 127d; Business Review 156b; Candy 169c; Cattle 174c; Coal 205d; Curaçao 232c; Dance 238d; Debt, National 242d; Diamonds 252a; Dominican Republic 257a; Electrical Industries 274c; Electric Transportation 276b; European Recovery Program 288a; Exchange Control 289a; Exploration and Discovery 295c; Food Supply of the World 317b; Foreign Investments in the U.S. 321a; Foreign Ministers' Conferences 322b; Fruit 332d; Horticulture 367c; Housing 373d; International Bank 396d; International Law 400c; International Monetary Fund 402a; International Trade 405a; Japan 417c; Lend-Lease 438a; Linen and Flax 443d; Lumber 451d; Luxembourg 452c; Medicine 471b; Mexico 479b; Missions, Foreign 486d; Mormons 491c; Music 508c; Navies of the World 517b; Netherlands Indies 521d; Norway 537c; Pacific Islands, British 562a; Peace Treaties 574d; Prices 609d; Railroads 633b; Rationing 635b; Red Cross 638d; Refugees 640b; Rubber 655a; Rural Electrification 657a; Sculpture 662c; Shipbuilding 667b; Shipping, Merchant Marine 669d; Socialism 676d; Spices 694d; Swimming 709a; Switzerland 710a; Tariffs 712d; Taxation 717c; Town and Regional Planning 732a; U.N. 746d; U.S. Investments Abroad 761d; War Crimes 788d; War Debts 790d; Wildlife Conservation 800d; Wool 803c; Zinc 821a. *See* also colonial possessions
Netherlands Colonial Empire: *see* **Curaçao; Netherlands Indies; Surinam 48.** *See* **Netherlands Colonial Empire 47, 46, 45, 44**
Netherlands Indies
Agriculture 28d; Armies of the World 77b; Coconuts 210a; Food Supply of the World 318b; International Law 400c; International Monetary Fund 402b; Mineral and Metal Production 484a; Missions, Foreign 486d; Netherlands 521a; Peanuts 576b; Photography 585d; Refugees 641a; Spices 694b; Tariffs 713b; Tea 718a; Tin 728d; U.N. 749b; War Debts 790d
Neurath, Konstantin von 47, 46, 45, 44
Neutrality: *see* **International Law 46, 45, 44**
Neutrons: *see* **Atomic Energy; Physics 48, 47.** *See* **Chemistry 47, 46.** *See* **Atomic Bomb 46**
Nevada
New Brunswick
New Caledonia: *see* **French Overseas Territories 48.** *See* **French Colonial Empire, 47 46, 45, 44**
Chromite 199a; Mineral and Metal Production 484a; Nickel 533b
New Deal: *see* **United States 44**
Newfoundland and Labrador
American Citizens Abroad 44a; Boy Scouts 131b; Canada 162a; Fluorspar 314c; Foreign Investments in the U.S. 321a; Iron and Steel 410b; Paper and Pulp Industry 570a; Radio 628c; Silver 673c; War Debts 790d
New Guinea: *see* **Netherlands Indies; Pacific Islands under Trusteeship; Trustee Territories 48.** *See* **New Guinea 47, 46, 45, 44**
New Hampshire
New Hebrides: *see* **French Overseas Territories 48.** *See* **French Colonial Empire; Pacific Islands, British 47, 46, 45, 44**
New Jersey
New look: Fashion and Dress 299b; Words and Meanings, New 805c
New Mexico
New South Wales 47, 46, 45, 44
Dams 236a
Newspapers and Magazines
Advertising 20c; Christian Science 198a; Democracy 244d; Great Britain 352a; Hutchins, R. M. 375d; Information and Educational Exchange, Office of, 390b; Literary Prizes 446c; Occupied Areas, Administration of, 556b; Parliament, Houses of, 572c; Printing 610d; Pulitzer Prizes 622b
New York
New York City
New York University
Accidents 19b; Track and Field Sports 732b
New Zealand, Dominion of
American Citizens Abroad 44a; Armies of the World 76c; Australia 87d; Aviation, Civil 93b; Birth Statistics 123c; Butter 157c; Cattle 174b; Child Welfare 192c; Christian Unity 198d; Copyright 226a; Debt, National 242d; Exchange Control 291a; Food Supply of the World 318b; Football 320c; Friends, Religious Society of, 332c; Furs 335d; Hogs 364a; Immigration and Emigration 380b; Infant Mortality 389d; Insurance 392a; International Trade 404d; Lend-Lease 438b; Linen and Flax 443d; Medicine 471b; Norway 537c; Pacific Islands, British 562a; Pacific Islands under Trusteeship 563a; Peace Treaties 574d; Philately 581b; Railroads 633c; Refugees 640b; Relief 641c; Seismology 664d; Sheep 667a; Shipping, Merchant Marine 670a; Silk 672d; Tariffs 712c; Taxation 716d; Trustee Territories 736b; U.N. 746d; War Debts 790d; Wool 803c
NHA (National Housing Agency): *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
Nicaragua
Costa Rica 227c; Guatemala 358a; Illiteracy 379b; Inter-American Affairs, The Institute of, 392d; Panamá 569a; Salvador, El 659a; Tariffs 712c; U.N. 746d; War Debts 790c
Nichols, Robert Malise Bowyer 45
Nickel
Mineral and Metal Production 483b; Secondary Metals 663a
Nicola, Enrico de 48, 47
Nielsen, Alice 44
Niger: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Nigeria: *see* **British West Africa**
Mineralogy 485b; Peanuts 576c; Rubber 654b; Tin 728d; Wildlife Conservation 801a; Words and Meanings, New 806b
Nigerite 485b
Night Club 45
Nimitz, C. W. 47, 46, 45, 44
Nitrogen, Chemical
ARA 25b; Fertilizers 306b
NLRB: *see* **National Labor Relations Board**
NMB: *see* **National Mediation Board**
Nobel Prizes 48. *See* **Prizes 47, 46, 45**
Pacifism 563b
Noel-Baker, Philip John 48, 47
Parliament, Houses of, 572d
Noguès, Auguste 44
Nokrashy Pasha, Mahmoud Fahmy 48
Nordhoff, Charles Bernard 549b
Norris, George William 45
North Borneo 48. *See* **Borneo 47, 46.** *See* **British Empire 45, 44**
North Carolina
North Carolina, University of
North Dakota
Northern Ireland: *see* **Ireland, Northern**
Northern Rhodesia: *see* **Rhodesia, Northern**
Northern Territory 47, 46, 45, 44
Northrop, John Howard 47
Northwestern University
Accidents 18d; Parents and Teachers, National Congress of, 571b
Northwest Territories
Norway
Airports 34d; Aluminum 42a; American Citizens Abroad 43d; Anthropol-

ogy 54d; Anti-Semitism 57b; Armies of the World 76c; Baptist Church 108d; Birth Statistics 124a; Business Review 156d; Cadmium 157d; Debt, National 242d; Decorations, Medals and Badges 243d; Democracy 245c; Denmark 248a; Employment 281a; European Recovery Program 288a; Exchange Control 290b; Fisheries 308d; Foreign Investments in the U.S. 321a; Greenland 356d; International Law 401d; International Trade 405a; Mathematics 466c; Mica 480c; Mineral and Metal Production 484a; Mormons 491c; Navies of the World 517d; Oceanography 557d; Public Utilities 621d; Refugees 640b; Roads and Highways 649d; Rural Electrification 656d; Sculpture 662c; Shipbuilding 667b; Shipping, Merchant Marine 669d; Skiing 674a; Socialism 676b; Sweden 707d; Switzerland 710a; Tariffs 712c; Tuberculosis 738b; U.N. 746d; War Crimes 788d; War Debts, 790d; Yachting 816d; Zinc 821a

Nose: *see* **Ear, Nose and Throat, Diseases of**

Notre Dame, University of
Basketball 114d; Football 318d

Nova Scotia
Furs 335d

Novikov, Alexandr Alexandrovich 45

Nursery Schools: *see* **Education**

Nursing: *see* **Hospitals 48**
Industrial Health 388b; Red Cross 638b

Nursing, War 46, 45, 44

Nutmegs: *see* **Spices**

Nutrition: *see* **Food Research; Vitamins 48, 47, 46, 45, 44.** *See* **Dietetics 47, 46, 45, 44.** *See* **Medicine 46, 45, 44**
Medicine 469a; Red Cross 638b

Nuts
Agriculture 26a; International Trade 404b

NWLB (National War Labor Board): *see* **War Labor Board, National 46, 45, 44**

NYA: *see* **National Youth Administration 44**

Nyasaland 48. *See* **British East Africa 47, 46, 45, 44**
Wildlife Conservation 801a

Nylon: *see* **Rayon and Other Synthetic Fibres**
Metallurgy 472b

Oakes, Sir Harry 44

Oats
ARA 25a; Agriculture 26c; Chemurgy 186d; Food Research 315b. *See* also various states and countries

Obituaries

O'Brien, Frank Michael 44
O'Brien, Howard Vincent 549b

Obstetrics: *see* **Gynaecology and Obstetrics**

Occupational Therapy for the Wounded: *see* **Medical Rehabilitation of Disabled Veterans 48, 47.** *See* **Physical Medicine and Occupational Therapy for the Wounded 46, 45**

Occupied Areas, Administration of, 48
Armies of the World 74a; Austria 89a; Berlin 118d; Budget, National 144d; Canada 165b; Clay, L. D. 203d; Germany 343b; Great Britain 353a; Hungary 375a; Italian Colonial Empire 413d; Japan 417b; Korea 425a; Libraries 440c; Refugees 640a; Reparations 643b; Rumania 655b; Trieste 734b; U.S. 758c

OCD (Office of Civilian Defense): *see* **Civilian Defense 46, 45, 44**

Oceanography 48, 47. *See* **Marine Biology 46, 45, 44**
Coast and Geodetic Survey, U.S. 207d; Marine Biology 460b; National Geographic Society 512b

O'Connell, William Henry 45

O'Day, Caroline Goodwin 44
O'Donnell, John Hugh 549b

ODT: *see* **Defense Transportation, Office of, 47, 46, 45, 44**

O'Duffy, Eoin 45

OEM: *see* **Emergency Management, Office for, 45, 44**

OES (Office of Economic Stabilization): *see* **War Mobilization and Reconversion, Office of, 47.** *See* **Stabilization Administrator, Office of, 46.** *See* **Economic Stabilization, Office of, 45, 44**

OEW (Office of Economic Warfare): *see* **Foreign Economic Administration, 46, 45, 44**

Office for Emergency Management: *see* **Emergency Management, Office for, 45, 44**

Office of Civilian Defense: *see* **Civilian Defense 46, 45, 44**

Office of Contract Settlement: *see* **War Mobilization and Reconversion, Office of, 46, 45**

Office of Defense Transportation: *see* **Defense Transportation, Office of, 47, 46, 45, 44**

Office of Economic Stabilization: *see* **War Mobilization and Reconversion, Office of, 47.** *See* **Stabilization Administrator, Office of, 46.** *See* **Economic Stabilization, Office of, 45, 44**

Office of Education, U.S.: *see* **Education; Federal Security Agency**

Office of Price Administration: *see* **Price Administration, Office of**

Office of Scientific Research and Development: *see* **Scientific Research and Development, Office of, 46, 45, 44**

Office of War Information: *see* **War Information, Office of, 46, 45, 44**

Office of War Mobilization and Reconversion: *see* **War Mobilization and Reconversion, Office of, 47, 46, 45, 44**

O'Hare, Edward Henry 44

Ohio

Ohio State University
Track and Field Sports 733a

Oil: *see* **Petroleum**

Oils and Fats, Vegetable and Animal: *see* **Vegetable Oils and Animal Fats**

Okamura, Yasuji 46

Okinawa 46

Oklahoma

Old-Age Insurance: *see* **Social Security**

Old-Age Pension: *see* **Relief; Social Security.** *See* also under various states

Oldfield, Berna (Barney) Eli 47

Olds, Robert, 44

Oleomargarine: *see* **Margarine 48, 47, 46, 45.** *See* **Oleomargarine 44**

Olive Oil: *see* **Vegetable Oils and Animal Fats 47, 46, 45, 44**

Olives: *see* **Fruit 48, 47, 46, 45**

Olivier, Sydney Olivier 44

Oman and Muscat (Masqat): *see* **Arabia**

Onegin, Sigrid 44

O'Neill, Rose Cecil 45

Ontario

OPA (Office of Price Administration): *see* **Price Administration, Office of**

Opera: *see* **Music**
Operation "Janmat" 503b
Operation "Highjump" 293a

Opium: *see* **Narcotics and Narcotic Traffic 48.** *See* **Drugs and Drug Traffic 47, 46, 45, 44**

Oppenheim, E(dward) Phillips 47

Oppenheimer, Franz 44

Oppenheimer, J. Robert 46
Optiphone 503b

Oranges: *see* **Fruit 48, 47, 46, 45.** *See* **Oranges 44**
Orczy, Emmuska 549c

Oregon

Orlebar, Augustus H. 44

Orsenigo, Cesare 47

Osmeña, Sergio 46, 45

OSRD: *see* **Scientific Research and Development, Office of, 46, 45, 44**

Osteopathy

Ostland: *see* **U.S.S.R. 47, 46.** *See* **Ostland 45**

Osubka-Morawski, E. B. 47, 46

Ottawa

Oumansky, Constantine A. 46

Outdoor Advertising: *see* **Advertising**

Outer Mongolia: *see* **Mongolia**
Owen, Derwyn Trevor 549c
Owen, Robert Latham 549c

OWM (Office of War Mobilization): *see* **War Mobilization and Reconversion, Office of, 47, 46, 45, 44**

OWMR: *see* **War Mobilization and Reconversion, Office of, 47, 46, 45**

Oxford and Asquith, Margot 46

Oxford University
Cricket 229b; Rowing 652a

Oximeter 52c

Pacific Islands, British

Pacific Islands, French
French Overseas Territories 331d

Pacific Islands, Mandated 47, 46, 45, 44

Pacific Islands, U.S. 47, 46, 45, 44
Anthropology 55a

Pacific Islands under Trusteeship 48. *See* **Pacific Islands, Mandated 47, 46, 45, 44**
Armies of the World 74a; International Law 400c; Trustee Territories 736b

Pacifism

Paddock, Charles William 44
Padway, Joseph Arthur 549d

Painting
Art Exhibitions 77d; Art Sales 79c; Museums 507a

Paints and Varnishes
Chemurgy 187a; Interior Decoration 395c; Law 430c; Talc 711d

Pakistan, Dominion of, 48. *See* **India 45, 44**
Armies of the World 74a; Australia 88a; Cartography 171a; Exchange Control 292c; George VI 340c; India 384b; International Law 400a; Islam 413c; Jinnah, M. A. 422b; Law 435b; Nehru, J. 520b; Pacifism 563a; Railroads 633c; Red Cross 638d; Shipping, Merchant Marine 670a; U.N. 746d

Palaeontology, Vertebrate 48. *See* **Palaeontology 47, 46, 45, 44**
Anthropology 55d

Paléologue, Maurice Georges 45

Palestine
Anti-Semitism 57c; Archaeology 63b; Armies of the World 74a; Canada 162a; Diamonds 252a; Great Britain 352c; Husseini, H. A. el 375c; International Law 400b; Iraq 409c; Islam 413c; Jewish Religious Life 420d; Kidnapping 424b; Music 507d; Newspapers and Magazines 525c; Railroads 633c; Refugees 640c; Sandstroem, A. E. F. 660b; Societies 683a; Syria and Lebanon 710c; U.N. 747a; Wines 802a

Palladium 483b

Palmyra Island: *see* **Pacific Islands, U.S. 47, 46, 45, 44**

Panamá
American Citizens Abroad 44a; Archaeology 62a; Argentina 71a; Coinage 210b; Exchange Control 289d; Inter-American Affairs, The Institute of, 392d; International Monetary Fund 402d; Lend-Lease 438b; Peace Treaties 574a; Pneumonia 594c; Shipbuilding 667b; Smithsonian Institution 675a; U.N. 746d; War Debts 790c

Pan-American Highway: *see* **Roads and Highways**

Pan American Union
Inter-American Defense Conference 393c

Papandreou, George 45

Papen, Franz von 47
War Crimes 789b

Paper and Pulp Industry
Business Review 153b; Chemurgy 187a; Employment 280b; Forests 324b; International Trade 403c; Strikes 700d; Talc 711d; U.S. Investments Abroad 762b; Wages and Hours 787a

Paprika: *see* **Spices 48, 47, 45, 44**

Papua: *see* **British Empire 48, 47, 46, 45, 44.** *See* **New Guinea; Pacific Islands, British 47, 46, 45, 44**

Para-aminobenzoic acid: Chemotherapy 186a; Dermatology 249d

Paraguay
Exchange Control 290a; Inter-American Affairs, The Institute of, 392c; Inter-American Defense Conference 393c; Refugees 638d; Tariffs 713b; U.N. 746d; War Debts 790c

Parents and Teachers, National Congress of

Paris

Paris Peace Conference: *see* **Peace Treaties 48.** *See* **Paris Peace Conference 47**

Park, Robert Ezra 45

Parker, Louis N. 45

Parks and Monuments: *see* **National Parks and Monuments**

Parliament, Houses of

Parodi, Alexandre

Parrado y Garcia, Augustin 47, 46

Parri, Ferruccio 46

Partridge, Sir Bernard 46
PAS 468d
Passfield, Sidney James Webb 549d

Patch, Alexander M., Jr. 46, 45, 44

Patel, Vallabhbai 48

Patents
Glass 346d; Law 430c
Patiño, Simón Ituri 550a

Patrick, Edwin Daviess 46

Patten, George W. (Gilbert) 46

Patterson, Joseph Medill 47

Patterson, R. P. 47, 46, 45, 44

Patton, George Smith, Jr. 46, 45, 44
Philately 581b

Paul I 48

"Pay-as-you-earn" System: *see* **Taxation**

Peace Treaties 48
Armies of the World 75b; Australia 88a; Bulgaria 150b; Canada 165b; China 197b; Copyright 226a; Dodecanese 255d; Finland 307d; Foreign Investments in the U.S. 322a; Foreign Ministers' Conferences 322b; Greece 356b; Hungary 375a; International Law 400a; Italian Colonial Empire 413d; Italy 416b; Japan 417c; Navies of the World 516b; New Zealand 532b; Occupied Areas, Administration of, 555a; Patents 573d; Refugees 640c; Trieste 734b; U.S. 756a

Peaches: *see* **Fruit 48, 47, 46, 45.** *See* **Peaches 44**

Peanuts
Agriculture 25d; Chemurgy 187a; Vegetable Oils 774a

Pearl Harbor Inquiries 47

Pearls: Fashion and Dress 299c; Mineralogy 485c

Pears: *see* **Fruit 48, 47, 46, 45.** *See* **Pears 44**

Peat

Pecans: *see* **Nuts**
Pectin 187a

Peek, George Nelson 44

Pellegrinetti, Ermenegildo 44

Pembba: *see* **British East Africa**

Pendergast, Thomas Joseph 46

Penicillin: *see* **Urology 48, 47, 46.** *See* **Chemotherapy; Medicine 48, 47, 46, 45.** *See* **Dentistry 47, 46.** *See* **Dermatology; Surgery 47, 46, 45.** *See* **Agricultural Research Administration 46, 45.** *See* **Eye, Diseases of; Heart and Heart Diseases 45.** *See* **Penicillin 44**
Arthritis 78d; Ear, Nose and Throat, Diseases of, 259c; Genetics 338b; Gynaecology and Obstetrics 359a; Heart and Heart Diseases 362b; Law 435a; Public Health Services 619b; Robinson, Sir R. 650b; Venereal Diseases 776b

Pennsylvania

Pennsylvania, University of
Anthropology 54d; Rowing 652a

Pennsylvania Academy of the Fine Arts 77d

Pension, Old-Age: *see* **Relief; Social Security.** *See* also various states

Pensions, Army and Navy: *see* **Veterans' Administration**
V.F.W. 780d

Pentamidine 185d

Pentoquine 468d

Pepper: *see* **Spices**

Performing Right Societies: *see* **Societies and Associations 48, 47, 46.** *See* **Performing Right Societies 45, 44**

Perfume: *see* **Soap, Perfumery and Cosmetics**

Perkins, Milo Randolph 44

Permanent Joint Board on Defense (U.S. and Canada) 48, 47. *See* **Canadian-U.S. War Committees 46, 45, 44**
Canada 162b

Perón, Doña Maria Eva Duarte de 48
Argentina 71a

Perón, Juan Domingo 48, 47, 46, 45
Argentina 70b; Fascism 297d; Paraguay 570c

Perry, James De Wolf 550a

Persia: *see* **Iran**

Perth, Archbishop of, 47

Peru
Antimony 56c; Argentina 71a; Armies of the World 76c; Aviation, Civil 93b; Bismuth 124b; Copper 225b; Cuba 232a; Debt, National 242d; Exchange Control 289d; Inter-American Affairs, The Institute of, 392c; Inter-American Defense Conference 393c; International Trade 404a; Lead 435c; Mineral and Metal Production 484a; Narcotics and Narcotic Traffic 510d; Navies of the World 518b; Plague 591b; Refugees 640a; Seismology 664d; Silver 673c; Smithsonian Institution 675b; Socialism 677d; Tariffs 712c; Tungsten 739a; Tunnels 740a; U.N. 746d; U.S. Investments Abroad 762d; Vanadium 772d; War Debts 790c; Wines 802a

Pétain, Henri Philippe 46, 45, 44

Peter II 46, 45

Pethick-Lawrence, F. W. 47
Parliament, Houses of, 572d

Petit de Julleville, Pietro 46
Obituaries 550a

Petkov, Nikolai: Bulgaria 150b; Obituaries 550b

Petroleum
Business Review 153b; Chemistry 184d; Employment 280b; Gas, Natural 336d; Geology 340b; Mineral and Metal Production 484b; Public Utilities 621b; Rationing 635a; U.S. Investments Abroad 761c; Wages and Hours 787a; Wilderness Preservation 798d. *See* also various states and countries

Peyrouton, Marcel 44

Phelps, William Lyon 44

Philadelphia

Philanthropy: *see* **Donations and Bequests 48**

Philately
Philbrook Art Center 78b

Philippines, Republic of the
Agriculture 28d; Aviation, Civil 93b; Baptist Church 108d; Camp Fire Girls 159d; Chromite 199a; Coast and Geodetic Survey, U.S. 208b; Coconuts 210a; Coinage 210b; Congregational Christian Churches 217d; Exchange Control 292d; Fisheries 308d; Food Supply of the World 316d; I.L.O. 398b; International Trade 406b; Japan 417c; Mineral and Metal Production 484a; Missions, Foreign 486c; Peace Treaties 574d; Protestant Episcopal Church 613b; RFC 637a; Red Cross 638c; Refugees 641a; Rice 647b; Roads and Highways 650a; Roman Catholic Church 651a; Sugar 702b; U.N. 746d; U.N.R.R.A. 753b; War Debts 790d

Philology 48
Book Publishing 126d

Philosophy
Book Publishing 126d; French Literature 330a

Phoenix Islands: *see* **Pacific Islands, British 47, 46, 45, 44**
Phosphates
Fertilizers 306d; Mineral and Metal Production 484b
Photography
Astronomy 80c; Aviation, Civil 95a; Coast and Geodetic Survey, U.S. 208a; Electronics 277d; Exploration and Discovery 295a; Glass 346d; Marine Biology 460c; Motion Pictures 496a; Newspapers and Magazines 528a; Printing 610b; Pulitzer Prizes 622c; Radio 629b; Television 721b
Physical Medicine and Occupational Therapy for the Wounded 46, 45. *See* **Rehabilitation and Occupational Therapy for Wounded Soldiers 44**
Physics
Atomic Energy 86a; Nobel Prizes 533d; Standards, National Bureau of, 695c
Physiology
Pigeon Racing 47
Pig Iron: *see* **Iron and Steel**
Pigs: *see* **Hogs; Livestock**
Pike, Sumner Tucker 47
Pineapples: *see* **Fruit 48, 47, 46**
Piperonyl butoxide 283d
Pittsburgh
Pius XII
Roman Catholic Church 650c; Vatican City State 773c
Plague, Bubonic and Pneumonic
Planck, Max 550b
Plant Industry, Soils and Agricultural Engineering, Bureau of: *see* **Agricultural Research Administration**
Plasma, Blood: *see* **Physiology 48, 47, 46, 45.** *See* **Medicine; Surgery 47, 46, 45, 44**
Plastics Industry
Architecture 65b; Interior Decoration 395c; Paints and Varnishes 565c; Rayon and Other Synthetic Fibres 636b; Shipbuilding 668b
Platinum Group Metals
Mineral and Metal Production 483b; Secondary Metals 663a
Pla y Deniel, Enrico 46
Plummer-Vinson syndrome 40b
Plums: *see* **Fruit 48, 47, 46, 45.** *See* **Plums and Prunes 44**
Plutonium: *see* **Physics 48.** *See* **Atomic Energy 48, 47.** *See* **Chemistry 47, 46.** *See* **Atomic Bomb; Metallurgy 46**
Zoology 822b
Pneumonia
Chemotherapy 186a; Cold, Common 211a; Death Statistics 240a; Infant Mortality 389c; Plague 591c
Podophyllin 185b
Poetry: *see* **Book Publishing 48, 47, 46.** *See* **Literary Prizes 48, 44.** *See* **American Literature; Canadian Literature; English Literature; French Literature; Russian Literature; Spanish-American Literature; Spanish Literature 48, 47, 46, 45, 44.** *See* **Prizes 47, 46, 45.** *See* **Publishing (Book) 45, 44**
Poiret, Paul 45
Poland
Advertising 21a; Airports 34d; Anti-Semitism 57b; Armies of the World 76c; Atomic Energy 81c; Book Publishing 127d; Cadmium 157d; Child Welfare 191c; Coal 205d; Communism 215c; Czechoslovakia 235a; Debt, National 242d; Education 266c; Elections 271c; Electrical Industries 274d; European Recovery Program 288a; Exchange Control 292b; Foreign Investments in the U.S. 321d; Foreign Ministers' Conferences 322b; Friends, Religious Society of, 332c; Germany 343d; Greece 354b; International Monetary Fund 402b; Iron and Steel 411d; Linen and Flax 444a; Mineral and Metal Production 484a; Music 507d; Navies of the World 517d; Norway 537c; Petroleum 580a; Potatoes 603c; Prisoners of War 612a; Railroads 633b; Refugees 640c; Roman Catholic Church 650d; Socialism 677b; Tariffs 712d; Unitarian Church 746a; U.N. 746d; U.N.R.R.A. 753b; Veterans' Organizations 781d; War Crimes 788d; War Debts 790b; Wool 803c; Zinc 821a
Pole Vaulting: *see* **Track and Field Sports**
Police
Accidents 18c; Crime 230b; FBI 300b; Municipal Government 502b
Poliomyelitis: *see* **Infantile Paralysis**
Political Parties: *see* **Political Parties, British 48.** *See* **Communism; Democratic Party; Elections; Republican Party; Socialism 48, 47, 46, 45, 44.** *See* **Conservative Party, Great Britain; Labour Party, Great Britain; Liberal Party 47, 46, 45, 44**
Political Parties, British 48
Pollock, Channing 47
Polo
Popcorn
Poppy seeds 694d
Popular Music: *see* **Music**
Population, Movements of: *see* **Refugees**
Populations of the Countries of the World: *see* **Areas and Populations of the Countries of the World**
Porter, Paul Aldermandt 47
Porto Rico: *see* **Puerto Rico**
Portugal
Anthropology 54b; Armies of the World 76c; Baptist Church 108d; Birth Statistics 123c; Debt, National 242d; European Recovery Program 288a; Exchange Control 290b; Fisheries 308c; Food Supply of the World 315c; Foreign Investments in the U.S. 321a; Infant Mortality 390a; International Law 400a; International Trade 405a; Mineral and Metal Production 484a; Navies of the World 518a; Portuguese Colonial Empire 600c; Public Utilities 621d; Tungsten 739a; U.N. 746d; War Debts 790d; Wines 802a
Portuguese Colonial Empire
Portuguese Possessions in Africa: *see* **Portuguese Colonial Empire**
Post Office
Philately 581b; Railroads 630d
Postwar Planning: *see* **Reconstruction Planning 47, 46.** *See* **Postwar Planning 45, 44**
Potash
Fertilizers 306d; Mineral and Metal Production 484d
Potatoes
Agriculture 25d; Alcohol, Industrial 38a; Food Supply of the World 317a; Rationing 635a. *See* also various states and countries
Potsdam Conference: *see* **Berlin Conference 46**
Poultry
ARA 24b; Agriculture 25d; Eggs 267d; Food Supply of the World 317b; Livestock 448a; Veterinary Medicine 783a. *See* also various states and countries
Pound, Sir (A.) Dudley (P. R.) 44
Power Engineering 46
Atomic Energy 83d
Pratt, James Bissett 45
Precious Stones: *see* **Gem Stones 48.** *See* **Gems and Precious Stones 47, 46, 45, 44**
Prefabricated buildings: Architecture 65b; Building and Construction Industry 148b
Presbyterian Church
Christian Unity 198d; Church Membership 200b
Presidential Succession act: Law 428d; U.S. 754b
Presidents, Sovereigns and Rulers
Preysing, Conrad von 46
Price Administration, Office of
Law 429c
Prices
Black Markets 124b; Business Review 152a; Consumer Credit 223b; Income and Product, U.S. 382a; International Trade 403b; Labour Unions 426d; OPA 605c; Social Security 678c; Wages and Hours 788a; Words and Meanings, New 805c. *See* also various commodities, industries and countries
Primary Education: *see* **Education**
Prince Edward Island
Princeton University
Football 319b; Libraries 441b; Philology 583b; Rowing 652a
Principe: *see* **Portuguese Colonial Empire**
Printing 48, 47, 44
Business Review 153b; Employment 280b; Newspapers and Magazines 525d; Photography 584c; Wages and Hours 787a
Printing Office, U.S. Government
Priorities and Allocations
Rubber 653b
Priscol 186b
Prisoners of War
Austria 89b; Belgium 116a; Friends, Religious Society of, 332c; Germany 343b; Red Cross 638c
Prisons
Salvation Army 659c. *See* also various states
Private Schools: *see* **Education**
Prizes of 1947: *see* **Nobel Prizes 48.** *See* **Literary Prizes; Pulitzer Prizes 48, 44.** *See* **Prizes 47, 46, 45.** *See* also **Art Exhibitions; Canadian Literature; Mineralogy; Motion Pictures; Societies and Associations; Theatre; etc.**
Procaine 186b
Production, Industrial: *see* **Business Review 48, 47, 46, 45, 44.** *See* **Civilian Production Administration 47.** *See* **War Production, U.S. 46, 45, 44.** *See* also separate industries and various states, provinces and countries
Profits, Company: *see* **Business Review; Taxation**
Progressive Education: *see* **Education**
Propaganda: Clay, L. D. 203d; International Law 401b; Motion Pictures 492a; Occupied Areas, Administration of, 556c; Vishinsky, A. Y. 785d
Proportional Representation: *see* **Municipal Government**
Proteins: ARA 24d; Anaemia 52a; Brewing and Beer 135b; Chemistry 184d; Chemurgy 187a; Endocrinology 281d; Food Research 314d; Medicine 469a
Protestant Episcopal Church
Church Membership 200b
Protons: *see* **Atomic Energy 48, 47.** *See* **Physics 48, 47, 46.** *See* **Atomic Bomb 46**
Prunes: *see* **Fruit 48, 47, 46, 45.** *See* **Plums and Prunes 44**
Psychiatry
Psychosomatic Medicine 616c; Public Health Services 618c
Psychology
Music 510a; Physiology 589a; Psychiatry 613d; Words and Meanings, New 805c; Yale University 817d
Psychosomatic Medicine 48
Psychiatry 613d; Public Health Services 618c
Public Assistance: *see* **Child Welfare; Relief; Social Security.** *See* also various states
Public Buildings Administration: *see* **Federal Works Agency**
Public Health Engineering
Building and Construction Industry 147d
Public Health Service, U.S.: *see* **Epidemics and Public Health Control 47, 46.** *See* **Federal Security Agency 47, 46, 45, 44.** *See* **Venereal Diseases 47, 46, 45, 44.** *See* **Medicine 44**
Public Health Services 618b; Tuberculosis 737b; Veterinary Medicine 782a
Public Health Services 48
Bacteriology 103d; Birth Control 122d; Child Welfare 192a; FSA 303d; Hospitals 368d; Inter-American Affairs, The Institute of, 392d; Occupied Areas, Administration of, 557a; Parents and Teachers, National Congress of, 571b; Public Health Engineering 617b; Social Security 679a; Venereal Diseases 776a
Public Housing Administration: *see* **Housing 48**
Public Housing Authority, Federal: *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**
Public Libraries: *see* **American Library Association; Libraries**
Public Opinion Surveys 48, 47, 46, 45
Birth Control 122d; Marriage and Divorce 462d
Public Roads Administration: *see* **Federal Works Agency; Roads and Highways**
Budget, National 146c
Public Utilities
Building and Construction Industry 147d; Coal 206a; Electrical Industries 272a; Employment 280a; FPC 302a; Gas, Natural 336d; Law 434a; SEC 664b; Stocks and Bonds 697d; Strikes 700d; TVA 723a
Public Works Administration: *see* **Federal Works Agency 45, 44**
Publishing (Book): *see* **Book Publishing 48, 47, 46.** *See* **Publishing (Book) 45, 44**
Puerto Rico
Dominican Republic 256c
Pugilism: *see* **Boxing**
Pulitzer Prizes 48, 44. *See* **Prizes 47, 46, 45**
Pulp Industry: *see* **Paper and Pulp Industry**
Pulpstones: *see* **Abrasives**
Pulse code modulation 278c
Pulsejets 420d
Pumice: *see* **Abrasives**
Purdue University
PWA (Public Works Administration): *see* **Federal Works Agency 45, 44**
Pyle, Ernest Taylor 46
Pyribenzamine: Allergy 41c; Dermatology 250a; Medicine 469a
Pyrite
Mineral and Metal Production 484d
Qavam-es-Saltaneh, Ahmad: *see* **Ghavam-es-Saltaneh, Ahmad 47**
Q Fever: *see* **Pneumonia 48**
Quakers: *see* **Friends, Religious Society of**
Quebec
Queensland 47, 46, 45, 44
Quezon, Manuel Luis 45
Quicksilver: *see* **Mercury**
Quiller-Couch, Sir Arthur T. 45
Quinidine 611c
Quisling, Vidkun Abraham 46
Quo Tai-chi 48, 47
Race Riots 44
Rachmaninoff, Sergei V. 44
Racing and Races: *see* **Motor-Boat Racing 48.** *See* **Air Races and Records; Automobile Racing; Yachting 48, 47.** *See* **Dog Racing; Horse Racing; Track and Field Sports 48, 47, 46, 45, 44.** *See* **Pigeon Racing 47**
Racon stations 209a
Raczkiewicz, Wladyslaw 550c
Radar: *see* **Munitions of War 48.** *See* **Electronics 48, 47.** *See* **Astronomy 47.** *See* **Radar 46.** *See* **Radio Detection 45, 44**
Airports 34c; Aviation, Civil 96b; CAA 201b; Coast Guard, U.S. 208c; Meteorology 475a; Photography 585b; Radio 628d; Rivers and Harbours 648c
Radar Countermeasures 46
Radcliffe observatory 720c
Radio
Advertising 20c; Airports 34c; Aviation, Civil 96b; Christian Science 198b; CAA 201b; Coast and Geodetic Survey, U.S. 208a; Coast Guard, U. S. 208c; Democracy 244d; Electronics 278a; FCC 300c; Information and Educational Exchange, Office of, 390a; Music 508a; Newspapers and Magazines 528c; Occupied Areas, Administration of, 556c; Oceanography 557d; Standards, National Bureau of, 696a; Telegraphy 718b; Telephone 720a; Television 721c. *See* also various states and countries
Radio Detection: *see* **Radio 48.** *See* **Electronics 48, 47.** *See* **Radar 46.** *See* **Radio Detection 45, 44**
Radiology: *see* **X-Ray and Radiology 48, 47.** *See* **Radiology 46, 45, 44**
Radium
Archaeology 62c; Cancer 168c
Raeder, Erich 47
Railroad Accidents: *see* **Disasters**
Railroad Retirement Act: *see* **Social Security**
Railroads
Bridges 136a; Coal 206a; Consumer Credit 223b; Disasters 255b; Electric Transportation 275c; Employment 280b; ICC 406c; Labour Unions 426d; Law 430b; NMB 514b; Public Utilities 621a; RFC 637a; Socialism 676b; Stocks and Bonds 697b; Tunnels 739c; Words and Meanings, New 804d. *See* also various cities, states and countries
Raimu 47
Rainfall: *see* **Meteorology**
Raisins: *see* **Fruit 48, 47, 46, 45.** *See* **Grapes 44**
Ramadier, Paul 48
France 326a; Socialism 676c
Ramey, Howard Knox 44
Ramirez, Pedro Pablo 44
Ramjets: *see* **Jet Propulsion 48**
Ramsay, Sir Bertram Home 45
Randall-MacIver, David 46
Rapid Transit: *see* **Electric Transportation**
Rates of Exchange: *see* **Exchange Control and Exchange Rates**
Rationing 48, 44. *See* **Price Administration, Office of 47, 46, 45**
Black Markets 125a; Business Review 152b; Denmark 248a; Food Supply of the World 315c; Germany 345a; Great Britain 351d; Japan 418d; Norway 537c; OPA 605c; Siam 672b; Sweden 707c; Switzerland 710a; U.S.S.R. 742c
Ray, Charles 44
Ray, Edward (Ted) 44
Rayleigh, Robert John Strutt 550c
Rayon and Other Synthetic Fibres
ARA 25a; Chemurgy 186d; Cotton 227d; Plastics Industry 593a; Rubber 654c; Textile Industry 725d
Receipts, Government: *see* **Budget, National**
Reciprocal Trade Agreements: *see* **International Trade**
Reclamation: *see* **Canals and Inland Waterways; Floods and Flood Control; Forests; Irrigation; Soil Erosion and Soil Conservation**
Reconstruction Finance Corporation
Housing 371b; OPA 605c; War Debts 790c
Reconstruction Planning 47, 46
Reconversion: *see* **Rationing 48.** *See* **Business Review; Law 48, 47, 46, 45.** *See* **Civilian Production Administration; War Mobilization and Reconversion, Office of, 47.** *See* **War Production, U.S. 46, 45**
Red Cross
Donations and Bequests 257c; Prisoners of War 612b
Reece, Brazilla Carroll 47
Reed, James A. 45
Re-employment of War Veterans: *see* **Selective Service**
Reforestation: *see* **Forests**
Reformed Church: *see* **Presbyterian Church**
Refugees
Baptist Church 108c; Bolivia 122c; Colombia 211d; Den

AGRICULT

Dominican Republic 256d; Estonia 285c; Friends, Religious Society of, 332c; India 385a; Jewish Religious Life 420d; Lithuania 447d; Turkey 741a; U.N. 747b

Rehabilitation of the Wounded: *see* **Physical Medicine and Occupational Therapy for the Wounded 46, 45.** *See* **Rehabilitation and Occupational Therapy for Wounded Soldiers 44**
Medical Rehabilitation of Disabled Veterans 467c

Reid, Harry Fielding 45
Reid, Ogden Mills 550d

Reinhardt, Max 44

Relay Racing: *see* **Track and Field Sports**

Relief
Budget, National 144d; Catholic Welfare Conference, National 173b; Child Welfare 191d; Donations and Bequests 257b; FSA 303d; Friends, Religious Society of, 332c; Girl Scouts 346b; Indians, American 387a; Jewish Religious Life 421a; Lithuania 447d; Methodist Church 477d; Mormons 491b; Municipal Government 501c; N.E.A. 511d; Occupied Areas, Administration of, 556a; Presbyterian Church 604c; Red Cross 638b; Religion 643a; Shipping, Merchant Marine 669a; Social Security 678c; U.N. 750a; U.N.R.R.A. 752d; Vatican City State 773d. *See* also various cities and states

Relief, War: *see* **War Relief, U.S. 46, 45, 44**

Relief and Rehabilitation Administration, United Nations: *see* **United Nations Relief and Rehabilitation Administration**

Religion
Book Publishing 126d; Education 262c; Law 431c; Literary Prizes 446b; Missions, Foreign 486c; Motion Pictures 494b; Occupied Areas, Administration of, 556d; Sunday Schools 704a

Religious Denominations: *see* **Church Membership**

Relocation, Japanese: *see* **War Relocation Authority 47, 46, 45, 44.** *See* **Aliens 44**

Rent control: Black Markets 124b; Business Review 152c; Hotels 370a; Housing 371b; Law 428d; OPA 605c; Prices 608b; Priorities and Allocations 611b; U.S. 754b

Reparations 48, 47
Finland 307d; Foreign Investments in the U.S. 321d; Foreign Ministers Conferences 322b; Forests 324c; Germany 344c; Japan 417c; Rivers and Harbours 648c; San Marino 660d; Siam 672a

Representatives, House of: *see* **Congress, U.S.; Elections**

Republican Party
Elections 269d; Taxation 713b; Truman, H. S. 735d; U.S. 754c. *See* also various states

Research Libraries, Association of: *see* **Societies and Associations 48, 47, 46.** *See* **Research Libraries, Association of, 45;** *See* **Association of Research Libraries 44**

Resins: *see* **Paints and Varnishes; Plastics Industry**
Printing 610d

Retail Sales: *see* **Business Review**

Réunion: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**

Reuther, Walter Philip 47, 46
Detroit 250c

RFC: *see* **Reconstruction Finance Corporation**
Rheumatic fever 186a

Rheumatism: *see* **Arthritis**
Psychosomatic Medicine 616d
RH factor: Anaemia 52b; Gynaecology and Obstetrics 359b

Rhineland: *see* **Saar 48, 47.** *See* **Rhineland 46**

Rhode Island

Rhodesia, Northern
Copper 225b; Mineral and Metal Production 484a; Vanadium 772d; Zinc 821a

Rhodesia, Southern
Asbestos 79d; British South African Protectorates 142c; Chromite 199a; Gold 347d; Mineral and Metal Production 484a; Soil Erosion 687a; Tariffs 712c; Tungsten 739a; Wildlife Conservation 800d

Rhodium 483b
Riach, Nancy 550d

Ribbentrop, Joachim von 47, 46, 45, 44

Rice, Cale Young 44

Rice
ARA 25a; Agriculture 25d; Black Markets 124b; Brewing and Beer 134c; Famines 296c; Food Research 315b; Food Supply of the World 315d; OPA 605c. *See* also various countries

Richards, Laura Elizabeth 44
Rickettsialpox: Dermatology 249b; Words and Meanings, New 805c

Rintelen, Anton von 47

Rio de Janeiro, Treaty of: *see* **Inter-American Defense Conference 48**

Rio de Oro: *see* **Spanish Colonial Empire**

Rio Muni: *see* **Spanish Colonial Empire**

Rivers and Harbours
Aqueducts 58a; Bridges 135c; Canals and Inland Waterways 167b; Dams 235d; FPC 302d; Floods 310d; Irrigation 412b; Smithsonian Institution 675b

Riza Khan Pahlavi 45

Roads and Highways
Accidents 17d; Bridges 135c; Building and Construction Industry 147d; FWA 305b; Motor Transportation 499a; Sand and Gravel 660a; Town and Regional Planning 731d; Tunnels 739c; Words and Meanings, New 805d. *See* also various states, provinces and countries

Robert, Georges Achille M.-J. 44

Roberts, Sir Charles George D. 44

Robinson, Sir Robert 48
Nobel Prizes 533d

Robinson, William Heath 45

Robots: *see* **Rockets 45**

Rockefeller Foundation: *see* **Societies and Associations 48, 47, 46.** *See* **Rockefeller Foundation 45, 44**
Pennsylvania, University of, 577d; Washington, University of (Seattle) 792d

Rockets: *see* **Munitions of War 48, 47.** *See* **Power Engineering 46.** *See* **Rockets 45**
Astronomy 80d; Jet Propulsion 420d; Photography 584b; Physics 588d

Rodriguez, Jose Marie Caro 46
Rodriquez, Manuel 551a

Roentgen Ray: *see* **X-Ray and Radiology 48, 47.** *See* **Radiology 46, 45, 44**

Roerich, Nikolai Konstantinovich 551a

Rokossovsky, Konstantin 46, 45, 44

Rolland, Romain 45
Rollins college 652c

Roman Catholic Church
Catholic Organizations for Youth 172a; Catholic Rural Life Conference, National 172c; Catholic University of America 172d; Catholic Welfare Conference, National 173a; Church Membership 200b; Pius XII 590b; Religion 642b; Societies 681c; Sodality of Our Lady 684d; Vatican City State 773c
Romansky formula 186a

Rome 45, 44

Rommel, Erwin 45, 44

Roosevelt, Anna Eleanor 48, 47

Roosevelt, Franklin D. 46, 45, 44
American Literature 47d; Philately 581b; Sculpture 661d

Roosevelt, Kermit 44

Roosevelt, Theodore, Jr. 45

Roper, Daniel Calhoun 44

Roques, Emile 46

Rose, Maurice 46

Rosenberg, Alfred 47

Rosenfeld, Kurt 44

Rosenthal, Moriz 47

Rosenwald Fund, The Julius: *see* **Societies and Associations 48, 47, 46.** *See* **Rosenwald Fund, The Julius 45, 44**

Rotary International: *see* **Societies and Associations 48, 47, 46.** *See* **Rotary International 45, 44**

Rothenstein, Sir William 46
Rothschild, Henri de 551a

Rowan, Andrew Summers 44

Rowing

Roxas y Acuna, Manuel 48, 47
Philippines 582c

Royal, Forrest 46

Royall, Kenneth Claiborne 48

Ruanda and Urundi: *see* **Trustee Territories 48.** *See* **Belgian Colonial Empire 48, 47, 46, 45, 44.** *See* **Mandates 47, 46, 45, 44**

Rubber
Alcohol, Industrial 38a; Business Review 153b; Carbon Black 170b; Employment 280b; International Trade 406b; Motor Transportation 498c; Plastics Industry 592b; Priorities and Allocations 611c; Rayon and Other Synthetic Fibres 635c; RFC 637b; Talc 711d; U.S. Investments Abroad 762b; Wages and Hours 787a. *See* also various countries
Rubies 485c

Ruffini, Ernesto 46

Rugby: *see* **Football**
Rugs and carpets 395d

Ruhr: *see* **Saar 48, 47.** *See* **Rhineland 46**
Foreign Ministers' Conferences 322c

Rulers: *see* **Presidents, Sovereigns and Rulers**

Rum: Liquors, Alcoholic 445a; Puerto Rico 622b

Rumania
Advertising 21a; American Citizens Abroad 43c; Armies of the World 76c; Baptist Church 108d; Birth Statistics 124a; Canada 165b; Child Welfare 191c; Civil Liberties 202c; Communism 215c; Debt, National 242d; European Recovery Program 288a; Exchange Control 292a; Foreign Investments in the U.S. 321d; International Law 400a; Mica 480c; Music 507d; Navies of the World 518a; Newspapers and Magazines 529c; Patents 573d; Peace Treaties 574a; Petroleum 580a; Red Cross 638d; Refugees 640c; Shipbuilding 668d; Socialism 677b; Tennis 724a; U.N. 746d; U.S. 756a; Veterans' Organizations 781d; War Debts 790b; Wines 802a; Yugoslavia 820b

Rumi Plan: *see* **Taxation 44**

Rundstedt, Karl Rudolf Gerd von 46, 45, 44

Running: *see* **Track and Field Sports**

Runyon, (Alfred) Damon 47

Rupertus, William Henry 46

Rural Electrification
Co-operative Movement 224d; Electrical Industries 272d; Public Utilities 621a

Rural Rehabilitation Loans: *see* **Farmers Home Administration 48, 47.** *See* **Farm Security Administration 46, 45**
Rushbrooke, James Henry 551b

Russell Sage Foundation: *see* **Societies and Associations 48, 47, 46.** *See* **Russell Sage Foundation 45, 44**

Russia: *see* **Union of Soviet Socialist Republics**

Russian Literature

Russian S.F.S.R.: *see* **Union of Soviet Socialist Republics**
Rutgers university 652a

Ruthenia: *see* **Carpatho-Ukraine 46.** *See* **Ruthenia 45**
Rutin 187a

Rutledge, Wiley Blount, Jr. 44
Ryan, James Hugh 551b

Ryder, Charles W. 44

Rye
ARA 25a; Agriculture 25d; Alcohol, Industrial 38a; Food Research 315b; Food Supply of the World 316b; Liquors, Alcoholic 444d. *See* also various states and countries

Saar 48, 47, 46
Foreign Ministers' Conferences 322b; Germany 343b

Sabotage: *see* **Federal Bureau of Investigation 47, 46, 45, 44**

Safety: *see* **Accidents**
Sage 694d

St. Christopher: *see* **Leeward Islands 48, 47.** *See* **West Indies, British 46, 45, 44**

St. Croix: *see* **Virgin Islands**

Saint Exupéry, Antoine de 45

St. Helena and Ascension Islands: *see* **British Empire 48.** *See* **British West Africa 47, 46, 45, 44**

St. John: *see* **Virgin Islands**

St. Kitts-Nevis: *see* **Leeward Islands 48, 47.** *See* **West Indies, British 46, 45, 44**
St. Lawrence seaway 168a

St. Louis

St. Lucia: *see* **Windward Islands 48, 47.** *See* **West Indies, British 46, 45, 44**

St. Pierre and Miquelon: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**

St. Thomas: *see* **Virgin Islands**

St. Vincent: *see* **Windward Islands 48, 47.** *See* **West Indies, British 46, 45, 44**
Smithsonian Institution 675a

Salazer, Antonio de Oliveira 47, 46, 45, 44

Sales, Retail and Wholesale: *see* **Business Review**

Sallege, Jules-Geraud 46
Salisbury, James E. H. Gascoyne-Cecil 551c
Salotti, Carlo 551c

Salt
Law 430d; Mineral and Metal Production 484d; Purdue University 622d

Salten, Felix 46

Salvador, El
American Citizens Abroad 44a; Camp Fire Girls 159d; Coinage 210b; Guatemala 358a; Inter-American Affairs, The Institute of, 392d; Inter-American Defense Conference 393c; I.L.O. 398b; International Monetary Fund 402d; U.N. 746d; War Debts 790c

Salvage Drives, U.S. 45, 44

Salvation Army
Church Membership 200b

Samoa, American

Samoa, Western: *see* **New Zealand; Pacific Islands under Trusteeship; Trustee Territories 48.** *See* **Mandates; Pacific Islands, Mandated 47, 46, 45, 44**
Sanatescu, Constantin 551c

Sand and Gravel
See also various states

Sandstone: *see* **Stone**

Sandstroem, Alfred Emil F. 48

San Francisco

San Francisco Conference: *see* **United Nations Conference on International Organization 46**

San Marino
U.N.R.R.A. 753b

Santo Domingo: *see* **Dominican Republic**

São Tomé: *see* **Portuguese Colonial Empire**

Sapieha, Adam Stefan 46
Sapphires 485c

Saracoglu, Shukru 45, 44

Sarawak: *see* **North Borneo 48.** *See* **Borneo 47, 46.** *See* **British Empire 45, 44**

Saskatchewan

Sastri, V. S. Srinivasa 47

Sauckel, Fritz 47

Saudi Arabia: *see* **Arabia**

Savings and Loan Insurance Corporation, Federal: *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**

Savings Banks: *see* **Banking**
SBA (standard beam approach) 96c

Schacht, Hjalmar 47
War Crimes 789b

Schirach, Baldur von 47

Schizophrenia: *see* **Psychiatry 44**

Schlesinger, Frank 44

Schuman, Robert 48
France 328c; Socialism 676c; Taxation 717b

Schwellenbach, Lewis B. 48, 47, 46

Scientific Research and Development, Office of, 46, 45, 44

Scotland: *see* **Great Britain and Northern Ireland, United Kingdom of**
Scott, William Berryman 551d

Scrap: *see* **Secondary Metals 48, 47, 46, 45, 44.** *See* **Salvage Drives, U.S. 45, 44**

Sculpture
Art Exhibitions 77d

Seabees 46, 45

Seabrook, William Buehler 46

SEC: *see* **Securities and Exchange Commission**

Secondary Education: *see* **Education**

Secondary Metals
Black Markets 124d

Second World War: *see* **World War II**

Secret Service, U.S.

Securities: *see* **Business Review; Stocks and Bonds**
Banking 106c; Foreign Investments in the U.S. 320d; Income and Product, U.S. 381d; SEC 663d; Taxation 713d

Securities and Exchange Commission
Law 429c; Stocks and Bonds 699b

Sedition: *see* **Federal Bureau of Investigation 45, 44**

Seeing Eye, The

Seiberling, Charles Willard 47

Seismology
Coast and Geodetic Survey, U.S. 208a

Selective Service
Armies of the World 75b; FBI 300b; Pacifism 563b; Tuberculosis 737a

Selenium
Mineral and Metal Production 483b
Selfridge, Harry Gordon 551d

Selincourt, Ernest de 44

Senate: *see* **Congress, United States; Elections**

Senegal: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Senility 315a

Serbia: *see* **Yugoslavia**

Serédi, Justinian George 46

Sergei 45

Serum Therapy: *see* **Medicine 48, 47, 46, 45.** *See* **Serum Therapy 44**

Service Organizations, United: *see* **United Service Organizations 47, 46, 45, 44**

Seventh-day Adventists 48, 47, 46
Church Membership 199d

Sewage: *see* **Public Health Engineering**

Seychelles: *see* **British East Africa**

Seyss-Inquart, Arthur 47

Sforza, Carlo 45, 44

Shaposhnikov, B. M. 46, 44

Sharpening Stones: *see* **Abrasives**

Shaw, Mrs. George Bernard 44

Sheehan, Winfield R. 46

Sheep
Agriculture 25d; Leather 436c; Livestock 448a; Meat 467a; Wool 803b. *See* also various states, provinces and countries

Sheldon, Edward Brewster 47

Shidehara, Kijuro 47, 46

Shigemitsu, Mamoru 46, 44

Shimada, Shigetaro 45

Shinwell, Emanuel 48, 46
Great Britain 352c; Parliament, Houses of 572d

Shipbuilding
Atomic Energy 83a; Munitions 503d;

Navies of the World 516c; Shipping, Merchant Marine 669c; Strikes 700d; Wages and Hours 788b

Shipping, Merchant Marine
Coast and Geodetic Survey, U.S. 208a; Disasters 254c; Insurance 392b; Meteorology 474c; Photography 585b; Shipbuilding 667b; Wages and Hours 788b; War Debts 790c

Shipping Administration, War: *see* **War Shipping Administration 47, 46, 45, 44**

Shock Treatment: *see* **Psychiatry 44**

Shoe Industry
Fashion and Dress 299c; Leather 436c; U.N.R.R.A. 753b

Shoran: *see* **Electronics; Radio 48**
Coast and Geodetic Survey, U.S. 208a

Shows, Animal

Shvernik, Nikolai M. 47

Siam 48, 47. *See* **Thailand 45, 44**
Archaeology 62d; Food Supply of the World 316d; International Law 400a; International Trade 406b; Mineral and Metal Production 484a; Missions, Foreign 486c; Narcotics and Narcotic Disposal 511a; Navies of the World 518b; Refugees 641a; U.N. 746d; War Debts 790d

Sierra Leone: *see* **British West Africa**
Diamonds 252a; Mineral and Metal Production 484a; Spices 694d

Sikorski, Wladyslaw 44

Silesia 46

Silk
Interior Decoration 395d; Textile Industry 725d

Silver
Coinage 210c; Employment 280b; Mineral and Metal Production 483b; Secondary Metals 663a. *See* also various states and countries

Simeon II 47, 44

Simms, Ruth Hanna McCormick 45

Simons, Moises 46

Simpson, William H. 45

Sinclair, Sir Archibald 44

Singapore: *see* **Malayan Union and Singapore 48, 47**

Sinkiang

Sino-Japanese War: *see* **World War II 46, 45, 44**

Sister Kenny Treatment: *see* **Infantile Paralysis 44**

Sjahrir, Sutan 47

Skating: *see* **Ice Skating**

Skiing
Wilderness Preservation 798c

Skin Diseases: *see* **Dermatology**

Slate
Stone 699d

Slemp, Campbell Bascom 44

Slezak, Leo 47

Slim, Sir William Joseph 46

Slovakia: *see* **Czechoslovakia 48, 47.** *See* **Slovakia 46, 45, 44**

Small John Davis 47
Smallpox: Epidemics 284d; Medicine 470d

Smetona, Antanas 45

Smith, Alfred Emanuel 45

Smith, Ellison DuRant 45
Smith, Gypsy Rodney 552a

Smith, Holland McTyeire 46, 45

Smith, Logan Pearsall 47

Smith, Walter Bedell 48, 47

Smith College

Smithsonian Institution
Archaeology 60c

Smyth, Dame Ethel Mary 45

Snyder, John Wesley 48, 47, 46
U.S. 755d

Soap, Perfumery and Cosmetics
Chemistry 183a; Talc 711d

Soapstone: *see* **Talc**

Soccer

Socialism
Business Review 157c; Democracy 245a. *See* also various countries

Socialist Soviet Republics: *see* **Union of Soviet Socialist Republics**

Social Security
A.M.A. 50d; Budget, National 145b; Child Welfare 192b; FSA 303c; Indians, American 387b; Law 434b; Medicine 471a; Relief 641b; Socialism 676b; Taxation 715a. *See* also various states and countries

Social Service: *see* **Child Welfare; Relief; Social Security**

Societies and Associations

Sociology
Book Publishing 126d

Sodality of Our Lady 48, 47, 45
Sodium amytal 613d

Sodium Carbonate

Sodium Sulphate

Softball

Soil Erosion and Soil Conservation
Agriculture 31a
Solar heating: Architecture 66a; Colorado, University of, 213d

Solar System: *see* **Astronomy**

Soldiers' Bonus: *see* **Veterans' Administration 44**

Solomon Islands 46, 45, 44
Pacific Islands, British 562a

Somaliland, British: *see* **British East Africa**

Somaliland, French: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Peace Treaties 574c

Somaliland, Italian: *see* **Italian Colonial Empire**

Somervell, Brehon B. 46, 45, 44

Soong, T. V. 46, 45, 44
China 196a

Soong Mei-ling: *see* **Chiang Kai-shek, Madame 44**

Sophoulis, Themistocles 48

Sorghum 48. *See* **Syrup, Sorgo and Cane 47, 46, 45, 44**
Alcohol, Industrial 38a

South Africa, British: *see* **British South African Protectorates**

South Africa, The Union of
Anthropology 55b; Antimony 56c; Armies of the World 76c; Asbestos 79d; Birth Statistics 123c; Chromite 199a; Coal 205d; Community Chest 217b; Cricket 229a; Debt, National 242d; Diamonds 252a; Electrical Industries 274c; Employment 280c; Exchange Control 290c; Exploration and Discovery 295b; Food Supply of the World 318a; Foreign Ministers Conferences 322b; Gold 347d; International Law 399b; International Trade 405c; Law 435c; Lend-Lease 438a; Linen and Flax 443d; Manganese 459a; Medicine 471b; Mercury 471d; Mineral and Metal Production 484a; Music 507d; Platinum Group Metals 593d; Railroads 633c; Rivers and Harbours 648c; Rubber 654d; Sheep 667a; Shipping, Merchant Marine 670a; Silver 673c; Tariffs 713b; Taxation 716d; Town and Regional Planning 732a; Trustee Territories 736c; U.N. 746d; U.S. Investments Abroad 762b; War Debts 790d; Wheat 798a; Wildlife Conservation 801a; Wines 802a; Wool 804a

South America: *see* **Argentina; Bolivia; Brazil; British Guiana; Chile; Colombia; Ecuador; Paraguay; Peru; Uruguay; Venezuela**
American Citizens Abroad 44a; Clothing Industry 205b; Gold 347d; Music 507d

South Australia 47, 46, 45, 44

South Carolina

South Dakota

Southern California, University of
Accidents 19b; Football 319b

Southern Rhodesia: *see* **Rhodesia, Southern**
South Pacific commission: Australia 87d; Pacific Islands, British 562a

South Tirol 47, 46

South-West Africa: *see* **Trustee Territories 48.** *See* **South Africa, The Union 48, 47, 46, 45, 44.** *See* **Mandates 47, 46, 45, 44**
Mineral and Metal Production 484a; Vanadium 772d

Southwood, Julius Salter Elias 47

Sovereigns, Presidents and Rulers: *see* **Presidents, Sovereigns and Rulers**

Soviet Republics: *see* **Union of Soviet Socialist Republics 48**

Soviet Union: *see* **Union of Soviet Socialist Republics**

Soybeans
ARA 23d; Agriculture 26d; Chemurgy 187a; Vegetable Oils 774b

Spaak, Paul-Henri 48, 47
Belgium 116b; Socialism 676d

Spaatz, Carl A.

Spain
Argentina 71a; Armies of the World 74a; Aviation, Civil 93b; Aviation, Military 103b; Baptist Church 108d; Barley 109d; Black Markets 125b; Bridges 137d; Coal 205d; Cuba 231a; Debt, National 242d; Dominican Republic 257a; Electric Transportation 276c; Exchange Control 290b; Fascism 297d; Fisheries 308c; Fluorspar 314c; Food Supply of the World 316d; Foreign Investments in the U.S. 321d; Friends, Religious Society of, 332c; Fruit 333b; International Law 400a; Iron and Steel 410b; Law 435c; Lead 435d; Marriage and Divorce 463b; Mercury 471d; Mica 480c; Mineral and Metal Production 484a; Navies of the World 517d; Norway 538a; Red Cross 638d; Salvador, El 659a; Shipbuilding 668d; Socialism 677d; Spanish Colonial Empire 693b; Spanish Literature 693c; Spices 694c; Switzerland 710a; Tariffs 713b; Taxation 717d; Tungsten 739a; U.N. 747b; Wheat 798a; Wines 802a; Wool 803c; Zinc 821a

Spangler, Harrison E. 44

Spanish-American Literature

Spanish Colonial Empire

Spanish Literature

Spanish Possessions in Africa: *see* **Spanish Colonial Empire**

SPARS: *see* **Coast Guard, U.S. 46, 45, 44**

Special Libraries Association: *see* **Societies and Associations 47, 46.** *See* **Special Libraries Association 45, 44**
Libraries 440c
Spectroscopy: Astronomy 80d; Leather 436d; Munitions 503c

Speer, Albert 47
Speer, Robert Elliott 552b

Spellman, Francis Joseph 46, 44

Spelman Fund of New York: *see* **Societies and Associations 48, 47, 46.** *See* **Spelman Fund of New York 45, 44**

Spices
See also various countries
Spilsbury, Sir Bernard Henry 552b

Spirits: *see* **Liquors, Alcoholic**

Sports and Games: *see* **Angling; Archery; Badminton; Baseball; Basketball; Billiards; Bowling; Boxing; Chess; Cricket; Curling; Cycling; Fencing; Football; Gliding; Golf; Gymnastics; Handball; Horse Racing; Ice Hockey; Ice Skating; Lacrosse; Motorboat Racing; Polo; Rowing; Skiing; Soccer; Softball; Squash Racquets; Swimming; Table Tennis; Tennis; Track and Field Sports; Trap-shooting; Wrestling; Yachting**
Book Publishing 126d; Occupied Areas, Administration of, 556b; Television 721d

Spot Authorization Plan: *see* **War Production, U.S. 45**

Spruance, Raymond A. 46, 45, 44

Spykman, Nicholas John 44

Squash Racquets

Stabilization Administrator, Office of: *see* **War Mobilization and Reconversion, Office of, 47.** *See* **Stabilization Administrator, Office of, 46.** *See* **Economic Stabilization, Office of, 45**

Stainless Steel: *see* **Metallurgy 47, 46, 44**
Paints and Varnishes 565c

Stalin, Joseph Vissarionovich

Stamp Collecting: *see* **Philately**

Standards, National Bureau of

Standley, William Harrison 44

Stanford University
Anthropology 55a

Stanley, Oliver Frederick George 44

Stanley, Wendell Meredith 47

Stark, Harold R. 45, 44

Stars: *see* **Astronomy**

Stassen, Harold Edward 48, 47, 46
Republican Party 645b; Stalin, J. V. 695b

State, U.S. Department of: *see* **Government Departments and Bureaus**
War Debts 790c

State Guard: *see* **National Guard**

Steagall, Henry Bascom 44

Steamships: *see* **Shipbuilding 44**

Steam Turbines: *see* **Power Engineering 46**

Steel: *see* **Iron and Steel**

Steelman, John Roy 47

Stein, Sir Aurel 44

Stein, Gertrude 47
American Literature 49c

Steinach, Eugen 45

Stellar System: *see* **Astronomy**

Stephens William Dennison 45

Sterner, Albert 47

Stettin 46

Stettinius, E. R., Jr. 46, 45, 44
Stilbamidine 185d

Stilwell, Joseph W. 47, 46, 45, 44

Stimson, Frederic Jesup 44

Stimson, Henry Lewis 46, 45, 44

Stirbey, Barbu 47

Stock Exchanges: *see* **Stocks and Bonds**

Stocks and Bonds
Banking 106b; Debt, National 241d; Federal Reserve System 303a; Insurance 391b; Law 434c; Municipal Government 501d; Post Office 601b; SEC 663d; U.S. Investments Abroad 762c

Stoessel, Albert Frederic 44

Stomach Disorders: *see* **Alimentary System, Disorders of**

Stone, Harlan Fiske 47

Stone
Business Review 153b; Employment 280b; Wages and Hours 787a.

Straits Settlements: *see* **Malayan Union and Singapore 48, 47.** *See* **Straits Settlements 46, 45, 44**

Strategic Mineral Supplies
RFC 637c
Stratovision 624d

Stratton, Dorothy Constance 44

Strauss, Lewis Lichtenstein 47
Straw 187b

Strawberries: *see* **Fruit 48, 47**
Street, Julian 552b

Streeter, Ruth Cheney 44

Streicher, Julius 47

Streptomycin: *see* **Nervous System; Tuberculosis 48.** *See* **Medicine 48, 47.** *See* **Chemotherapy; Urology 48, 47, 46.** *See* **Bacteriology 47.** *See* **Chemistry 46**
Arthritis 79a; Botany 128d; Dermatology 250b; Drug Administration 258b; Plague 591c; Pneumonia 594d; Venereal Diseases 776d

Strikes and Lock-outs
Business Review 152a; Civil Liberties 202a; Civil Service 203a; Education 262d; Federal Mediation and Conciliation Service 302a; Labour Unions 426c; Law 433c; Lewis, J. L. 439b; Municipal Government 501b; NMB 514b; Police 597c; Public Utilities 620d. *See* also various industries, products, cities, states, provinces and countries

Stritch, Samuel Alphonsus 46

Strong, George Veazey 47

Strontium Minerals

Stuart, John Leighton 47

Subasitch, Ivan 45

Submarines: *see* **Navies of the World 48, 47, 46, 45, 44.** *See* **Submarine Warfare 46, 45, 44**

Submarine Warfare 46, 45, 44

Subsidies: *see* **Agriculture**
Belgium 117a; Housing 370d; International Monetary Fund 402c; New Zealand 532b; Relief 641b; V.F.W. 780d; Wages and Hours 788a

Substitute Materials: *see* **War Production, U.S. 45, 44**
Subtilin 187b

Sudan: *see* **French Overseas Territories 48.** *See* **Anglo-Egyptian Sudan 48, 47, 46, 45, 44.** *See* **French Colonial Empire 47, 46, 45, 44**

Suetsugu, Nobumasa 45

Sueyro, Saba H. 44

Sugar
ARA 25b; Agriculture 25d; Black Markets 124b; Budget, National 145d; Candy 169a; Food Supply 317a; International Trade 406b; Law 429d; Maple Products 459d; OPA 605c; Rationing 634b; Yeast 818a. *See* also various states and countries

Suicide Statistics

Sulfonamide Drugs: *see* **Bacteriology; Medicine; Urology 45, 44**
Anaemia 52a; Arthritis 78d; Botany 128d; Ear, Nose and Throat, Diseases of, 259c; Genetics 338b; Leprosy 438c; Medicine 468b; Trinidad 734d; Urology 770c

Sullivan, John Lawrence 48

Sulphur
Sultan, Daniel Isom 552c

Sumatra: *see* **Netherlands Indies**

Summerville, George J. 47

Sumner, James Batcheller 47

Sunday Schools

Sunshine: *see* **Meteorology**

Superphosphates
Supreme Commander for the Allied Powers: International Trade 406a; Occupied Areas, Administration of, 555a; Reparations 644c; Silk 672c

Supreme Court of the U.S.
Law 429b; Radio 628a

Surgery
Deafness 239d; Insurance 391d; Medicine 470b; Psychiatry 614a; Societies 680c; Tuberculosis 738b; Veterans' Administration 780a

Surinam
Bauxite 115b; Mineral and Metal Production 484a

Surplus Property Administration: *see* **Surplus Property Disposal; War Mobilization and Reconversion, Office of, 46**

Surplus Property Disposal 48, 47, 46, 45
FWA 304c; Narcotics 511a; RFC 637a; War Debts 790c

Surplus War Property Board: *see* **Surplus Property Disposal; War Mobilization and Reconversion, Office of, 45**

Suzuki, Kantaro 46

Svinhufud, Pehr Eyvind 45

Swains Island: *see* **Samoa, American 48, 47, 46, 45, 44.** *See* **Pacific Islands, U.S. 47, 46, 45, 44**

Swaziland: *see* **British South African Protectorates**

Sweden
Advertising 22c; Aircraft Manufacture 33a; American Citizens Abroad 43d; Anthropology 54b; Archery 64c; Architecture 68d; Armies of the World 76c; Arsenic 77c; Aviation, Military 103b; Baptist Church 108c; Birth Statistics 123c; Business Review 156d; Child Welfare 192a; Dams 236c; Dance 238d; Debt, National 242d; Denmark 248a; Diabetes 251b; Electric Transportation 275c; Employment 281a; Estonia 285c; European Recovery Program 288a; Exchange Control 290b; Foreign Investments in the U.S. 321a; Furniture Industry 335c; Gliding 346d; Ice Skating 377c; International Law 400a; International Trade 405a; Iron 411d; Jet Propulsion 420b; Linen and Flax 444a; Marine Biology 460c; Marriage and Divorce 463b; Mica 480c; Mineral and Metal Production 484a; Motion Pictures 497d; Navies of the World 517d; News-

papers 529c; Norway 537d; Pius XII 591a; Railroads 633b; Rayon 636a; Sculpture 662c; Shipbuilding 667b; Skiing 674b; Socialism 676c; Table Tennis 711b; Tariffs 712c; Taxation 717d; Track and Field Sports 732b; U.N. 746d; Wealth and Income, Distribution of, 794d; Wool 803c; Yachting 816d; Yugoslavia 820a

Sweet Potatoes: *see* **Potatoes**

Swimming

Switzerland
American Citizens Abroad 43d; Architecture 68d; Argentina 71a; Armies of the World 76c; Aviation, Civil 93b; Birth Statistics 123c; Book Publishing 127d; Business Review 156b; Child Welfare 192a; Dams 236b; Debt, National 242d; Democracy 245d; Denmark 248a; Elections 272a; Electric Transportation 275d; Employment 281a; European Recovery Program 288a; Exchange Control 292a; Food Supply 315c; Foreign Investments in the U.S. 321a; International Law 401d; International Trade 405a; Jet Propulsion 420b; Jewish Religious Life 421a; Lumber 451d; Music 508b; National Parks and Monuments 515d; Occupied Areas, Administration of, 556c; Prices 609c; Public Opinion Surveys 619d; Public Utilities 621d; Railroads 633b; Skiing 674a; Sweden 707d; Tariffs 712d; Taxation 717c; Wines 802a; Wool 803c; Yugoslavia 820a

Symington, William Stuart 48, 46

Symons, Arthur 46

Symphony Orchestras: *see* **Music**

Synchro-cyclotrons: Atomic Energy 86b; Physics 587b; Words and Meanings, New 805d

Synchrotrons: Atomic Energy 86b; California, University of, 159b; Cornell University 227a; Electronics 276d; Physics 587a; Purdue University 622d

Synhexyl 186b

Synthetic Products: *see* **Agricultural Research Administration 48, 47.** *See* **Chemistry; Plastics Industry; Rayon and Other Synthetic Fibres; Rubber; Standards, National Bureau of, 48, 47, 46, 45, 44.** *See* **Petroleum 46, 45, 44**
Narcotics 510d; Priorities and Allocations 611c; Vitamins 785a

Syphilis: *see* **Venereal Diseases 48, 47, 46, 45, 44.** *See* **Medicine 47, 46, 45, 44**

Syria and Lebanon
Archaeology 62d; Armies of the World 77c; Cartography 171a; Epidemics 284c; Greece 354b; International Monetary Fund 402b; Red Cross 638c; Trans-Jordan 733b; U.N. 746d; War Debts 790d

Syrup, Sorgo and Cane

Szold, Henrietta 46

Table Tennis

Taft, Helen Herron 44

Taft, Robert Alphonso 48
Lilienthal, D. E. 443c; Republican Party 645b; U.S. 755b

Taft-Hartley Act: *see* **Labour Unions; Law; National Labor Relations Board; United States 48**
A.F. of L. 44d; A.V.C. 51a; Business Review 155c; Civil Liberties 202a; Civil Service 203a; Democratic Party 246b; Elections 270d; Green, W. 356c; Hartley, F. A. 361a; Murray, P. 506b; Newspapers 525c; Public Utilities 620d; Radio 627d; Republican Party 645a; Taft, R. A. 711c

Tahiti: *see* **Pacific Islands, French**

Tai Li 47

Taiwan: *see* **Formosa**

Talc
Mineral and Metal Production 484d

Talmadge, Eugene 47

Tanganyika: *see* **Trustee Territories 48.** *See* **British East Africa 48, 47, 46, 45, 44.** *See* **Mandates 47, 46, 45, 44**

Tangerines: *see* **Fruit 48, 47, 46, 45**

Tangier 48
Tanguay, Eva 552d

Tanks, Military: *see* **Munitions of War 47, 46, 45, 44.** *See* **World War II 46, 45, 44**

Tarbell, Ida Minerva 45

Tardieu, André Pierre G. A. 46

Tariffs
Business Review 154a; International Trade 403a; U.N. 750a

Tarkington, (Newton) Booth 47

Tasmania 47, 46, 45, 44

Tassigny, Jean de Lattre de 45

Taxation
Agriculture 29b; Automobile Industry 91b; Brewing and Beer 135c; Budget, National 147a; Business Review 157d; Co-operative Movement 224d; Furs 335d; Law 434c; Liquors, Alcoholic 445b; Motor Transportation 499a; Municipal Government 501a; Railroads 630c; Republican Party 644d; Snyder, J. W. 675c; Truman, H. S. 735a. *See* also various cities, states and countries

Taylor, Laurette 47

Tea

Technicolor: *see* **Motion Pictures**

Tedder, Sir Arthur W. 46, 45, 44

Tehran, Declaration of: *see* **United States 44**

Telegraphy
Employment 280b; Socialism 676b; Wages and Hours 787a

Telephone
Electronics 278c; Employment 280b; FCC 301a; Munitions 503b; Public Utilities 620d; Telegraphy 718d; Wages and Hours 787a; Words and Meanings, New 805c. *See* also various states, provinces and countries

Teleran: *see* **Munitions of War; Radio 48**

Telescopes
Astronomy 80c; Electronics 277a

Television
Advertising 22b; Electronics 278d; FCC 300d; Marine Biology 460c; Motion Pictures 496b; Munitions 503c; Newspapers 528c; Radio 624d; Telegraphy 718c; Telephone 720a; Words and Meanings, New 805c

Tello, Julio César 552d

Tellurium
Mineral and Metal Production 483b

Temple, William 45

Temporary Controls, Office of: *see* **Price Administration, Office of, 48, 47.** *See* **Civilian Production Administration 47**

Tennessee

Tennessee Valley Authority
Architecture 66d; Fertilizers 306c; Libraries 441a; Public Utilities 621a

Tennis

Termites: *see* **Entomology 46, 45, 44**

Teschen 46

Tesla, Nikola 44

Tetraethyl ammonium chloride: Chemotherapy 186b; Medicine 469a

Texas

Texas, University of
Basketball 114d; Football 319b

Textile Industry
ARA 25a; Business Review 153b; Clothing Industry 205a; Cotton 227d; Employment 280b; Fashion 299b; Home Economics 364c; Interior Decoration 395d; International Trade 403c; Plastics 592d; Prices 606a; Rayon 635c; Silk 672c; Strikes 700d; U.N.R.R.A. 753b; Wages 787a; Wool 804a. *See* also various countries

Thaelmann, Ernst 45

Thailand: *see* **Siam 48, 47, 46.** *See* **Thailand 45, 44**

Theatre
Dance 236d; French Literature 330a; Literary Prizes 446d; Music 510a; Negroes, American 519d; Occupied Areas, Administration of, 556c; Societies 682d; Spanish Literature 693c

Theatre Library Association: *see* **Societies and Associations 48, 47, 46.** *See* **Theatre Library Association 45, 44**

Therapy: *see* **Medical Rehabilitation of Disabled Veterans 48, 47.** *See* **Chemotherapy 48, 47, 46, 45, 44.** *See* **Physical Medicine and Occupational Therapy for the Wounded 46, 45.** *See* **Medicine 46, 45, 44.** *See* **Serum Therapy 44**
See also various diseases and medical sciences

Thiouracil: Chemotherapy 186c; Endocrinology 281c

Throat: *see* **Ear, Nose and Throat, Diseases of**

Thyme 694c

Thyroid: *see* **Endocrinology**

Tibet

Tien, Thomas 46

Tildy, Zolton 48

Timber: *see* **Lumber**

Timor: *see* **Netherlands Indies; Portuguese Colonial Empire**

Timoshenko, Semyon K. 44

Tin
Canning Industry 170a; Mineral and Metal Production 483b; Priorities and Allocations 611c; RFC 637a; Secondary Metals 663a

Tiso, Josef: Czechoslovakia 234b; Obituaries 552d

Titanium
Law 430c; Mineral and Metal Production 483b

Tito: *see* **Brozovich or Broz, Josip**

Tobacco
Agriculture 26a; Business Review 153b; Employment 280b; International Trade 404b; Taxation 715b; Wages and Hours 787a

Tobago: *see* **Trinidad 48, 47.** *See* **West Indies, British 46, 45, 44**

Togoland: *see* **French Overseas Territories; Trustee Territories 48.** *See* **British West Africa 48, 47, 46, 45, 44.** *See* **French Colonial Empire; Mandates 47, 46, 45, 44**

Tojo, Hideki 46, 45, 44
War Crimes 789b

Tokyo

Tolbukhin, Fedor 45, 44
Toluidine blue 186b
Tomatin 186a

Tomatoes
Vegetables 775b

Tongan Island Protectorate: *see* **Pacific Islands, British**

Tongking: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**

Tornadoes: *see* **Disasters 48, 47, 46, 45**

Toronto

Toronto, University of, 48, 47
Ice Hockey 376d

Torpedoes: *see* **Munitions of War 48, 47, 46, 45.** *See* **Navies of the World 47, 46, 45, 44.** *See* **Submarine Warfare 46, 45, 44**

Totalitarian State: *see* **Communism; Fascism; Spain; U.S.S.R. 48, 47, 46, 45, 44.** *See* **Germany 47, 46, 45, 44**

Towers, John H. 46, 45, 44

Town and Regional Planning
Architecture 66c; Law 433b; Municipal Government 502b; Roads and Highways 648d; Socialism 676b. *See* also various cities

Toyama, Mitsuru 45

Track and Field Sports

Trade Agreements: *see* **International Trade**

Trade Commission, Federal: *see* **Federal Trade Commission**

Trade Unions: *see* **Labour Unions**

Traffic Accidents: *see* **Accidents**

Trailers 47, 45, 44

Train, Arthur 46

Trans-Jordan
Armies of the World 77c; Exchange Control 290d; International Law 400a; Iraq 409c; Turkey 741b; U.N. 746d

Transportation: *see* **Aviation, Civil; Electric Transportation; Motor Transportation; Railroads 48, 47, 46, 45, 44.** *See* **Business Review; Defense Transportation, Office of, 47, 46, 45, 44**
Advertising 23b; Budget, National 146c; Strikes 700d. *See* also various countries

Transylvania: *see* **Hungary; Rumania**

Trap-shooting

Treason: *see* **Federal Bureau of Investigation 48, 47, 46**
Law 432d

Treasury, U.S. Department of: *see* **Government Departments and Bureaus**
Foreign Investments in the U.S. 321c; Law 429d; Taxation 713c; War Debts 790c

Trebitsch-Lincoln, Ignatius 44
Tricon 277b
Tridione 468d

Trieste, The Free Territory of, 48, 47, 46
Armies of the World 75b; Foreign Ministers' Conferences 322c; International Law 400b; Italy 416b; Occupied Areas, Administration of, 555a; Peace Treaties 574c; U.N. 747c

Trinidad 48, 47. *See* **West Indies, British 46, 45, 44**
West Indies 796a
Trioxane 182a

Tripartite Conference at Berlin: *see* **Berlin Conference 46**

Tripoli: *see* **Abrasives**

Trolley Coaches: *see* **Electric Transportation**

Troubetzkoy, Amélie Rives 46

Trucial Sheikhs: *see* **Arabia**

Truck Crops: *see* **Vegetables 48, 47, 46, 45**

Truck Farming 44

Trucks: *see* **Automobile Industry; Motor Transportation**

Truman, Harry S.
Brazil 132c; Budget, National 144d; Business Review 152b; Camp Fire Girls 160c; Canada 162a; Debt, National 241a; Democracy 244d; Democratic Party 246a; Donaldson, J.M. 257b; European Recovery Program 288b; Food Supply 315d; Greece 354d; Housing 370d; Ibn-Sa'ud 376a; Inter-American Defense Conference 393c; Mexico 478c; Pacifism 563c; Philately 581b; Prices 608d; Republican Party 644d; Secret Service, U.S. 663b; Selective Service 665a; Smith, W.B. 674d; Taft, R.A. 711c; Taxation 713b; U.S. 754a; Vatican City State 773c
Truman, Martha Ellen 553a

Truman Doctrine: *see* **Greece; Turkey; United States 48**
Acheson, D.G. 20a; Austin, W.R. 87a; Gromyko, A.A. 357c; International Law 401c; Leahy, W.D. 436a; Molotov, V.M. 488c; Words and Meanings, New 805d

Trustee Territories 48
International Law 399c; Italian Colonial Empire 413d; New Zealand 532b; Pacific Islands under Trusteeship 563a; U.N. 747b

Trygger, Ernst 44
Tryptophane 186c

Tsaldaris, Constantin 48, 47

Tuberculosis
Bacteriology 103d; Chemotherapy 185d; Death Statistics 240a; Indians, American 387a; Leprosy 438c; Medicine 468b; Nervous System 520b; Public Health Services 618c; U.N. 750d; Veterans' Administration 780a; Veterinary Medicine 783b

Tulane University 48, 47
Atomic Energy 83b
Tully, James (Jim) 553b

Tung Oil: *see* **Vegetable Oils and Animal Fats**

Tungsten
Mineral and Metal Production 483b

Tunisia: *see* **French Overseas Territories 48.** *See* **French Colonial Empire 47, 46, 45, 44**
Mineral and Metal Production 484a; Phosphates 584b; Tariffs 713b; Wines 802a

Tunnels
Aqueducts 58b

Turbojets: *see* **Jet Propulsion 48**

Turkestan, Chinese: *see* **Sinkiang**

Turkey
Archaeology 62c; Armies of the World 74a; Chromite 199a; Cyprus 233c; Debt, National 242d; European Recovery Program 288a; Exchange Control 289b; Food Supply 318b; Foreign Investments in the U.S. 321a; International Monetary Fund 402a; International Trade 405a; Mineral and Metal Production 484a; Music 507d; Narcotics and Narcotic Traffic 510d; Navies of the World 518a; Plague 591a; Roads 649d; Shipbuilding 668d; Tariffs 713b; Tobacco 730a; Truman, H. S. 735b; U.N. 746d; U.S. 756a; War Debts 790d; Wheat 798b

Turkeys: *see* **Poultry 48**

Turner, Richmond Kelly 46, 45

Tussaud, John Theodore 44

TVA: *see* **Tennessee Valley Authority**

Twentieth Century Fund: *see* **Societies and Associations 48, 47, 46.** *See* **Twentieth Century Fund 45, 44**

Tyrosinase 185d
Tyrothricin 770d

U-Boats: *see* **Submarine Warfare 46, 45, 44**

Uganda: *see* **British East Africa**

Ukraine 47, 46
U.S.S.R. 742c; U.N. 746d; U.N.R.R.A. 753b

Ulcer: *see* **Alimentary System, Disorders of, 48**
Ultrafax: Radio 629b; Words and Meanings, New 805d

Ulyanov, Dmitri 44

Umezu, Yoshijiro 46, 45
Undulant fever: *see* Brucellosis

Unemployment: *see* **Employment**

Unemployment Insurance: *see* **Veterans' Administration 48, 47.** *See* **Social Security 48, 47, 46, 45, 44**

Unemployment Relief: *see* **Relief**

U.N.E.S.C.O. (United Nations Educational, Scientific and Cultural Organization): *see* **United Nations 48**
A.L.A. 47a; Anthropology 54c; Benton, W. 118b; Copyright 226a; Education 262c; Friends, Religious Society of, 332b; International Law 401c; Libraries 440c; Mexico 478d; Motion Pictures 497a; Parents and Teachers, National Congress of, 571b; Wildlife Conservation 800c

Unfederated Malay States: *see* **Malayan Union and Singapore 48, 47.** *See* **Unfederated Malay States 46, 45, 44**

Union of South Africa: *see* **South Africa, The Union of**

Union of Soviet Socialist Republics
Albania 37b; American Legion 45d; Anti-Semitism 57b; Archaeology 64a; Architecture 66b; Armies of the World 75d; Atomic Energy 81c; Austria 88d; Aviation, Civil 93c; Aviation, Military 100c; Baptist Church 108d; Betting and Gambling 120a; Brazil 132c; Bulgaria 150a; Canada 162a; Canals 168b; Cartography 170d; Chess 187d; Child Welfare 192a; Chile 194c; China 196c; Chromite 199b; Coal 205d; Communism 215a; Cotton 228d; Czechoslovakia 234b; Democracy 245a; Democratic Party 246a; Eastern Orthodox Churches 260c; Electrical Industries 274d; Electric Transportation 276c; Estonia 285c; European Recovery Program 288a; Exchange Control 292c; Exploration 295c; Finland 307d; Food Supply 317c; Foreign Ministers' Conferences 322b; Forests 324c; France 327b; Furs 335d; Germany 343d; Gold 347b; Great Britain 353a; Greece 354b; Horses 367b; Iceland 377b; Information and Educational Exchange, Office of, 390a;

International Law 399a; Iran 409a; Iron 411b; Italian Colonial Empire 413d; Italy 416b; Japan 417c; Jet Propulsion 420b; Korea 425a; Labour Unions 427a; Latvia 428b; Law 435c; Lend-Lease 438a; Linen and Flax 443c; Lithuania 447d; Manchuria 458c; Manganese 459a; Marriage and Divorce 463b; Mathematics 466b; Meteorology 473c; Mineral and Metal Production 484a; Mongolia 489b; Motion Pictures 496c; Munitions 505d; Music 507c; Navies of the World 516b; Newspapers and Magazines 525c; Norway 537c; Occupied Areas, Administration of, 555a; Pacific Islands under Trusteeship 562d; Palestine 568b; Peace Treaties 574b; Petroleum 579b; Pius XII 590d; Platinum 594a; Poland 596c; Political Parties, British 598d; Prisoners of War 611d; Public Utilities 621d; Radio 628d; Refugees 640c; Religion 642a; Reparations 643b; Roads 649d; Rumania 655b; Rural Electrification 656d; Russian Literature 657a; Rye 657c; Saar 657d; Shipbuilding 667b; Siam 672c; Sinkiang 673d; Sociology 684d; Sweden 707c; Swimming 708c; Tariffs 712d; Truman, H. S. 735b; Tunnels 740a; Turkey 741a; U.N. 746d; U.S. 758c; War Crimes 789a; War Debts 790b; Wheat 798a; Wines 802a; Wool 803c

Unitarian Church
Church Membership 200b

United Church of Canada
Christian Unity 199a

United Kingdom: *see* **Great Britain and Northern Ireland, United Kingdom of**

United Nations (U.N.)
American Legion 46a; Anti-Semitism 57c; Architecture 68b; Atomic Energy 81c; Child Welfare 191c; Civil Liberties 202d; Democracy 245a; Foreign Ministers' Conferences 322c; Inter-American Defense Conference 393d; International Bank 397b; International Court of Justice 397c; I.L.O. 398a; International Law 399b; Jewish Religious Life 421b; Meteorology 473a; Narcotics 510d; Newspapers 525c; Peace Treaties 574a; Refugees 640b; Social Security 678a; Town and Regional Planning 731d; Trustee Territories 736a; U.N.R.R.A. 752d; War Crimes 788d; World Federation of Trade Unions 806a. *See* also various countries

United Nations Charter for World Security: *see* **United Nations Conference on International Organization 46**
International Law 399b

United Nations Conference on International Organization 46

United Nations Food and Agriculture Organization: *see* **Agriculture 46**
Fertilizers 306b; Fisheries 308d; Food Supply of the World 318c; Forests 324c; U.N.R.R.A. 753d

United Nations Information Organization 46, 45, 44

United Nations Monetary and Financial Program: *see* **International Monetary Fund; International Bank for Reconstruction and Development 47.** *See* **United Nations Monetary and Financial Program 46**

United Nations Public Information Services 47

United Nations Relief and Rehabilitation Administration
Albania 37b; Ethiopia 287d; Exchange Control 289b; Famines 296b; Italy 414d; Lard 428a; Occupied Areas, Administration of, 556a; U.N. 750b; U.S. 756d

United Nations War Crimes Commission: *see* **War Crimes 48, 47, 44.** *See* **United Nations War Crimes Commission 46, 45**

United Service Organizations 47, 46, 45, 44

United States
Abrasives 17a; Accidents 17d; Advertising 20c; ARA 23d; Agriculture 25c; Air Conditioning 31c; Aircraft Manufacture 32a; Airports 33d; Air Races 35a; Albania 37a; Alcohol, Industrial 38a; Alfalfa 38c; Aliens 38d; Alimentary System, Disorders of, 40d; Aluminum 42a; Ambassadors 42b; American Citizens Abroad 43b; A.D.A. 44b; A.F. of L. 44c; American Legion 45d; A.L.A. 46b; American Literature 47b; A.M.A. 50b; A.V.C. 51a; AMVETS 51b; Angling 53a; Anthropology 54b; Antimony 56c; Anti-Semitism 57b; Aqueducts 58a; Arabia 59a; Archaeology 59c; Archery 64c; Architecture 65a; Archives, National 68d; Argentina 70b; Armies of the World 74a; Arsenic 77c; Art Exhibitions 77d; Arthritis 78d; Art Sales 79b; Asbestos 79d; Asphalt 80a; Atomic Energy 81b; Australia 87d; Austria 89b; Automobile Industry 89d; Automobile Racing 92c; Aviation, Civil 92d; Aviation, Military 98a; Bacon 103b; Bacteriology 103d; Badminton 104b; Banking 106a; Bank of England 108b; Baptist Church 108d; Barium Minerals 109b; Barley 109c; Baseball 109d; Basketball 114d; Bauxite 115b; Beans, Dry 115c; Beekeeping 115d; Bentonite 118c; Beryllium 119c; Betting and Gambling 119c; Birth Control 122b; Birth Statistics 123b; Bismuth 124b; Black Markets 124b; Bolivia 126a; Book-Collecting 126b; Book Publishing 126c; Boron Minerals 127d; Botany 128b; Bowling 129c; Boxing 129c; Boy Scouts 130d; Brazil 132d; Bread 133d; Brewing and Beer 134c; Bridges 135c; Bromine 143d; Broomcorn 143d; Buckwheat 144d; Budget, National 144d; Building and Construction Industry 147c; Bulgaria 150b; Business Review 152a; Butter 157b; Cabinet Members 157c; Cadmium 157d; Camp Fire Girls 159d; Canada 162a; Canals 167b; Cancer 168b; Candy 169a; Canning Industry 169c; Carbon Black 170b; Cartography 170c; Catholic Organizations for Youth 172a; Catholic Rural Life Conference, National 172c; Catholic Welfare Conference, National 173a; Cattle 173d; Cement 174c; Census Data 174d; Chambers of Commerce 180b; Cheese 181c; Chemurgy 186c; Chess 187b; Child Labour 189d; Child Welfare 192c; Chile 195a; China 196a; Christian Science 198a; Christian Unity 198d; Chromite 199a; Church Membership 199d; CAA 201a; Civil Liberties 201c; Civil Service 202d; Clays 203d; Clothing Industry 204c; Coal 205d; Coast and Geodetic Survey, U.S. 207d; Coast Guard, U.S. 208b; Cobalt 209b; Cocoa 209d; Coconuts 209d; Coffee 210a; Coinage 210b; Coke 210d; Cold, Common 211a; Colombia 211d; Columbium 214a; C.E.D. 214a; Communism 215b; Community Chest 217b; Community Trusts 217c; Congregational Christian Churches 217d; Congress, U.S. 218a; C.I.O. 221c; Consumer Credit 222d; Contract Bridge 224a; Co-operative Movement 224d; Copper 225b; Copyright 225c; Corn 226c; Cotton 227d; Crime 229c; Cryolite 230d; Cuba 231d; Curaçao 232d; Curling 233a; Cycling 233a; Dairying 235d; Dams 235d; Dance 236d; Deafness 239c; Death Statistics 240a; Debt, National 241a; Decorations, Medals and Badges 243a; Democracy 244d; Democratic Party 245d; Denmark 248b; Dentistry 248d; Dermatology 249b; Diabetes 251a; Diamonds 252b; Diatomite 252b; Disabled American Veterans 252d; Disciples of Christ 255c; Dog Racing 256a; Dominican Republic 256d; Donations 257b; Drug Administration 258a; Dyestuffs 259a; Economics 260d; Ecuador 262a; Education 262c; Eggs 267c; Eire 269b; Elections 269d; Electrical Industries 272a; Electric Transportation 274d; Employment 279d; Entomology 283a; Epidemics 284c; Estonia 285c; Etching 285d; Ethical Culture Movement 287a; European Recovery Program 287d; Exchange Control 288d; Exploration 293a; Export-Import Bank 295c; Famines 296c; FCA 296c; Farmers Home Administration 297a; Fashion 299b; FBI 299c; FCC 300c; Federal Council of the Churches 301a; F.D.I.C. 301c; Federal Mediation and Conciliation Service 301d; FPC 302a; Federal Reserve System 302d; FSA 303c; FTC 304a; FWA 304c; Feldspar 305c; Fencing 305d; Fertilizers 306b; Finland 307d; Fires 308a; Fisheries 309a; Floods 310d; Flour 313c; Fluorspar 314c; Food Research 314d; Food Supply 315c; Football 318d; Foreign Investments in the U.S. 320d; Foreign Ministers' Conferences 322b; Forests 323d; Four-H Clubs 325c; France 327b; Friends, Religious Society of, 332a; Fruit 332d; Fuel Briquettes 334d; Fuller's Earth 335a; Furniture Industry 335a; Furs 335d; Gas, Natural 336d; Gem Stones 337b; Geography 339a; Geology 339c; Germany 343d; Girl Scouts 346a; Glass 346c; Gliding 346d; Gold 347a; Golf 348a; Government Departments and Bureaus 349a; Graphite 350c; Great Britain 351b; Greece 354b; Greenland 356d; Guatemala 358b; Gymnastics 358c; Gypsum 359c; Haiti 360a; Hand-ball 360c; Hay 361d; Helium 363a; Hemp 363a; Hogs 363d; Home Economics 364a; Hops 365c; Horse Racing 365c; Horses 366d; Horticulture 367b; Hospitals 368b; Hotels 369d; Housing 370b; Hungary 374b; Ice Cream 376b; Ice Hockey 376b; Iceland 376d; Ice Skating 377b; Illiteracy 379c; Immigration and Emigration 379d; Income and Product, U.S. 380d; Indians, American 387a; Industrial Health 387b; Infantile Paralysis 388c; Infant Mortality 389c; Information and Educational Exchange, Office of, 390a; Institutum Divi Thomae 390d; Insurance 391a; Inter-American Affairs, The Institute of, 392c; Inter-American Defense Conference 393c; Interior Decoration 395b; International Law 399a; International Monetary Fund 402a; International Trade 403a; ICC 406b; Intoxication, Alcoholic 406d; Iodine 407c; Iron 410b; Irrigation 412b; Italian Colonial Empire 413d; Italy 415a; Japan 417b; Jet Propulsion 419c; Jewish Religious Life 420d; Jewish Welfare Board 421b; Jute 422d; Juvenile Delinquency 422d; Kidnapping 424b; Korea 425a; Kyanite Minerals 426a; Labour Unions 426b; Lacrosse 428a; Lard 428a; Law 428d; Lead 435d; Leather 436b; Lend-Lease 437d; Leprosy 438c; Lettuce 439a; Liberia 439d; Libraries 440b; Lime 443c; Linen and Flax 443d; Liquors, Alcoholic 444c; Literary Prizes 446b; Lithium Minerals 447c; Lithuania 447c; Livestock 448a; Lumber 451b; Lynching 452d; Machinery 454b; Magnesium 456a; Magnesium Compounds 456b; Manchuria 458c; Manganese 459a; Maple Products 459d; Margarine 459d; Marine Biology 460a; Marine Corps 461c; Marriage and Divorce 462b; Mathematics 466a; Meat 466d; Medical Rehabilitation of Disabled Veterans 467d; Medicine 469c; Mercury 471d; Meteorology 472c; Methodist Church 477a; Mexico 478b; Mica 480c; Military Academy, U.S. 482c; Milk 482d; Mineral and Metal Production 484a; Missions, Foreign 486d; Molybdenum 488d; Monazite 489a; Mongolia 489b; Mormons 491b; Motion Pictures 492a; Motor-Boat Racing 498b; Motor Transportation 498b; Municipal Government 501a; Munitions 503a; Museums 506c; Music 508c; Narcotics 511a; National Association of Evangelicals 511c; N.E.A. 511d; National Geographic Society 512a; National Guard 512d; NLRB 513b; NMB 514a; National Parks 514c; Naval Academy, U.S. 515d; Navies of the World 516b; Negroes, American 519a; Nepal 520b; Netherlands Indies 522a; Newspapers and Magazines 525c; Nicaragua 533a; Nickel 533b; Nitrogen, Chemical 533d; Norway 537c; Nuts 539a; Oats 539c; Occupied Areas, Administration of, 555a; Oceanography 557d; Osteopathy 561a; Pacific Islands, British 562a; Pacific Islands under Trusteeship 562d; Pacifism 563b; Painting 563d; Paints 565b; Palestine 568b; Panamá 568d; Paper and Pulp Industry 569d; Parents and Teachers, National Congress of, 571a; Patents 573b; Peace Treaties 574b; Peanuts 576b; Peat 576c; Permanent Joint Board on Defense 577d; Petroleum 579b; Philately 581a; Philippines 581d; Philosophy 583b; Phosphates 584b; Photography 584b; Physics 587a; Pius XII 590d; Plague 591a; Plastics Industry 591d; Platinum 593d; Pneumonia 594c; Poland 596d; Police 597c; Political Parties, British 598d; Polo 599c; Popcorn 599d; Post Office 601a; Potash 602d; Potatoes 603a; Poultry 603d; Presbyterian Church 604b; OPA 605c; Prices 606a; Printing Office, U.S. Government 611a; Priorities 611b; Prisoners of War 611d; Prisons 612b; Psychology 614d; Public Health Engineering 617b; Public Health Services 618b; Public Opinion Surveys 620a; Public Utilities 620c; Pulitzer Prizes 622b; Pyrite 622d; Radio 623d; Radium 630a; Railroads 630b; Rationing 634b; Rayon 635c; RFC 636c; Red Cross 637d; Refugees 640a; Relief 641a; Religion 642b; Reparations 643b; Republican Party 644d; Rice 647a; Rivers 647c; Roads 648d; Roman Catholic Church 651a; Rowing 652a; Rubber 653b; Rumania 655b; Rural Electrification 656a; Rye 657c; Saar 657d; Salt 658d; Salvation Army 659c; Sand and Gravel 660a; San Marino 660d; Sculpture 661d; Secondary Metals 663a; Secret Service, U.S. 663b; SEC 663d; Seismology 664d; Selective Service 665a; Selenium 666b; Seventh-day Adventists 666c; Sheep 666d; Shipbuilding 667b; Shipping, Merchant Marine 669a; Shoe Industry 670b; Shows, Animal 671a; Siam 672b; Silk 672d; Silver 673b; Skiing 674a; Slate 674c; Smithsonian Institution 675a; Soap, Perfumery and Cosmetics 675d; Soccer 676a; Socialism 677c; Social Security 678a; Societies 680a; Sociology 683b; Sodality of Our Lady 684d; Sodium Carbonate 685a; Sodium Sulphate 685a; Softball 685a; Soil Erosion 685b; Sorghum 687b; Soybeans 690b; Spices 694b; Squash Racquets 695a; Standards, National Bureau of, 695b; Stocks and Bonds 697a; Stone 699d; Strategic Mineral Supplies 700a; Strikes 700c; Strontium Minerals 702a; Sugar 702a; Suicide Statistics 703b; Sulphur 703d; Sunday Schools 704a; Superphosphates 704b Supreme Court of the U.S. 704b; Surplus Property Disposal 706a; Sweden 707c; Swimming 709a; Syrup, Sorgo and Cane 711a; Talc 711d; Taxation 713b; Tea 718a; Telegraphy 718b; Telephone 719b; Television 720c; Tellurium 722b; TVA 723a; Tennis 723c; Textile Industry 725c; Theatre 726a; Tin 729a; Titanium 729b; Tobacco 729b; Tomatoes 730d; Town and Regional Planning 731d; Track and Field Sports 732b; Trap-shooting 733c; Trieste 734b; Trustee Territories 736b; Tuberculosis 737a; Tungsten 739a; Tunnels 739c; Turkey 741b; U.S.S.R. 742a; U.N. 746d; U.N.R.R.A. 753b; U.S. Investments Abroad 761a; Vanadium 772d; Vegetable Oils 774a; Vegetables 774c; Venereal Diseases 775d; Venezuela 777b; Vermiculite 778a; Veterans' Administration 778c; V.F.W. 780c; Veterans' Organizations 781a; Veterinary Medicine 781d; Vocational Rehabilitation, Office of, 785d; Wages 786c; War Crimes 788d; War Debts 790b; Wealth and Income, Distribution of, 793a; Wheat 796d; Wilderness Preservation 798b; Wildlife Conservation 799a; Wines 802a; Wool 803b; World Federation of Trade Unions 806b; Wrestling 814d; X-Ray 815c; Yachting 816d; Y.M.C.A. 818b; Y.W.C.A. 818d; Yugoslavia 820b; Zinc 820d; Zirconium 821b; Zoology 822c. *See* also various cities, states, territories and possessions.

U.S. British War Boards: *see* **British-U.S. Boards 46, 45, 44**

U.S.-Canadian War Committees: *see* **Permanent Joint Board of Defense 48, 47.** *See* **Canadian-U.S. War Committees 46, 45, 44**

U.S. Employment Service 47

U.S. Government Departments and Bureaus: *see* **Government Departments and Bureaus.** *See* also under specific name, *i.e.* **Coast Guard, U.S., etc.**

U.S. Housing Authority: *see* **Housing 48, 47, 46, 45.** *See* **National Housing Agency 44**

U.S. Investments Abroad
Income and Product, U.S. 382d

U.S. Mint: *see* **Coinage**

U.S. Office of Education: *see* **Education; Federal Security Agency**

United States of Indonesia: *see* **Netherlands Indies**

Universities and Colleges
C.E.D. 214d; Education 262c; FWA 304d; Forests 323d; Home Economics 364d; Tuberculosis 737a. *See* also individual colleges and universities and various sports and games.

Universal military training: *see* Military training

U.N.R.R.A.: *see* **United Nations Relief and Rehabilitation Administration**

Upshur, William Peterkin 44
Uraform 25b

Uranium 48, 47, 44. *See* **Atomic Bomb; Chemistry; Metallurgy 46**
Atomic Energy 82c; Germany 345a; Greenland 356d; Physics 587d

Urethane: Cancer 168c; Medicine 469a

Urology

Uruguay
Argentina 72c; Armies of the World 76c; Ecuador 262a; Exchange Control 289d; Inter-American Affairs, The Institute of, 392d; Inter-American Defense Conference 393c; International Monetary Fund 402b; International Trade 404a; Marriage and Divorce 463b; Roads and Highways 649b; Tariffs 712c; U.N. 746d; War Debts 790c; Wines 802a

USES: *see* **United States Employment Service 47**

U.S.O.: *see* **United Service Organizations 47, 46, 45, 44**

U.S.S.R.: *see* **Union of Soviet Socialist Republics**

Utah

Utilities, Public: *see* **Public Utilities**

Valentine, Lewis Joseph 47

Valéry, Paul 46

Vanadium
Mineral and Metal Production 483b

Vandegrift, Alexander A. 46, 45, 44

Vandenberg, Arthur H. 48, 47
Lilienthal, D. E. 443c

Van Loon, Hendrik Willem 45
Van Nuys, Frederick 45
Varnishes: *see* **Paints and Varnishes**
Vasconcellos Mottas, Carlo C. de 46
Vasilevsky, Alexander M. 44
Vassar College
Vatican City State
Roman Catholic Church 650d
Vatutin, Nikolai Fedorovich 45, 44
Veal: *see* **Meat**
V-E Day: *see* **Business Review; War Manpower Commission; War Production, U.S.; War Production Board 46**
Vegetable Oils and Animal Fats
ARA 23d; Agriculture 28d; Chemurgy 186d; Coconuts 210a; Cotton 228d; Food Supply 315d; International Trade 404b; Lard 428a; Margarine 459d; Paints and Varnishes 565b
Vegetables 48, 47, 46, 45
ARA 25b; Agriculture 26d; Canning Industry 169c; Chemurgy 187b; Entomology 284a; Horticulture 368a; International Trade 403c; Lettuce 439a; Potatoes 603a; Tomatoes 730d
Veidt, Conrad 44
Veiller, Bayard 44
Velez, Lupe 45
Velloso, Pedro Leão 47
Venereal Diseases
Chemotherapy 185d; Gynaecology and Obstetrics 359a; Heart 362b; Public Health Services 619a
Venezuela
American Citizens Abroad 44a; Argentina 72b; Armies of the World 76c; Birth Statistics 124a; Coinage 210b; Democracy 245d; Dominican Republic 256c; Exchange Control 289d; Inter-American Affairs, The Institute of, 392d; Inter-American Defense Conference 393c; International Monetary Fund 402b; International Trade 404c; Mineral and Metal Production 484a; Navies of the World 518b; Refugees 640a; Roads and Highways 649b; Socialism 677d; U.N. 746d; U.S. Investments Abroad 761c; War Debts 790c
Vermiculite
Vermont
Veterans: Agriculture 30a; American Citizens Abroad 43c; A.F. of L. 44d; American Legion 45d; A.V.C. 51a; AMVETS 51b; Armies of the World 75d; British Legion 142a; Budget, National 145b; Census Data 177a; Disabled American Veterans 252d; Education 262d; Farmers Home Administration 297b; FWA 304c; Housing 370d; Law 433a; Medical Rehabilitation of Disabled Veterans 467c; Philately 581c; RFC 636d; Red Cross 638a; Salvation Army 659c; Seeing Eye, The 664d; Selective Service 665b; Social Security 678b; Surplus Property Disposal 707a; Veterans' Administration 778c; Veterans' Organizations 781a. *See* also separate colleges and universities and various states
Veterans' Administration
Housing 371d; Libraries 441d; Medical Rehabilitation of Disabled Veterans 467d; Medicine 468b; Osteopathy 561a; X-Ray 815c
Veterans of Foreign Wars
Veterans' Organizations 48
American Legion 45d; A.V.C. 51a; AMVETS 51b; British Legion 142a; Disabled American Veterans 252d; V.F.W. 780c
Veterinary Medicine
Vichy 45, 44
Vickery, Howard Leroy 47
Victor Emmanuel III 47
Obituaries 553c
Victoria 47, 46, 45, 44
Victory Gardens: *see* **Horticulture 46, 45, 44**
Victory Tax: *see* **Taxation 45, 44**
Vidal y Barraquer, Francis of A. 44
Villeneuve, Jean-Marie Rodrique 553c
Vinson, Frederick M. 47, 46, 45, 44
Virginia
Virginia, University of
Virgin Islands
Virgin Islands, British: *see* **Leeward Islands 48, 47.** *See* **West Indies, British 46, 45, 44**
Viruses: *see* **Infantile Paralysis; Medicine; Pneumonia**
Gynaecology and Obstetrics 359b; Veterinary Medicine 782c
Vishinsky, Andrei Y. 48, 47
Dulles, J. F. 258d
Vital Statistics: *see* **Birth Statistics; Census Data, U.S.; Death Statistics; Infant Mortality; Marriage and Divorce; Suicide Statistics**
Vitamins
ARA 25b; Anaemia 51d; Arthritis 79a; Biochemistry 121a; Botany 128d; Bread 133d; Brewing and Beer 135b; Chemotherapy 186b; Chemurgy 186d; Dentistry 249a; Food Research 314d; Gynaecology and Obstetrics 358d; Intoxication, Alcoholic 407b; Public Health Engineering 618a; Tuberculosis 738b; X-Ray and Radiology 816c; Yeast 818a
V-J Day: *see* **Business Review; War Manpower Commission; War Production, U.S.; War Production Board 46, 45, 44**
V-Mail: *see* **Photography 46, 45, 44**
Vocational Education: *see* **Education**
Vocational Rehabilitation, Office of, 48, 47
Veterans' Administration 779a
Volpi di Misurata, Count G. 553d
Volstead, Andrew J. 553d
Von (in personal names): *see* under proper names
Voronov, Nikolai Nikolayevich 45
Voroshilov, Klementiy E. 44
WAC: *see* **Women's Army Corps 47, 46, 45, 44**
Wade, Lance 45
Waesche, Russell Randolph 47
WAFS: *see* **Women's Airforce Service Pilots 45, 44**
Wages and Hours
Business Review 154c; Employment 280b; Income and Product, U.S. 382a; Labour Unions 426d; Law 434a; Municipal Government 501b; Prices 607d; Strikes 701d. *See* also specific industries and various states
Wainwright, Jonathan M. 46
Wake Island: *see* **Pacific Islands, U.S. 47, 46, 45, 44**
Wales: *see* **Great Britain and Northern Ireland, United Kingdom of**
Walker, Frederic John 45
Walker, James J. 47
Wallace, Henry Agard
California 158b; Democratic Party 246b; Socialism 677d; Truman, H.S. 735b
Waller, Thomas W. 44
Walnuts: *see* **Nuts**
Chemurgy 186c
Walsh, David Ignatius 553d
Wang Ching-wei 45
War Assets Administration: *see* **Surplus Property Disposal 48, 47**
War Boards, British-U.S.: *see* **British-U.S. War Boards 46, 45, 44**
War Bonds 46, 45, 44
War Brides: *see* **Immigration and Emigration 48, 47**
War Chest: *see* **Community Chest; Relief 46, 45, 44**
War Committees, Joint (U.S. and Canada): *see* **Canadian-U.S. War Committees 46, 45, 44**
War Communications, Board of: *see* **Federal Communications Commission 47.** *See* **War Communications, Board of, 46, 45, 44**
War Contracts: *see* **Contract Terminations 47, 46, 45**
War Crimes 48, 47, 44. *See* **United Nations War Crimes Commission 46, 45**
Albania 37b; Canada 165b; Germany 343d; International Law 401a; Japan 417c; Occupied Areas, Administration of, 555b; Philippines 581d; Tokyo 730b
War Damage Corporation: *see* **Insurance 47, 46, 45, 44**
RFC 637c
War Damage Insurance: *see* **Insurance**
War Debts
War Department, U.S.: *see* **Government Departments and Bureaus 47, 46, 45, 44**
Warfare, Incendiary 46, 45, 44
War Food Administration 46, 45, 44
War Frauds: *see* **Federal Bureau of Investigation 46, 45, 44**
War Information, Office of, 46, 45, 44
War Labor Board, National 46, 45, 44
War Manpower Commission: *see* **U.S. Employment Service 47.** *See* **War Manpower Commission 46, 45, 44**
War Medicine: *see* **Medicine; Psychiatry 47, 46, 45, 44.** *See* **Nursing, War 46, 45.** *See* **Surgery 46, 45, 44**
War Mobilization and Reconversion, Office of 47, 46, 45, 44
War Prisoners: *see* **Prisoners of War**
War Production, U.S. 46, 45, 44
War Production Board: *see* **Civilian Production Administration; Priorities and Allocations 47.** *See* **War Production Board 46, 45, 44**
War Relief, U.S. 46, 45, 44
War Relocation Authority 47, 46, 45, 44
Warren, Earl 48
Republican Party 645b
Warren, Whitney 44
War Risk Insurance: *see* **Insurance**
War Savings Stamps: *see* **Post Office**
War Shipping Administration 47, 46, 45, 44
Washington
Washington, D.C.
Washington, University of (Seattle) 48, 47
Botany 129a; Rowing 652a
Washington University (St. Louis) 48, 47
Atomic Energy 83c
WASP: *see* **Women's Airforce Service Pilots 45, 44**
Water Supply: *see* **Public Health Engineering**
Wavell, Archibald P. 47, 46, 45, 44
Cambridge University 159c; Parliament, Houses of, 573a
WAVES: *see* **Women's Reserve of the Navy 47, 46, 45, 44**
Waymack, William Wesley 47
Wealth and Income, Distribution of
Income and Product, U.S. 381b
Weather: *see* **Meteorology**
Webb, Beatrice Potter 44
Webster, Leslie Tillotson 44
Wedemeyer, Albert Coady 48, 46, 45
China 196d
Wedgwood, Josiah Clement W. 44
Welles, Sumner 44
Wellesley College
Wells, Harry Gideon 44
Wells, Herbert George 47
Werfel, Franz 46
Wertheimer, Max 44
West Africa, British: *see* **British West Africa**
Western Australia 47, 46, 45, 44
Western Samoa: *see* **New Zealand; Pacific Islands under Trusteeship; Trustee Territories 48.** *See* **Mandates; Pacific Islands, Mandated 47, 46, 45, 44**
West Indies
American Citizens Abroad 44a; Smithsonian Institution 675a
West Indies, British: *see* **Bahamas; Barbados; Jamaica; Leeward Islands; Trinidad; Windward Islands 47.** *See* **West Indies, British 46, 45, 44**
West Virginia
Whaling: *see* **Fisheries**
Wheat
ARA 25a; Agriculture 25d; Alcohol, Industrial 38a; Brewing and Beer 134c; Chemurgy 187b; Flour 313c; Food Research 315a; Food Supply of the World 315d. *See* also various states, provinces and countries
Whisky 444d
Whitaker, John Thompson 47
White, Stewart Edward 47
White, William Allen 45
Whitehead, A.N.: American Literature 48d; Obituaries 554a
Whitney Museum: Art Exhibitions 78b; Museums 506c; Painting 565a; Sculpture 661d
Wholesale Trade: *see* **Business Review**
Wickard, Claude R. 46, 45, 44
Widener, Joseph Early 44
Wigmore, John Henry 44
Wilderness Preservation 48, 47
Wildlife Conservation
Entomology 284c; Fisheries 309a; Veterinary Medicine 782a
Wiley, Henry Ariosto 44
Wilhelmina
Wilkinson, Ellen Cicely 46
Obituaries 554b
Wilkinson, Theodore Stark 47
Williams, Edward Huntington 45
Willkie, Wendell L. 45, 44
Wilson, Charles Edward 45, 44
Wilson, Sir Henry M. 46, 45, 44
Wilson, James (Jimmy) 554b
Winant, John Gilbert 47, 45, 44
American Literature 47d; Obituaries 554b
Windward Islands 48, 47. *See* **West Indies, British 46, 45**
Wines
Black Markets 125a; Liquors, Alcoholic 445b. *See* also various countries
Wingate, Orde Charles 45
Wisconsin
Wisconsin, University of
Atomic Energy 83b; Basketball 114d; Boxing 130d; C.E.D. 214d; Rowing 652b
Withholding Tax: *see* **Taxation**
Witzleben, E. J. W. G. E. von 45
WLB: *see* **War Labor Board, National 46, 45, 44**
Woman's Christian Temperance Union, National: *see* **Societies and Associations 48, 47, 46.** *See* **Woman's Christian Temperance Union 45, 44**
Women's Airforce Service Pilots 45, 44
Women's Army Corps 47, 46, 45, 44
Women's Auxiliary Ferrying Squadron (WAFS): *see* **Women's Airforce Service Pilots 45, 44**
Women's Clubs, General Federation of: *see* **Societies and Associations 48, 47, 46.** *See* **Women's Clubs, General Federation of, 45, 44**
Women's Reserve of the Navy 47, 46, 45, 44
Women's Reserve of the U.S. Coast Guard Reserve: *see* **Coast Guard, U.S. 46, 45, 44**
Women's Reserve of the U.S. Marine Corps Reserve: *see* **Marine Corps 47, 46, 45, 44**
Wood, Sir Henry Joseph 45
Wood, Sir Kingsley 44
Wool
ARA 25a; Clothing Industry 204c; International Trade 404b; Sheep 667a; Textile Industry 725d
Woollcott, Alexander 44
Woolley, Mary Emma 554c
Woolsey, John Munro 46
Woolworth, Charles Sumner 554c
Words and Meanings, New
Work Projects Administration: *see* **Federal Works Agency 45, 44**
Works Agency, Federal: *see* **Federal Works Agency**
World Bank: *see* **International Bank for Reconstruction and Development; International Monetary Fund 48, 47.** *See* **United Nations Monetary and Financial Program 46**
World Charter of the United Nations: *see* **United Nations Conference on International Organization 46**
World Commerce: *see* **International Trade**
World Council of Churches: *see* **Christian Unity**
World Federation of Trade Unions 48, 47, 46
C.I.O. 221d; Labour Unions 427a
World Health Organizations: *see* **United Nations 48**
World War II
WPA (Works Projects Administration): *see* **Federal Works Agency 45, 44**
WPB (War Production Board): *see* **Priorities and Allocations 47.** *See* **War Production Board 46, 45, 44**
WRA: *see* **War Relocation Authority 47, 46, 45, 44**
Wrestling
Wright, Sir Almroth Edward 554d
Wright, Harold Bell 45
WSA: *see* **War Shipping Administration 47, 46, 45, 44**
Wyatt, Wilson Watkins 47
Wyoming
X-Ray and Radiology
Cancer 168c; Heart and Heart Diseases 362b; Mineralogy 485b; Photography 585d; Public Health Services 618c; Tuberculosis 737b
Yachting
Yale University
Accidents 19b; Anthropology 54d; Book-Collecting 126b; Chess 187d; Rowing 652a
Yalta Conference 46
Yamamoto, Isoroku 44
Yamashita, T. 46, 45, 44
Yaroslavsky, Emelyan 44
Yeast
Botany 128d; Brewing and Beer 135b
Yeats-Brown, Francis 45
Yemen: *see* **Arabia**
Yeremenko, Andrei I. 45, 44
Yersin, Alexandre Émile John 44
Yoshida, Shigeru 47
Yost, Fielding Harris 47
Youmans, Vincent 47
Young, Arthur Henry 44
Young Men's Christian Association
Young Womens Christian Association
Youth Administration, National: *see* **National Youth Administration 44**
Youth Movements 45, 44
Yugoslavia
Advertising 21a; Armies of the World 76c; Austria 88d; Baptist Church 108d; Bulgaria 150d; Chess 187d; Chile 194d; Communism 215a; Debt, National 242d; Dominican Republic 256d; European Recovery Program 288a; Foreign Investments in the U. S. 321d; Foreign Ministers' Conferences 322c; Germany 343d; Greece 354b; Hungary 375b; I.L.O. 398b; International Monetary Fund 402b; Mineral and Metal Production 484a; Music 507d; Navies of the World 518a; Peace Treaties 574a; Presbyterian Church 604d; Prisoners of War 611d; Railroads 633b; Refugees 640c; Roman Catholic Church 650d; Spices 694d; Tariffs 712d; Trieste 734a; U.N. 746d; U.N.R.R.A. 753b; Veterans' Organizations 781d; War Crimes 788d; War Debts 790b; Wines 802a
Yukon Territory
Zanzibar and Pemba: *see* **British East Africa**
Zeeman, Pieter 44
Zeitzler, Kurt 44
Zhukov, Georgi K. 46, 45, 44
Zimmerman, James Fulton 45
Zinc
Employment 280b; Mineral and Metal Production 483b; OPA 605c; Secondary Metals 663a
Zionism 47
Anti-Semitism 57c; Palestine 566d; Societies 683a
Zirconium
Zonta International 45
Zoology

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